TABLES

TABLE 2-1
GSIP FINAL SOW FIELD INVESTIGATIONS- SOIL SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION	SAMPLE INTERVAL (feet bgs)	INVESTIGATION	ANALYSES PERFORMED[2]				
			MET	HG	SVOC	VOC	BTEX
FORMER MISHAWUM LAKE BED (SEE SECTION 2.1.5.2, FINAL GSIP SOW GROUNDWATER AND SOIL INVESTIGATION)							
SO-01-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-01-SB-01	8 - 8.3	Roux[1] - 5/2001	M	HG	SV	V	
SO-02-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-02-SB-01	2.6 - 3	Roux[1] - 5/2001	M	HG	SV	V	
SO-03-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-03-SB-01	4.3 - 4.4	Roux[1] - 5/2001	M	HG	SV	V	
SO-04-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-05-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-05-SB-01	6 - 6.4	Roux[1] - 5/2001	M	HG	SV	V	
SO-06-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-06-SB-01	8 - 12	Roux[1] - 5/2001	M	HG	SV	V	
SO-07-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-08-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-08-SB-01	4 - 8	Roux[1] - 5/2001	M	HG	SV	V	
SO-09-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-09-SB-01	0 - 4	Roux[1] - 5/2001	M	HG	SV	V	
SO-10-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-10-SB-01	0 - 4	Roux[1] - 5/2001	M	HG	SV	V	
SO-11-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-11-SB-01	4 - 8	Roux[1] - 5/2001	M	HG	SV	V	
SO-12-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-13-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-13-SB-01	4 - 8	Roux[1] - 5/2001	M	HG	SV	V	
SO-14-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-14-SB-01	4 - 8	Roux[1] - 5/2001	M	HG	SV	V	
SO-15-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-16-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-16-SB-01	7 - 9	Roux[1] - 5/2001	M	HG	SV	V	
SO-17-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-17-SB-01	23.4 - 23.6	Roux[1] - 5/2001	M	HG	SV	V	
SO-18-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-19-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-19-SB-01	9 - 9.2	Roux[1] - 5/2001	M	HG	SV	V	
SO-20-SS-01	0 - 1	Roux[1] - 5/2001	M	HG	SV	V	
SO-20-SB-01	8.8 - 9.2	Roux[1] - 5/2001	M	HG	SV	V	
VINING PROPERTY (SEE SECTION 2.1.5.1, FINAL GSIP SOW SOURCE AREA INVESTIGATION)							
RX-1	10-12.5	Roux - 12/2002					BTEX
RX-2	2.5-5.0	Roux - 12/2002					BTEX
RX-3	0-2.5	Roux - 12/2002					BTEX
RX-4	12.5-15	Roux - 12/2002					BTEX

TABLE 2-1 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS- SOIL SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION	SAMPLE INTERVAL (feet bgs)	INVESTIGATION	ANALYSES PERFORMED[2]				
			MET	HG	SVOC	VOC	BTEX
VINING PROPERTY (SEE SECTION 2.1.5.1, FINAL GSIP SOW SOURCE AREA INVESTIGATION) (cont.)							
RX-5	7.5-10	Roux - 12/2002					BTEX
RX-6	12.5-15	Roux - 12/2002					BTEX
RX-7	2.5-5.0	Roux - 12/2002					BTEX
RX-8	7.5-10	Roux - 12/2002					BTEX
RX-9	7.5-10	Roux - 12/2002					BTEX
RX-10	0-2.5	Roux - 12/2002					BTEX
RX-11	7.5-10	Roux - 12/2002					BTEX
RX-12	7.5-10	Roux - 12/2002					BTEX
RX-13	5.0-7.5	Roux - 12/2002					BTEX
RX-14	0-2.5	Roux - 12/2002					BTEX
RX-15	7.5-10	Roux - 12/2002					BTEX
RX-16	7.5-10	Roux - 12/2002					BTEX
RX-17	5.0-7.5	Roux - 12/2002					BTEX
WEST HIDE PILE (SEE SECTION 2.1.5.1, FINAL GSIP SOW SOURCE AREA INVESTIGATION)							
RX-18	5.0-7.5	Roux - 12/2002					BTEX
RX-18	10-15	Roux - 12/2002					BTEX
RX-19	2.5-5.0	Roux - 12/2002					BTEX

Notes:
bgs = below ground surface
See Figure 2-3a for soil sample locations

1. The field investigation for the Final GSIP SOW Soil Investigation was conducted by Roux Associates. The data from the investigation were reviewed and validated by O'Brien & Gere Engineers, Inc. O'Brien & Gere is listed as the datasource for these samples on the analytical tables in Appendix 4A.

2. ANALYSES PERFORMED / ANALYTICAL METHODS USED IN INVESTIGATIONS:
MET (M) – TAL Metals, USEPA Method 6010B
HG (HG)- Mercury, USEPA Method 7471A
SVOCs (SV) - TCL Semivolatiles, USEPA Method 8270C
VOCs (V) - TCL Volatiles, USEPA Method 8260B (Moisture - EPA 160.3 modified)
BTEX - VOCs Analysis by SW-846 USEPA Method 8021B - reported Benzene and Toluene only

TABLE 2-2
GSIP FINAL SOW FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION IDENTIFIER[1]	SAMPLE DEPTH (ft bgs)	SAMPLE ELEVATION (ft-NGVD 88)[2]	ANALYSES PERFORMED[4]									
			AS	MET	HG	VOCS	SVOCS	TSS	GEO	DOC	FE,S	BT
FINAL GSIP SOW GROUNDWATER AND SOIL INVESTIGATION (SEE SECTION 2.1.5.2), ROUX, ARCADIS 9/2000 - 2/20023												
Buried Aquifer Conditions Transects (B)												
B1-01GW01	12.76	66	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B1-01GW02	14.64	64.12	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B1-01GW03NS	19.15	59.61	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B1-02GW03NS	25.5	68.73	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B1-04GW01*NS	10.2	71.78	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B1-04GW02NS	15.1	66.88				V[1]					FE,S[1]	
B1-04GW03NS	20	61.98	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B1-05GW01	4.25	59.62	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B1-05GW02	9.87	54	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B1-05GW03	16.9	46.97	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B2-01GW01	14.35	57.84	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B2-02GW01NS	11.7	58.2	AS[1,2]	M[1]	HG[1]			TS[1]			FE,S[1]	
B2-02GW02NS	17.1	52.8	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B2-02GW03	20.5	49.4	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B2-03GW01	9.4	57.47	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B2-03GW02	26	40.87	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B2-03GW03NS	43.25	23.62	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B2-04GW01	18	59.67	AS[1,2]	M[1]	HG[1]			TS[1]			FE,S[1]	
B2-04GW02	22	55.67	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B2-04GW03	28	49.67	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B2-05GW01	13.3	60.45	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B2-05GW02*	20.05	53.7	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B2-05GW03NS	24	49.75	AS[1,2]								FE,S[1]	
B2-05GW03*	30	43.75	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B2-06GW01NS	7.3	66.91	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B2-06GW02*	13	61.21	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B2-06GW03	15.6	58.61	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B3-01GW01	12.58	64.16	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B3-01GW02	13.57	63.17	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B3-01GW03	12.3	64.44	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B3-02GW01*	16.6	60.14	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B3-02GW03*	21.6	55.14	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B3-03GW01	8.81	59.89	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B3-03GW02	10.77	57.93	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B3-03-GW02R	12.1	56.6	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B3-03GW03*	17.44	51.26	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B3-04GW01NS	8.9	59.45	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B3-05GW01	7.44	60.19	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B3-06GW01	12.4	60.66				V[1]					FE,S[1]	
B3-06GW02	21.1	51.96				V[1]					FE,S[1]	
B3-06GW03	21.6	51.46				V[1]					FE,S[1]	

TABLE 2-2 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION IDENTIFIER[1]	SAMPLE DEPTH (ft bgs)	SAMPLE ELEVATION (ft-NGVD 88)[2]	ANALYSES PERFORMED[4]									
			AS	MET	HG	VOCS	SVOCS	TSS	GEO	DOC	FE,S	BT
Buried Aquifer Conditions Transects (B) (cont.)												
B4-01GW01	12.87	54.6	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B4-01GW02	14.06	53.41									FE,S[1]	
B4-01GW02R	24.56	42.91	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B4-01GW03	37.16	30.31	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B4-02GW01	13.2	50.87	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B4-02GW02	18.4	45.67	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B4-02GW03	27.7	36.37	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B4-03GW01	10.51	52.61	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B4-03GW02R	22.95	40.17	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B4-03GW03*	42.48	20.64	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B4-04GW01*	19.2	54.68	AS[1,2]	M[1,2]	HG[1,2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B4-04GW02*	28.9	44.98	AS[1,2]	M[1,2]	HG[1,2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B4-04GW03	36.5	37.38	AS[1,2]	M[1]	HG[1]			TS[1]			FE,S[1]	
B4-05GW01	19.28	54.14	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B4-05GW02	23.44	49.98	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B4-05GW03*	31.37	42.05	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B5-01GW01*	13.6	54.14	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B5-01GW02	17.93	49.81	AS[1,2]								FE,S[1]	
B5-01GW02R	24.98	42.76	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B5-01GW03	34.95	32.79	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B5-02GW01	13.3	58.02	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B5-02GW02*	20	51.32	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B5-02GW03*	28.8	42.52	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B5-03GW01NS	9.54	61.03	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B5-03GW02	22.02	48.55	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B5-03GW03*	34.63	35.94	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B5-04GW01	8.1	57.07	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B5-05GW01	3.2	61.28	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B5-06GW01NS	8.5	60.15	AS[1,2]								FE,S[1]	
B5-06GW01R	13.5	55.63	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B5-06GW02R	16.5	53.56	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B5-06GW03R	19	51.06	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B6-01GW01	16.9	55.57	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B6-01GW02R	29.5	42.97	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B6-01GW03	37.89	34.58	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B6-02GW01	14	55.23	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B6-02GW02	16.9	52.33	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B6-02GW03	22	47.23	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B6-03GW01*	14.74	54.96	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B6-03GW02*	21.25	48.45	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B6-03GW03*	31.15	38.55	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	

TABLE 2-2 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION IDENTIFIER[1]	SAMPLE DEPTH (ft bgs)	SAMPLE ELEVATION (ft-NGVD 88)[2]	ANALYSES PERFORMED[4]									
			AS	MET	HG	VOCS	SVOCS	TSS	GEO	DOC	FE,S	BT
Buried Aquifer Conditions Transects (B) (cont.)												
B6-04GW01NS	12	52.61	AS[1,2]	M[1]	HG[1,2]	V[1]		TS[1]			FE,S[1]	
B6-04GW02RNS	15.5	49.11	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B6-04GW03RNS	20.2	44.41	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B6-05GW01	10.98	53.85	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B6-05GW02	21.95	42.88	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B6-05GW03NS	38	26.83	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B7-01GW01*	8.83	51.74	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B7-01GW02	14.67	45.9	AS[1,2]								FE,S[1]	
B7-01GW02R	33.09	27.48	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B7-01GW03*	60.15	0.42	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B7-02GW01NS*	17.9	48.77	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B7-02GW02*	26.7	39.97	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B7-02GW03NS	36.9	29.77	AS[1,2]	M[1]	HG[1,2]	V[1,2]		TS[1]			FE,S[1]	
B7-03GW01*	13.37	51.73	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B7-03GW02R*	28.69	36.41	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B7-03GW03*	48.06	17.04	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B7-04GW01	11.5	51.75	AS[1,2]	M[1]	HG[1,2]	V[1,2]		TS[1]			FE,S[1]	
B7-04GW02	21	42.25	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B7-04GW03	31	32.25	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B7-05GW01	7.22	55.95	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B7-05GW02R	43.64	19.53	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B7-05GW03NS	74.24	-11.07	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B7-06GW01	10.1	51.64	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B7-06GW02	16.7	45.04	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B7-06GW03	22.8	38.94	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B7-07GW01	13	51.03	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B7-07GW02	22	42.03	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B7-07GW03	36.8	27.23	AS[1]	M[1]	HG[1]			TS[1]			FE,S[1]	
B8-01GW01*	18.91	47.51	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B8-01GW02	37.1	29.32									FE,S[1]	
B8-01GW02R	47.06	19.36	AS[1,2]	M[1]	HG[1,2]	V[1,2]		TS[1]			FE,S[1]	
B8-01GW03NS*	74.3	-7.88	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B8-02GW01	24.09	45.42	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-02GW02NS	43.4	26.11	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-02GW03NS	62.95	6.56	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-03GW01	19.95	47.99	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-03GW02	26.19	41.75									FE,S[1]	
B8-03GW02R	37.5	30.44	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-03GW02R	37.8	30.14	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-03GW03NS	52.59	15.35	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-04GW01	17.5	48.17	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-04GW02*	44.7	20.97	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	

TABLE 2-2 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION IDENTIFIER[1]	SAMPLE DEPTH (ft bgs)	SAMPLE ELEVATION (ft-NGVD 88)[2]	ANALYSES PERFORMED[4]									
			AS	MET	HG	VOCS	SVOCS	TSS	GEO	DOC	FE,S	BT
Buried Aquifer Conditions Transects (B) (cont.)												
B8-04GW03	62.2	3.47	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-05GW01	10.65	48.19	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-05GW02R	42.9	15.94	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-05GW03	75.48	-16.64	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-06GW01NS	12	52.75	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-06GW01RNS	12	52.75	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-06GW02R	29.5	35.25	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B8-06GW03R	53.3	11.45	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-01GW01*	8.61	47.38	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B9-01GW02	20.9	35.09	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-01GW03*	29.18	26.81	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B9-02GW01	6.7	47.79	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-02GW02*	22.3	32.19	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B9-02GW03	50	4.49	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-03GW01	8.38	45.58	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-03GW02RNS	27.89	26.07	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-03GW02	19.6	34.36										
B9-03GW03NS	48.64	5.32	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-04GW01*	6	54.95	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B9-04GW02	14.35	46.6	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-04GW03	27	33.95	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-05GW01*	8.4	44.96	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
B9-05GW02	23.2	30.16	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-05GW03	37.85	15.51	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-06GW01	7.4	46.72	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-06GW02	25.5	28.62	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
B9-06GW03	48.1	6.02	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
Western Side of Boston Edison Right of Way Transects (W)												
W5-01GW01	13.1	50.21	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-01GW02	21.13	42.18		M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-01GW02R	33.29	30.02	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-01GW03	51.33	11.98	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-02GW01	13.93	46.4	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-02GW02	32.26	28.07		M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-02GW02R	31	29.33	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-02GW03	45.7	14.63	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-03GW01*	7.79	48.26	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
W5-03GW02	23.6	32.45		M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-03GW02R	34.4	21.65	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
W5-03GW03*	48.5	7.55	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
W5-04GW01	13.24	44.2	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-04GW02	27.48	29.96	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	

TABLE 2-2 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION IDENTIFIER[1]	SAMPLE DEPTH (ft bgs)	SAMPLE ELEVATION (ft-NGVD 88)[2]	ANALYSES PERFORMED[4]									
			AS	MET	HG	VOCS	SVOCS	TSS	GEO	DOC	FE,S	BT
Western Side of Boston Edison Right of Way Transects (W) (cont.)												
W5-04GW03	55.7	1.74		M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-04GW03	54.1	3.34	AS[1,2]								FE,S[1]	
W5-05GW01	10.01	45.92	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-05GW02*	31.81	24.12		M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-05GW02R*	34.4	21.53	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
W5-05GW03*	48.09	7.84	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
W5-06GW01	9.84	46.84	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-06GW02	39	17.68	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-06GW02RNS	35.5	21.18	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-06GW03	58.65	-1.97	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-06GW03R	58.6	-1.92									FE,S[1]	
W5-07GW01	7.2	49.38	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-07GW02R	28.4	28.18	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-07GW03	51.25	5.33	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-08GW01NS*	7.6	56.69	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
W5-08GW02	24.9	39.39	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
W5-08GW03	44.1	20.19	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
Eastern Side of Boston Edison Right of Way Transects (E)												
E3-01GW01	7.81	49.12	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E3-01GW02	35.5	21.43	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E3-01GW03	34.7	22.23	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E3-02GW01	12	40.29	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E3-02GW02	25.7	26.59	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E3-02GW03*	9.33	42.96	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
E3-03GW01	8.55	56.03	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E3-03GW02	23.3	41.28	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E3-03GW03	20.65	43.93	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E3-03GW03R	34.5	30.08	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E4-01GW01NS	7.43	48.7	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E4-01GW02	17.35	38.78	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E4-01GW02R	8.8	47.33	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E4-01GW03	21.25	34.88	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E4-02GW01NS*	12.55	53.68	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
E4-02GW02	26.15	40.08	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E4-02GW03	38	28.23	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E4-03GW01NS*	6.41	57.1	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
E4-03GW02NS	17.4	46.11	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E4-03GW03*	24.22	39.29	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
E4-04GW01NS	6.65	47.25	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E4-04GW02	24	29.9	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
E4-04GW03	41.77	12.13	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	

TABLE 2-2 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION IDENTIFIER[1]	SAMPLE DEPTH (ft bgs)	SAMPLE ELEVATION (ft-NGVD 88)[2]	ANALYSES PERFORMED[4]									
			AS	MET	HG	VOCS	SVOCS	TSS	GEO	DOC	FE,S	BT
HBHA Pond Buried Valley transects (H) (samples at 10 ft depth intervals)												
H1-01GW01	17	47.45	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-01GW02	22	42.45	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-01GW03	31.6	32.85	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-02GW01	9.46	43.41	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-02GW02	17.19	35.68	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-03GW01	9.77	46.85	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-03GW02	17.9	38.72	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-03GW03	26.65	29.97	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-03GW04	33.1	23.52	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-03GW05NS	32.55	24.07	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-03GW05R	41.1	15.52	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-03GW06NS	34.1	22.52	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-04GW01	7.75	49.27	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-04GW02	17.65	39.37	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-04GW03	26.69	33.4	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-04GW04NS*	27	30.02	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
H1-04GW05NS	32	25.02	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-04GW05R*	46.5	10.52	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
H1-04GW06NS	32.4	24.62	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-05GW01	8	49.45	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-05GW02	17.4	40.05	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-06GW01	7.14	49.36	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-06GW02	15.22	41.28	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-07GW01	7.42	50.56	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-07GW02	15.56	42.42	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H1-07GW03	24.65	33.33	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-01GW01NS	13	46.08	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-01GW02NS	18.6	40.48	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-02GW01	3	52.06	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-02GW02*	15	40.06	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
H2-02GW03	24.4	30.66	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-02GW04	24	31.06	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-02GW05*	39.1	15.96	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
H2-03GW01	8.51	46.32	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-03GW02	16.47	38.36	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-03GW03	25	29.83	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-03GW04	35	19.83	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-03GW05	47.18	7.65	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-03GW06	55.97	-1.14	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-04GW01	7	48.89	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-04GW02	17	38.89	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	

TABLE 2-2 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION IDENTIFIER[1]	SAMPLE DEPTH (ft bgs)	SAMPLE ELEVATION (ft-NGVD 88)[2]	ANALYSES PERFORMED[4]									
			AS	MET	HG	VOCS	SVOCS	TSS	GEO	DOC	FE,S	BT
HBHA Pond Buried Valley transects (H) (samples at 10 ft depth intervals) (cont.)												
H2-04GW03	25.31	30.58	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-04GW04	36.15	19.74	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-04GW05*	42.89	13	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
H2-04GW06*	53.2	2.69	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
H2-04GW07	66.82	-10.93	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-05GW01	8	48.12	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-05GW02	14.99	41.13	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-05GW03	27	29.12	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-05GW04	37	19.12	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-05GW05	47	9.12	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-05GW06	55.72	0.4	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-05GW07	56.15	-0.03	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-06GW01	6.11	45.35	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-06GW02	15.23	36.23	AS[1,2]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-06GW03	24.06	27.4	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-06GW04	34.97	16.49	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-06GW05	41.25	10.21	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-06GW06	54.84	-3.38	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
H2-06GW07	44.25	7.21	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
Former Mishawum Lake Transects (L) (samples at 10 ft depth intervals)												
L2-01GW01	9.5	45.7	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-01GW02	20	35.2	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-01GW03	29.14	26.06	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-01GW04	39.52	15.68	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-01GW05	48.6	6.6	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-01GW06	60.2	-5	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-01GW07	70.8	-15.6	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-02GW01	12	47.17	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-02GW02	22.55	36.62	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-02GW03	32	27.17	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-02GW04NS	42.65	15.52	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-02GW05	50.39	8.78	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-03GW01NS*	14.33	46.64	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
L2-03GW02NS*	15.65	45.32	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
L2-03GW03	33.3	27.67	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-03GW04	39.05	21.92	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-04GW01NS	11.9	44.51	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-04GW02	23.05	33.36	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-04GW03	31.4	25.01	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-05GW01*	11.45	46.92	AS[1,2]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
L2-05GW02	22.95	35.42	AS[1]	M[1]	HG[1]	V[1]		TS[1]			FE,S[1]	
L2-05GW03*	32.55	25.82	AS[1]	M[1,2]	HG[1,2]	V[1,2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	

TABLE 2-2 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION IDENTIFIER[1]	SAMPLE DEPTH (ft bgs)	SAMPLE ELEVATION (ft-NGVD 88)[2]	ANALYSES PERFORMED[4]									
			AS	MET	HG	VOCS	SVOCS	TSS	GEO	DOC	FE,S	BT
Potable Drinking Water Transects (P) (samples at 10 ft depth intervals)												
P1-01GW01	19.2	45.62	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-01GW01R	22.5	42.35	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-01GW02	28.5	36.32	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-01GW02R	33.5	31.35	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-01GW03	38.1	26.72				V[2]					FE,S[1]	
P1-01GW03NS	38.1	26.72	AS[1]	M[2]	HG[2]		SV[1]		G[1]		FE,S[1]	
P1-01GW03R	40.8	24.02	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-01GW04R	51.4	13.45	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-01GW05R	61.5	3.35	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-01GW06NS	70	-5.15	AS[1,2]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-01GW06R2NS	71.9	-7.05	AS[1]	M[2]				TS[1]			FE,S[1]	
P1-01GW07NS	80.5	-15.65	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-01GW08NS	91.5	-26.65	AS[1,2]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-01GW08R2NS	91.2	-26.35	AS[1]	M[2]				TS[1]			FE,S[1]	
P1-02GW01	21	43.74	AS[1,2]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-02GW02	32	24.22	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-02GW03	42.7	13.52	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-02GW04	50.5	5.72	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-02GW05NS	61	-4.78	AS[1,2]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-02GW05R2NS	72.25	-16.03	AS[1]	M[2]				TS[1]			FE,S[1]	
P1-02GW06NS	71	-14.78	AS[1,2]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-02GW06R2NS	82	-25.78	AS[1]	M[2]				TS[1]			FE,S[1]	
P1-02GW07NS	78.5	-22.28	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-03GW01	11.9	46.8	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-03GW02	18.5	40.2	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-03GW03	29.5	29.2	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-03GW04	40	18.7	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-03GW05NS	48.9	9.8	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-03GW06	61.2	-2.5	AS[1,2]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-03GW06NS	59	-0.3	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-04GW01	13	54.84	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-04GW02	23	44.84	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-04GW03	31.9	35.94	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-04GW04	44	23.84	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-05GW01	13.9	39.76	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-05GW02	23	30.66	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-05GW03	29	24.66	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-05GW04NS	41.6	12.06	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-05GW05	55	-1.34	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-06GW01	13	48.12	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-06GW02	20.5	40.62	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-06GW03	30	31.12	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	

TABLE 2-2 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION IDENTIFIER[1]	SAMPLE DEPTH (ft bgs)	SAMPLE ELEVATION (ft-NGVD 88)[2]	ANALYSES PERFORMED[4]									
			AS	MET	HG	VOCS	SVOCS	TSS	GEO	DOC	FE,S	BT
Potable Drinking Water Transects (P) (samples at 10 ft depth intervals) (cont.)												
P1-06GW04	40	21.12	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-07GW01	13	49.82	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-07GW02	21	41.82	AS[1]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
P1-07GW03NS	29.5	33.32	AS[1,2]	M[2]	HG[2]	V[2]	SV[1]	TS[1]	G[1]	DC[1]	FE,S[1]	
FINAL GSIP SOW SOURCE AREA INVESTIGATION (SEE SECTION 2.1.5.1), ROUX 8/01 - 12/02												
Vining Property												
RX-1S	15	57.0										BT[1]
RX-1D	30	42.0										BT[1]
RX-2S	15	57.0										BT[1]
RX-2D	33	39.0										BT[1]
RX-3S	15	57.0										BT[1]
RX-3D	23	48.0										BT[1]
RX-4S	15	57.1										BT[1]
RX-4D	29	43.1										BT[1]
RX-5S	15	57.1										BT[1]
RX-5D	29	43.1										BT[1]
RX-6S	15	57.1										BT[1]
RX-6D	29	43.1										BT[1]
RX-7S	15	54.8										BT[1]
RX-7D	31	41.2										BT[1]
RX-8S	15	55.5										BT[1]
RX-8D	31	39.5										BT[1]
RX-9S	15	57.2										BT[1]
RX-9D	33	39.2										BT[1]
RX-10S	15	56.2										BT[1]
RX-10D	25	46.2										BT[1]
RX-11S	15	55.5										BT[1]
RX-11D	31	39.5										BT[1]
RX-12S	15	56.9										BT[1]
RX-12D	31	40.9										BT[1]
RX-13S	15	57.0										BT[1]
RX-13D	29	44.0										BT[1]
RX-14S	15	57.7										BT[1]
RX-14D	29	42.7										BT[1]
RX-15S	15	56.4										BT[1]
RX-15D	29	42.4										BT[1]
RX-16S	15	58.2										BT[1]
RX-16D	29	44.2										BT[1]
RX-17S	15	56.0										BT[1]
RX-17D	33	38.0										BT[1]

TABLE 2-2 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION IDENTIFIER[1]	SAMPLE DEPTH (ft bgs)	SAMPLE ELEVATION (ft-NGVD 88)[2]	ANALYSES PERFORMED[4]									
			AS	MET	HG	VOCS	SVOCS	TSS	GEO	DOC	FE,S	BT
West Hide Pile												
RX-18S	13	66.5										BT[1]
RX-18I	20	60.0										BT[1]
RX-18D	30	49.5										BT[1]
RX-19S	13	71.0										BT[1]
RX-19I	22	64.5										BT[1]
RX-19D	30	59.5										BT[1]

Notes:
See Figure 2-4 for groundwater sample locations
* Groundwater samples were collected from all locations during the plume delineation phase (September 2000 - May 2001). Locations marked with an asterisk were also sampled during the geochemistry investigation (July-August 2001).
1. Sample Location nomenclature for Final GSIP SOW Groundwater Investigation:
transect - (well number)GW(depth interval)(suffix) (i.e. B4-03GW02 = transect B4, well number 3, depth interval 2)
suffix codes: R = re-sampled because original intermediate sample location missed midpoint of aquifer by more than 10 percent
NS = field parameters not stabilized prior to sampling (primarily due to excessive silt or very low flow)
2. Sample elevations for most samples were calculated based on surveyed ground surface elevation and measurements stated on the sample log sheet for sample depth and height of well casing above ground surface. Ground surface elevations were converted from NGVD 29 to NGVD 88 by use of CORPSCON Version 5.11.08 .
Sample depths and elevations shown are for plume delineation phase samples. Depths and elevations of plume geochemistry samples may be slightly different.
In cases where sample depth measurement was missing from sample log sheet, sample was assumed to be collected 1 foot above bottom of well (total depth).
In cases where well casing height measurement was missing from sample log sheet, casing height was assumed to be 1 foot above ground surface.
Elevations of RX wells (from Final GSIP SOW Source Area Investigation) were calculated using estimated ground surface elevations.
3. The field investigation for the Final GSIP SOW Groundwater Investigation was conducted by Roux Associates and Arcadis Geraghty and Miller, Inc.
The data from the investigation were reviewed and validated by O'Brien & Gere Engineers, Inc. O'Brien & Gere is listed as the datasource for these samples on the analytical tables in Appendix 4B.
4. Analyses Performed/Analytical Methods Used In Investigation:
AS (AS) - arsenic
AS[1]. (Both Phases) total and dissolved As - Brooks Rand Method BR0020
AS[2]. (Both Phases) arsenic speciation - Brooks Rand Method BR0021 (only if total AS > 50 ug/l)
MET (M) - total and dissolved metals
M[1]. (Plume Delin Phase) chromium, iron, lead by USEPA SW846 Method 6010B
M[2]. (Plume Geochem Phase) TAL metals by USEPA SW846 Method 6010B
HG (HG) - mercury
HG[1]. (Plume Delin Phase) mercury by USEPA SW846 Method 7470A
HG[2]. (Plume Geochem Phase) mercury by USEPA SW846 Method 7441
VOCS (V) - volatile organic compounds (EPA CLP OLC02.1V/OLC03.2V)
V[1]. (Plume Delin Phase) benzene and toluene by USEPA SW846 Method 8260B
V[2]. (Plume Geochem Phase) TCL VOCs by USEPA SW846 Method 8260B
V[3].(Final GSIP Scope of Work Source Area Investigation) TCL VOCs by USEPA SW846 Method 8260B
SVOCS (SV) - semi-volatile organic compounds (EPA CLP OLC02.1S/OLC03.2S)
SV[1]. (Plume Geochem Phase) TCL SVOCs by USEPA SW846 Method 8270B
TSS (TS) - total suspended solids
TS[1]. (Both Phases) total suspended solids by USEPA Method 160.2
GEO (G) - geochemistry parameters
G[1]. (Plume Geochem Phase) nitrite, nitrate, sulfate, phosphate, ammonia by USEPA Method 300; carbonate and bicarbonate by USEPA Method 2320B
DOC (DC) - dissolved organic carbon
DC[1]. (Plume Geochem Phase) dissolved organic carbon by USEPA Method 415.1 (modified)
FE,S - ferrous iron and sulfides
FE,S[1] (Both Phases)- ferrous iron and sulfide field analysis using Hach™ test kits
BT (BT) - Benzene and Toluene
BT[1] - Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) Analysis by SW-846 USEPA Method 8021B (only reported Benzene and Toluene)

TABLE 2-3
GSIP FINAL SOW FIELD INVESTIGATION - SURFACE WATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

FINAL GSIP SOW DOWNGRADIENT TRANSPORT INVESTIGATION (SEE SECTION 2.1.5.4), ROUX, 2000 - 2001

STATION LOCATION	SAMPLIING EVENT TYPE AND DATE	SUMMER BASEFLOW 8/28-29/00	FALL BASEFLOW 10/4-5/00	SPRING BASEFLOW 4/4-5/01	SUMMER STORM 1 9/2/2000	SUMMER STORM 2 9/15/2000	FALL STORM 1 10/5-6/00	FALL STORM 2 10/18-19/00	POST-TURNOVER 12/17-18/00	SPRING STORM 1 3/21-22/01	SPRING STORM 2A 3/30/01	SPRING STORM 2B 5/22-24/01	
	STATION ID[1]	ANALYSES PERFORMED[3]											
Halls Brook discharge into HBHA pond	SW-1-IP	T,M[2],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1]	S[1]	
Atlantic Avenue Drainway discharge into to HBHA pond	SW-2-IP	--	--	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	--	T,M[1],S[1]	T,M[1]	S[1]	
Unnamed tributary draining BECO ROW 9 and discharging into HBHA pond	SW-3-IP	--	--	--	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	--	T,M[1],S[1]	T,M[1] *	S[1]	
HBHA pond outlet	SW-4-IP	T,M[2],S[2]	T,M[2],S[2]	T,M[2],S[2]	--	T,M[2],S[2] a	T,M[2],S[2]	T,M[2],S[2]	--	--	T,M[2]	S[2] b	
Stormwater culvert draining area west of railroad tracks, discharging into northern HBHA wetland	SW-5-IP	--	--	--	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	--	T,M[1],S[1]	T,M[1] *	S[1]	
Stormwater culvert draining area west of railroad tracks, discharging into central HBHA wetland	SW-6-IP	--	--	--	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	--	T,M[1] **	T,M[1]	--	
Stormwater culvert draining area west of railroad tracks, discharging into southern HBHA wetland	SW-7-IP	--	--	--	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	--	T,M[1],S[1]	T,M[1]	S[1]	
Stormwater culvert draining area west of railroad tracks, discharging into HBHA wetland (southern end pond)	SW-8-IP	--	--	--	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	T,M[1],S[1]	--	--	--	S[1]	
HBHA wetlands outlet at Mishawum Road	SW-9-IP	T,M[2],S[2]	T,M[2],S[2]	T,M[2],S[2]	T,M[2],S[2]	--	T,M[2],S[2]	T,M[2],S[2]	T,M[2],S[2]	T,M[2],S[2] c	T,M[2]	T,M[2],S[2]	

FINAL GSIP SOW SURFACE WATER MONITORING INVESTIGATION (SEE SECTION 2.1.5.3), ARCADIS, SEPTEMBER 2000 - MAY 2001

STATION LOCATION	SAMPLIING EVENT TYPE AND DATE	ALL SAMPLING EVENTS BASEFLOW CONDITIONS											
		9/18/00	10/16/00	11/9/2000	12/15/2000	1/16/2001	2/13/2001	3/29/2001	4/17/2001	5/31/2001	6/26/2001	7/31/2001	8/21/2001
	STATION ID[2]	ANALYSES PERFORMED[1]											
HBHA pond outlet	HBHA-1 (= SW-4-IP)	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX
HBHA wetlands outlet at Mishawum Road	HBHA-2 (= SW-9-IP)	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX	M[3],HG, T,BTEX

FINAL GSIP SOW ECOLOGICAL INVESTIGATION (SEE SECTION 2.1.5.5), MENZIE CURA, June 1999

Northern RI Study Area and Reference Stations	MC-01 through MC-13	**SEE SAMPLING SUMMARY ON TABLE 2-4**

TABLE 2-3 (cont.)
GSIP FINAL SOW FIELD INVESTIGATION - SURFACE WATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Notes:

See Figure 2-5a for surface water sample locations

1. "IP" suffix added to sample location identifiers to differentiate them from similarly named stations from other investigations. Base flow samples collected manually, storm event samples collected by automated samplers.

2. HBHA-1 samples collected at same location as Roux sample station SW-4-IP. HBHA-2 samples collected at same location as Roux sample station SW-9-IP.

3. ANALYSES PERFORMED/ANALYTICAL METHODS USED IN INVESTIGATIONS:

T - total suspended solids method = USEPA 160.2
M^1 - selected metals, method = USEPA SW846/6010B/7470A
M^2 - total TAL metals and dissolved arsenic, method = USEPA SW846/6010B/7470A
M^3 - selected total and dissolved metals, method = USEPA SW846/6010B
HG - total and dissolved mercury, method USEPA SW846/7471A
S^1 - selected SVOCs, method =USEPA 3510C/8270C
S^2 - TCL SVOCs + cyclohexanone, method = USEPA 3510C/8270C
BTEX - Method SW846/8021B for GC Organics Analysis

* - no dissolved arsenic sample collected due to limited volume
** - no SVOC sample collected due to limited volume
-- no sample collected
a - two time-weighted samples collected (rising limb and falling limb of storm hydrograph)
b - sample was time-weighted
c - two composite samples collected to capture long falling limb (second only analyzed for TSS and M^1 total metals)

TABLE 2-4
GSIP FINAL SOW FIELD INVESTIGATIONS - ECOLOGICAL SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION[1]	MATRIX SAMPLED[2]	ANALYSES PERFORMED[3]														
			MET	METD	AS	VOCS	SVOCs	PAH	PEST	PCBS	TSS	TOC	AVS/ SEM	GS	SEDIMENT TOXICITY BIOSSAY	BENTHIC COMMUNITY ANALYSIS	INDIVIDUAL FISH DATA
FINAL GSIP SOW ECOLOGICAL INVESTIGATION (SEE SECTION 2.1.5.5), MENZIE CURA, June 2000 - See Figure 2-6																	
Aberjona River - East of Acadia Street (Reference Location)	MC-01	Surface Water	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate (AC)[a]	M[1]					PA								CA	
South Pond (Reference Location)	MC-02	Surface Water	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate (AC, O)[a]	M[1]					PA								CA	
		Vegetation (EV, SAV)[d] (pot,cer)[e]	M[1]														
	MC-SP	Fish (PF)[b]	M[1] (F,C,L)[c]		AS[2] (F)[c]												FD
		Fish (FF)[b]	M[1] (W)[c]														FD
Philips Pond (Reference Location)	MC-03	Surface Water (2 depths)	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate (AC, O)[a]	M[1]					PA								CA	
		Vegetation (EV, SAV)[d] (wat)[e]	M[1]														
	MC-PP	Fish (PF, BF)[b]	M[1] (F,C,L)[c]		AS[2] (F)[c]												FD
		Fish (FF)[b]	M[1] (W)[c]														FD
Halls Brook upstream of site (Reference Location)	MC-04	Surface Water	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate (AC)[a]	M[1]					PA								CA	

TABLE 2-4 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - ECOLOGICAL SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION[1]	MATRIX SAMPLED[2]	ANALYSES PERFORMED[3]														
			MET	METD	AS	VOCS	SVOCs	PAH	PEST	PCBS	TSS	TOC	AVS/ SEM	GS	SEDIMENT TOXICITY BIOSSAY	BENTHIC COMMUNITY ANALYSIS	INDIVIDUAL FISH DATA
HBHA Pond - deep station at northern area of pond	MC-05	Surface Water (2 depths)	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate	--					--								CA	
	MC-HBHAP	Fish (PF, BF)[b]	M[1] (F,C,L)[c]		AS[2] (F)[c]												FD
		Fish (FF)[b]	M[1] (W)[c]														FD
HBHA Pond - west side of pond, below Hall's Brook	MC-06	Surface Water	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate (C)[a]	M[1]					PA								CA	
		Vegetation (SAV)[d] (pla)[e]	M[1]														
HBHA Pond - deep station at southern end of pond	MC-07	Surface Water (2 depths)	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate (AC)[a]	M[1]					PA								CA	
HBHA wetland stream segment	MC-08	Surface Water	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate (AC)[a]	M[1]					PA								CA	
		Vegetation (EV, SAV)[d] (lil,pla)[e]	M[1]														

TABLE 2-4 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - ECOLOGICAL SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION[1]	MATRIX SAMPLED[2]	ANALYSES PERFORMED[3]														
			MET	METD	AS	VOCS	SVOCs	PAH	PEST	PCBS	TSS	TOC	AVS/ SEM	GS	SEDIMENT TOXICITY BIOSSAY	BENTHIC COMMUNITY ANALYSIS	INDIVIDUAL FISH DATA
HBHA Wetland Pond 1	MC-09	Surface Water	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate (AC)[a]	M[1]					PA								CA	
		Vegetation (EV, SAV)[d] (lil)[e]	M[1]														
HBHA wetland stream segment	MC-10	Surface Water	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate	--					--								CA	
HBHA Wetland Pond 3	MC-11	Surface Water	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate (C)[a]	M[1]					PA								CA	
		Vegetation (EV)[d,e]	M[1]														
	HBHA3	Fish (PF, BF)[b]	M[1] (F,C,L)[c]		AS[2] (F)[c]												FD
		Fish (FF)[b]	M[1] (W)[c]														FD
Halls Brook upstream of site and MC-04 (Reference Location)	MC-12	Surface Water	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate	--					--								CA	
Aberjona River downstream of HBHA	MC-13	Surface Water	M[1]	MD	AS[1]	V	SV		P	PC	TS	T[1]					
		Sediment	M[2]			V	SV		P	PC		T[2]	A/S	GS	STB		
		Benthic Macroinvertebrate (AC)[a]	M[1]					PA								CA	

TABLE 2-4 (cont.)
GSIP FINAL SOW FIELD INVESTIGATIONS - ECOLOGICAL SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Notes:

1. Station identifiers were changed to minimize confusion resulting from similar station names used in multiple investigations: the prefix "MC" (for Menzie-Cura) has been added to the station numbers.
2. Sample Matrix Details:

Surface water:
- One mid-depth sample collected at all stations where water depth < 3 feet (most stations).
- Two samples collected at locations where water depth > 3 feet (stations 3, 5, 7):
  - 1-foot below water surface and 1-foot above bottom.

Benthic macroinvertebrates:
- a. Benthic macroinvertebrates analyzed
  - AC - amphipods and chironomid larvae
  - C - chironomid larvae
  - O - odonate nymphs

Fish:
- Fish were collected from the general location (i.e. the pond) represented by the station
- b. Fish types analyzed - trophic level (representative species collected)
  - PF - Predatory Fish (Largemouth Bass)
  - BF - Bottom Feeding Fish (White Sucker & Brown Bullhead)
  - FF - Forage Fish (Pumpkin Seed Sunfish)
- c. Fish parts analyzed
  - F - Fillet
  - C - Carcass
  - L - Liver
  - W - Wholebody

Sediment:
- Sediment samples collected for chemical analyses and toxicity bioassays were collected from the 0 to 5-cm depth interval.

Vegetation:
- d. Vegetation analyzed - type - part analyzed
  - EV - Emergent Vegetation - root (R) and lower stem (S) analyzed separately
  - SAV - Submerged Aquatic Vegetation - root (R) and upper plant (S) analyzed separately
- e. Representative species collected (by type)

EV	cattail (*Typha latifolia*) collected as representative emergent species at all locations
SAV	only the indicated submerged species collected for analysis at each location
pot	pondweed *(Potamogeton sp.)*
cer	coontail *(Ceratophyllum sp.)*
wat	water chestnut *(Trapa natans sp.)*
lil	yellow water lily *(Nymphaea sp.)*
pla	unidentified grass-like plant (referred to as plant C)

3. ANALYSES PERFORMED / ANALYTICAL METHODS NOTES

MET (M) -total metals
- M^1 – total metals, except arsenic - EPA SW-846 Methods 6010B and 7000 Series
- M^2 – total metals, EPA SW-846 Methods 6010B and 7000 Series

METD (MD) - dissolved (filtered) metals, except arsenic - EPA SW-846 6010B and 7000 Series

AS (AS) - arsenic speciation
- AS^1 - arsenic speciation, arsenic III & V - by laboratory modified EPA Method 1632, Frontier Geosciences SOP - Determination of Aresenic Speciation in Water by Hydride Generation Cryogenic Trapping Gas
- AS^2 - arsenic organic / inorganic speciation - EPA Method 1632 and laboratory SOP - Frontier Geosciences SOP - Leaching of Inorganic Arsenic Species from Tissue Samples; Chromatography Atomic Absorption Spectrophotomerty FGS022

VOCs (V) - volatile organic compounds - EPA SW-846 Method 8260B

SVOCs (SV) – semi-volatile organic compounds - EPA SW-846 Method 8270C

PAH (PA) - polynuclear aromatic hydrocarbons - EPA SW-846 Method 8270C SIM

PEST (P) – pesticides - EPA SW-846 Method 8081A

PCBS (PC) - polychlorinated biphenyls - EPA SW-846 Method 8082

TSS (TS) - total suspended solids - EPA SW-846 Method 160.2

-- sample not analyzed due to insufficient sample volume

TOC (T) - total organic carbon
- T^1- total organic carbon - EPA SW-846 Method 9060 (modified) or 415.1
- T^2- total organic carbon - EPA SW-846 Method 9060 (modified)

AVS/SEM (A/S) - Acid Volatile Sulfides/Simultaneously Extracted Metals - EPA Draft method

GS - grain size -ASTM Method D-422

Sediment Toxicity Bioassy (STB) - according to Aquatec Biological Science SOPs:
- Acute toxicity tests: performed on samples from all stations
  - Amphipod, *Hyallela azteca*, 10-day Surivial and growth toxicity test for Sediments; EPA Method 100.1.
  - Midge, *Chironomus tentans*, 10-day Survival and Growth Toxicity Test for Sediments; EPA Method 100.2
- Chronic toxicity tests: performed on samples from all stations except 5 and 7, where acute toxicity demonstrated
  - Amphipod, *Hyallela azteca*, 42-day Survival, Growth, and Reproduction Toxcity Test for Sediments
  - Midge, *Chironomus tentans*, Chronic Whole Sediment Toxicity Test for Sediments; draft EPA Method 100.5

Benthic Community Analysis (CA) - Method for Laboratory Sorting and Identification of Macroinvertebrate Samples based on the U.S.EPA document "Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthic Macroinvertebrates and Fish," and "Standard Methods for the Examination of Water and Wastewater" 19th Edition by Andrew D. Eaton, Lenore S. Clesceri, and Arnold E. Greenberg

Individual Fish Data (FD) - according to US FISH & Wildlife Sevice SOP Fish Capture Protocols

TABLE 2-5
MSGRP FIELD INVESTIGATIONS - SEDIMENT SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION[1]	LOCATIONS SAMPLED AT STATION[1]	INVESTIGATION[2]	ANALYSES PERFORMED[3]												
				MET	VOC	SVOC	PCB	PEST/ PCB	AVS/ SEM	TOC	GS	CYA	CR VI	SULF	TOX	CA
SEE SECTIONS: 2.2.1.1 (FW), 2.2.1.2 (M&E), 2.2.2.1 (TtNUS), 2.2.3.1 (EPA NERL)																
REACH 0 - INDUSTRI-PLEX STUDY AREA - See Figure 2-7a																
Halls Brook Holding Area -north, along shoreline of pond	HB01	01 through 10	TtNUS - 11/2001	M[3]									CR[1,2] (02,08)	S[1] (02,08)		
Halls Brook Holding Area -middle, along shoreline of wetland	HB02	01 through 10	TtNUS - 11/2001	M[3]									CR[1,2] (03,07)	S[1] (03,07)		
Halls Brook Holding Area -middle, in wetlands on east side	HB02	11 through 17	EPA NERL - 7/2002	M[3]						T[3]						
Halls Brook Holding Area -south, along shoreline of wetland	HB03	01 through 10	TtNUS - 11/2001	M[3]									CR[1,2] (01,05)	S[1] (01,05)		
Halls Brook Holding Area -south, in wetland on west side	HB03	11 through 17	EPA NERL - 7/2002	M[3]						T[3]						
Halls Brook Holding Area wetlands	SC01	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
Halls Brook Holding Area wetlands	SC02	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
Halls Brook Holding Area wetlands	SC03	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
Halls Brook Holding Area wetlands	SC04	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
East Drainage Ditch	ED	01 through 10	TtNUS - 2/2001	M[3]									CR[1] (03,09)	S[1] (03,09)		
		03	TtNUS - 6/2001	M[3]									CR[1]	S[1]		
Boston Edison Right-of-Way - drainage channels	BE	01 through 03	EPA NERL - 9/2002	M[3]						T[3]						
	BE	04 through 11 except 07	EPA NERL - 7/2002	M[3]						T[3]						
Aberjona River before confluence with HBHA	AR	01 through 06	EPA NERL - 7/2002	M[3]						T[3]						
REACH 1 - ABERJONA RIVER STUDY AREA - See Figure 2-7b																
Aberjona River Main Channel just north of Salem Street	SD-10 (TT10)	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		01, 02	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]				TX[1] (02)	
		02	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]

TABLE 2-5 (cont.)
MSGRP FIELD INVESTIGATIONS - SEDIMENT SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION[1]	LOCATIONS SAMPLED AT STATION[1]	INVESTIGATION[2]	ANALYSES PERFORMED[3]												
				MET	VOC	SVOC	PCB	PEST/ PCB	AVS/ SEM	TOC	GS	CYA	CR VI	SULF	TOX	CA
REACH 1 - ABERJONA RIVER STUDY AREA (cont.) - See Figure 2-7b																
Aberjona River Main Channel - at Wells G&H Wetlands, near Well G	SD-11	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		01	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					
Aberjona River Main Channel at Wells G&H Wetlands, near Well H	SD-12 (TT12)	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]			TX[1] (03)	
		01, 03	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]				TX[1] (03)	
		03	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Wells G & H Wetlands, near railroad side track	SD-13 (TT13)	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]			TX[1] (01)	
		01, 03	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					
		01	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Aberjona River Main Channel - at Olympia Avenue	SD-14	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]			TX[1] (01,02)	
Wells G & H Wetlands, west of Well G	SD-15	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		01	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					
Wells G & H Wetlands, near Rifle Range Road	SD-18 (TT18)	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]			TX[1] (01)	
		02, 03	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]				TX[1] (02)	
		02	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Wells G & H Wetlands, near Well G	SD-19 (TT19)	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		01	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]				TX[1] (01)	
		01	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Wells G & H Wetlands, near dirt road	SD-20	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		01	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					
Wells G & H Wetlands	SD-21	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		01	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					

TABLE 2-5 (cont.)
MSGRP FIELD INVESTIGATIONS - SEDIMENT SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION[1]	LOCATIONS SAMPLED AT STATION[1]	INVESTIGATION[2]	ANALYSES PERFORMED[3]												
				MET	VOC	SVOC	PCB	PEST/ PCB	AVS/ SEM	TOC	GS	CYA	CR VI	SULF	TOX	CA
REACH 1 - ABERJONA RIVER STUDY AREA (cont.) - See Figure 2-7b																
Wells G & H Wetlands - northeast portion near rifle range	SD-22 (TT22)	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		02	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					
		01 through 03	TtNUS - 2/2001	M[3]									CR[1](03)	S[1](03)		
		01	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Wells G & H Wetlands - west side	TT27	01 through 04	TtNUS - 2/2001	M[3]									CR[1](02)	S[1](02)		
Wells G & H wetlands - east side, north of Well H	TT28	01 through 03	TtNUS - 2/2001	M[3]												
Wells G & H wetlands - east side between Wells G&H	TT29	01 through 03	TtNUS - 2/2001	M[3]									CR[1](01)	S[1](01)		
		03	TtNUS - 6/2001 (t)		V[3]										TX[1,2]	CA[1]
Well G/Salem Street East - along water's edge east side of wetland/ floodplain	WG	01 through 20	TtNUS - 7/2000	M[3]								CY[2]	CR[1] (05,10, 11,20)	S[1] (05,10, 11,20)		
		10	TtNUS - 10/2002	M[3]									CR[2]	S[1]		
Well H - along water's edge east side of wetland/floodplain	WH	01 through 10	TtNUS - 7/2000	M[3]								CY[2]	CR[1] (01,10)	S[1] (01,10)		
		07	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
		02	TtNUS - 10/2002	M[3]									CR[2]	S[1]		
Salem Street West (residence) - along water's edge west side of ponded area, immediately west of Salem Street bridge	WS	01 through 10	TtNUS - 7/2000	M[3]								CY[2]	CR[1] (01,09)	S[1] (01,09)		
		08	TtNUS - 10/2002	M[3]									CR[2]	S[1]		
Wells G&H wetlands - west side near Wildwood Property	WW	01 through 12	TtNUS - 11/2000	M[3]												
		08	TtNUS - 2/2001	M[3]									CR[1]	S[1]		
		08	TtNUS - 6/2001	M[3]									CR[1]	S[1]		
		06	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
		06	TtNUS - 10/2002	M[3]									CR[2]	S[1]		
Wells G & H Wetland - proposed boardwalk area	BW	01 through 05	EPA NERL - 7/2002	M[3]						T[3]						
Wells G & H Wetland - northern area, off Normac Road	NR	01 through 05	EPA NERL - 9/2002	M[3]						T[3]						

TABLE 2-5 (cont.)
MSGRP FIELD INVESTIGATIONS - SEDIMENT SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION[1]	LOCATIONS SAMPLED AT STATION[1]	INVESTIGATION[2]	ANALYSES PERFORMED[3]												
				MET	VOC	SVOC	PCB	PEST/ PCB	AVS/ SEM	TOC	GS	CYA	CR VI	SULF	TOX	CA
REACH 1 - ABERJONA RIVER STUDY AREA (cont.) - See Figure 2-7b																
Wells G & H Wetland - near junk yard at Aberjona Auto Parts	JY	06 through 15	EPA NERL - 7/2002	M[3]			P[1]			T[3]						
Wells G&H wetlands - north of prop. boardwalk area - sediment core	SC05	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
Wells G&H wetlands - near prop. boardwalk area - sediment core	SC06	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
Wells G&H wetlands - south of prop. boardwalk area - sediment core	SC07	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
Aberjona River - ponded area west of Salem St. bridge -sediment core	SC08	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3] (exc. 01)						
REACH 2 - ABERJONA RIVER STUDY AREA - See Figures 2-7c and 2-7d																
Aberjona River Main Channel north of river crossing at Washington Street in Winchester	SD-08	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
Aberjona River Main Channel - at south end of Cranberry Bog Conservation Area	SD-09	01 through 10	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]			TX[1] (03)	
Aberjona River Main Channel - at south end of Cranberry Bog Conservation Area	SD-16	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]			TX[1] (01)	
Aberjona River upstream of Montvale Ave.	AM	01	TtNUS - 7/2000	M[3]								CY[2]	CR[1]	S[1]		
Cranberry Bog Conservation Area- along channels in northwest portion of bog	TT30	01 through 03	TtNUS - 2/2001	M[3]												
		01	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Cranberry Bog Conservation Area - along channels in northeast portion of bog	TT31	01 through 03	TtNUS - 2/2001	M[3]									CR[1](03)	S[1](03)		
Cranberry Bog Conservation Area - along edge of Aberjona River in north-central area	TT32	01 through 03	TtNUS - 2/2001	M[3]									CR[1](02)	S[1](02)		
		02	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]

TABLE 2-5 (cont.)
MSGRP FIELD INVESTIGATIONS - SEDIMENT SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION[1]	LOCATIONS SAMPLED AT STATION[1]	INVESTIGATION[2]	ANALYSES PERFORMED[3]												
				MET	VOC	SVOC	PCB	PEST/ PCB	AVS/ SEM	TOC	GS	CYA	CR VI	SULF	TOX	CA
REACH 2 - ABERJONA RIVER STUDY AREA (cont.) - See Figures 2-7c and 2-7d																
Cranberry Bog Conservation Area - along edge of Aberjona River in south-central area	TT33	01 through 03	TtNUS - 2/2001	M[3]									CR[1](02)	S[1](02)		
		02	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Cranberry Bog Conservation Area - outer edge of northeast portion of bog	CB-01	01 through 10	TtNUS - 2/2001	M[3]									CR[1] (05,09)	S[1] (05,09)		
Cranberry Bog Conservation Area - outer edge of southeast portion of bog	CB-02	01 through 10	TtNUS - 2/2001	M[3]									CR[1] (03,09)	S[1] (03,09)		
		09	TtNUS - 6/2001	M[3]									CR[1]	S[1]		
Cranberry Bog Conservation Area - west-central portion	CB-03	01 through 12	TtNUS - 2/2001	M[3]									CR[1] (04,10)	S[1] (04,10)		
		06,10	TtNUS - 10/2002	M[3]									CR[2]	S[1]		
Cranberry Bog Conservation Area - central portion in bog/marsh areas	CB-04	01 through 10	EPA NERL - 7/2002	M[3]						T[3]						
Cranberry Bog Conservation Area - southern portion in channels	CB-06	01 through 10	EPA NERL - 7/2002	M[3]						T[3]						
Cranberry Bog Conservation Area - in bog/marsh areas	CB-07	01 through 06	EPA NERL - 7/2002	M[3]						T[3]						
Cranberry Bog Conservation Area - west side of river -sediment core	SC09	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
Cranberry Bog Conservation Area - wetland west of river -sediment core	SC10	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
Kraft Foods - Aberjona River	KFSD	01 through 10	EPA NERL - 9/2002	M[3]						T[3]						
REACH 3 - ABERJONA RIVER STUDY AREA - See Figure 2-7e																
Aberjona River Main Channel at Davidson Park	SD-07	01 through 10	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		02, 05, 10	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]				TX[1] (12)	
Aberjona River at 171 Swanton Street condominium complex	AS	01, 02	TtNUS - 7/2000	M[3]								CY[2]	CR[1]	S[1]		
Aberjona River near Leonard Pool in Winchester	LP	01 through 10	EPA NERL - 7/2002	M[3]						T[3]						

TABLE 2-5 (cont.)
MSGRP FIELD INVESTIGATIONS - SEDIMENT SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION[1]	LOCATIONS SAMPLED AT STATION[1]	INVESTIGATION[2]	ANALYSES PERFORMED[3]												
				MET	VOC	SVOC	PCB	PEST/ PCB	AVS/ SEM	TOC	GS	CYA	CR VI	SULF	TOX	CA
REACH 3 - ABERJONA RIVER STUDY AREA (cont.) - See Figure 2-7e																
Leonard Pool - within pool area and just outside dam	LP	11 through 15	TtNUS - 9/2002	M[3]												
Aberjona River - Davidson Park ponded area - sediment core	SC11	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
REACH 4 - ABERJONA RIVER STUDY AREA - See Figure 2-7f																
Aberjona River Main Channel - reach 4 at Judkins Pond	SD-06 (TT06)	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		03	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]				TX[1] (03)	
		03	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Judkins Pond	JP	01	TtNUS - 7/2000	M[3]								CY[2]	CR[1]	S[1]		
Mill Pond, Winchester Center	MP	01, 02	TtNUS - 7/2000	M[3]								CY[2]	CR[1]	S[1]		
Judkins Pond - sediment core	SC12	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
REACH 5 - ABERJONA RIVER STUDY AREA - See Figure 2-7f																
Aberjona River Main Channel	SD-05	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]			TX[1] (03)	
		03	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					
Aberjona River Winchester - deep water samples in ponded area south of Bacon Street	AJRW	01 through 06	EPA NERL - 3/2004	M[3]												
Aberjona River Winchester - edge of ponded area south of Bacon Street	AJRW	07 - 23 odd numbers	EPA NERL - 4/2004	M[3]												
REACH 6 - ABERJONA RIVER STUDY AREA - See Figure 2-7g																
Upper Mystic Lake - Sandy Beach	SD-01	01 through 10	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		06, 07	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					
Upper Mystic Lake - inlet to lower forebay	SD-02	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		01, 02	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					
Upper Mystic Lake - boat launching area	SD-03	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		02	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					
Upper Mystic Lake - inlet to upper forebay (Aberjona river outlet)	SD-04	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		02, 03	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					

TABLE 2-5 (cont.)
MSGRP FIELD INVESTIGATIONS - SEDIMENT SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION[1]	LOCATIONS SAMPLED AT STATION[1]	INVESTIGATION[2]	ANALYSES PERFORMED[3]												
				MET	VOC	SVOC	PCB	PEST/ PCB	AVS/ SEM	TOC	GS	CYA	CR VI	SULF	TOX	CA
REACH 6 - ABERJONA RIVER STUDY AREA (cont.) - See Figure 2-7g																
Aberjona River outlet to Upper Forebay, Upper Mystic Lake	AO	01 through 05	TtNUS - 7/2000	M[3]								CY[2]	CR[1](02)	S[1](02)		
		03	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Upper Forebay, Upper Mystic Lake	UF	01 through 03	TtNUS - 7/2000	M[3]								CY[2]	CR[1](03)	S[1](03)		
		02	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Lower Forebay, Upper Mystic Lake	LF	01, 02	TtNUS - 7/2000	M[3]								CY[2]	CR[1](02)	S[1](02)		
Upper Mystic Lake	UM	01 through 03	TtNUS - 7/2000	M[3]								CY[2]	CR[1](01)	S[1](01)		
Lower Mystic Lake	LM	01 through 03	TtNUS - 7/2000	M[3]								CY[2]	CR[1](01)	S[1](01)		
Upper Forebay, Upper Mystic Lake - sediment core	SC13	01, 12, 23, 34 (core depths)	EPA NERL - 2/2003	M[3]						T[3]						
REFERENCE STATIONS - NORTHERN RI STUDY AREA- See Figure 2-7h																
Reference - Lubbers Brook at Aberjona River	SD-23	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
Reference - Maple Meadow Brook Wetlands	SD-24	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		03	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]					
Reference - Shawsheen River	SD-27	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
Reference - Hall's Brook, Danforth Street	HB00	-	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Reference - S. Branch Aberjona River, Arcadia Rd	TTSA	01	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Reference - Phillips Pond	PP03	-	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Reference - Hall's Brook, Third Road	TT04	-	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]
Reference - S. Branch Aberjona River, Willow Street	TTSD	01	TtNUS - 6/2001 (t)	M[3]	V[3]	SV[3]		PP[3]	A[3]	T[1]					TX[1,2]	CA[1]

TABLE 2-5 (cont.)
MSGRP FIELD INVESTIGATIONS - SEDIMENT SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION[1]	LOCATIONS SAMPLED AT STATION[1]	INVESTIGATION[2]	ANALYSES PERFORMED[3]												
				MET	VOC	SVOC	PCB	PEST/ PCB	AVS/ SEM	TOC	GS	CYA	CR VI	SULF	TOX	CA
REFERENCE STATIONS - SOUTHERN RI STUDY AREA - See Figure 2-7i																
Reference - Horn Pond, north end near Fowle Brook	SD-25	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				
		02	M&E - 1997	M[2]	V[2]	SV[2]		PP[2]	A[2]	T[2]	G[2]				TX[1] (02)	
Reference - Wrights Pond	SD-26	01 through 03	FW - 1995	M[1]	V[1]	SV[1]		PP[1]	A[1]	T[1]	G[1]	CY[1]				

1. Sample station and location designations are combined to form sample location identifier. For example HB01, locations 01 through 10 are designated as HB01-01 through HB01-10.
Suffixes "FW" and "ME" were added to Foster Wheeler and Metcalf & Eddy sample location identifiers to distinguish between samples with the same identifiers (e.g. SD-10-02-FW and SD-10-02-ME).

2. INVESTIGATIONS:
Field investigation performed by noted entity during stated time period
FW - Foster Wheeler - Wells G&H Aberjona River Study
M&E - Metcalf and Eddy - Wells G&H Aberjona River Study
TtNUS - Tetra Tech NUS - various studies for the Industri-plex Site and Combined IP/Aberjona River Study Area. (t) indicates sediment triad investigation
EPA NERL - EPA New England Regional Laboratory - Supplemental Sampling for Combined IP/Aberjona River Study

3. ANALYSES PERFORMED / ANALYTICAL METHODS USED IN INVESTIGATIONS:
All samples in group analyzed by the method number indicated, except where parenthesis indicate that only particular locations were analyzed for this parameter.
For example: M1 = all in group analyzed by metals method 1; CR[1] (01) = only location 01 analyzed for hexavalent chromium (by CR method 1).

MET (M) – total metals
M[1]. ILM03.0
M[2]. ILM04.0 (modified)
M[3]. ILM04.1

VOCs (V)– volatile organic compounds
V[1]. OLM03.1
V[2]. SW-846 8260A (modified)
V[3]. 5035/OLM04.2 (modified)

SVOCs (SV)– semi-volatile organic compounds
SV[1]. OLM01.9
SV[2]. OLM03.1
SV[3]. OLM04.2 (modified)

PCBs (P)– Polychlorinated biphenyls
P[1]. SW-846 8082, modified

PEST/PCBs (PP)– pesticides/PCBs
PP[1]. OLM01.9
PP[2]. OLM03.1 (modified)
PP[3]. OLM04.2 (modified)

AVS/SEM (A) - acid volatile sulfides/simultaneously extracted metals
1. EPA 1992 draft method
2. AVS by EPA 1993 / SEM by ILM04.1 (modified)
3. *AVS by Allen and Fu 1991 / SEM by ILM04.1*

TOC (T)- total organic carbon
1. L. Kahn
2. ASTM D2974-87 (total combustible organics)
3. SW846, 9060 (modified)

GS (G)- grain size
1. sieve
2. ASTM D422-63

CYA (CY)- cyanide
1. ILM03.0
2. ILM04.1 (modified)

CR VI (CR)- hexavalent chromium
1. SW-846 3060A/7196A (colormetric)
2. SW-846 3060A/7199 (ion chromatography)

SULF (S)- total sulfides
1. SW-846 9030B/9034

TOX (TX)- benthic invertebrate toxicity test for sediment
1. EPA 100.1 & 100.2 - 10 day (amphipod & midge) survival and growth toxicity tests
2. EPA 100.4 & 100.5 - 42 day (amphipod) and life-cycle (midge) survival and growth toxicity tests

CA - benthic invertebrate community assessment
1. ASTMD 10500

TABLE 2-6
MSGRP FIELD INVESTIGATIONS - SURFACE WATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION	SAMPLES COLLECTED AT STATION	INVESTIGATION[1]	ANALYSES PERFORMED[2]							
				MET	METD	VOC	SVOC	PEST/ PCB	TDS	TSS	DOC
SEE SECTION 2.2.1.1 (FOSTER WHEELER) AND SECTION 2.2.2.2 (TtNUS)											
REACH 0 - INDUSTRI-PLEX STUDY AREA - See Figure 2-5a											
Halls Brook upstream of discharge into Halls Brook Holding Area (automated monitoring station)	SW-01-TT	16 monthly base-flow events and 6 storm events	TtNUS 7/2001 - 10/2002	M[2]	M[2]					TS[2]	
Halls Brook Holding Area, north pond outlet (automated monitoring station)	SW-02-TT	16 monthly base-flow events and 5 storm events	TtNUS 7/2001 - 10/2002	M[2]	M[2]					TS[2]	
Aberjona River at Mishawum Road, before confluence w/ Halls Brook (automated monitoring station)	SW-03-TT	16 monthly base-flow events and 6 storm events	TtNUS 7/2001 - 10/2002	M[2]	M[2]					TS[2]	
Halls Brook Holding Area discharge control structure at Mishawum Road (automated monitoring station)	SW-04-TT	16 monthly base-flow events and 6 storm events	TtNUS 7/2001 - 10/2002	M[2]	M[2]					TS[2]	
Aberjona River upstream of automated monitoring station SW-03-TT	SW-ARB-TT	4 baseflow events	TtNUS 6/2002 - 9/2002	M[2]	M[2]						
REACH 1 - ABERJONA RIVER STUDY AREA - See Figure 2-5b											
Aberjona River Main Channel just north of Salem Street	SW-10-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Aberjona River Main Channel - at Wells G&H Wetlands	SW-11-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Aberjona River Main Channel at Wells G&H Wetlands	SW-12-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Wells G & H Wetlands	SW-13-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Aberjona River Main Channel - at Olympia Avenue	SW-14-01-FW	2	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Wells G & H Wetlands	SW-15-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Wells G & H Wetlands - near rifle range	SW-18-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]

TABLE 2-6 (cont.)
MSGRP FIELD INVESTIGATIONS - SURFACE WATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION	SAMPLES COLLECTED AT STATION	INVESTIGATION[1]	ANALYSES PERFORMED[2]							
				MET	METD	VOC	SVOC	PEST/ PCB	TDS	TSS	DOC
REACH 2 - ABERJONA RIVER STUDY AREA - See Figure 2-5c											
Aberjona River Main Channel north of river crossing at Washington Street in Winchester	SW-08-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Aberjona River Main Channel - at south end of Cranberry Bog Conservation Area	SW-09-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Aberjona River Main Channel - at south end of Cranberry Bog Conservation Area	SW-16-01-FW	2	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Salem Street bridge south of Wells G&H wetlands (automated monitoring station)	SW-05-TT	16 monthly base-flow events and 6 storm events	TtNUS 7/2001 - 10/2002	M[2]	M[2]					TS[2]	
Abererjona River downstream of Montvale Avenue bridge (Woburn) (automated monitoring station)	SW-06-TT	16 monthly base-flow events and 6 storm events	TtNUS 7/2001 - 10/2002	M[2]	M[2]					TS[2]	
REACH 3 - ABERJONA RIVER STUDY AREA - See Figure 2-5c											
Aberjona River Main Channel at Davidson Park	SW-07-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
REACH 4 - ABERJONA RIVER STUDY AREA - See Figure 2-5d											
Aberjona River Main Channel - at Judkins Pond	SW-06-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Aberjona River at Swanton Street bridge (Winchester) (automated monitoring station)	SW-07-TT	16 monthly base-flow events and 6 storm events	TtNUS 7/2001 - 10/2002	M[2]	M[2]					TS[2]	
REACH 5 - ABERJONA RIVER STUDY AREA - See Figure 2-5d											
Aberjona River Main Channel	SW-05-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Aberjona River USGS gauging station, Mystic Valley Parkway (automated monitoring station)	SW-08-TT	16 monthly base-flow events and 6 storm events	TtNUS 7/2001 - 10/2002	M[2]	M[2]					TS[2]	
REACH 6 - ABERJONA RIVER STUDY AREA - See Figure 2-6d											
Upper Mystic Lake - Sandy Beach	SW-01-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Upper Mystic Lake - inlet to lower forebay	SW-02-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Upper Mystic Lake - boat launching area	SW-03-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]

TABLE 2-6 (cont.)
MSGRP FIELD INVESTIGATIONS - SURFACE WATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION	SAMPLES COLLECTED AT STATION	INVESTIGATION[1]	ANALYSES PERFORMED[2]							
				MET	METD	VOC	SVOC	PEST/ PCB	TDS	TSS	DOC
REACH 6 - ABERJONA RIVER STUDY AREA (cont.) - See Figure 2-6d											
Upper Mystic Lake - inlet to upper forebay	SW-04-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Upper Mystic Lake outlet, Medford Boat Club (Arlington) (automated monitoring station)	SW-09-TT	16 monthly base-flow events and 6 storm events	TtNUS 7/2001 - 10/2002	M[2]	M[2]					TS[2]	
Lower Mystic Lake Outlet, High Street bridge (Medford) (automated monitoring station)	SW-10-TT	16 monthly base-flow events and 6 storm events	TtNUS 7/2001 - 10/2002	M[2]	M[2]					TS[2]	
Mill Brook outlet to Lower Mystic Lakes (Arlington) (automated monitoring station)	SW-11-TT	none (gauging only)	TtNUS 7/2001 - 10/2002								
REFERENCE STATIONS - NORTHERN RI STUDY AREA - See Figure 2-5e											
Reference - Lubbers Brook at Aberjona River	SW-23-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Reference - Maple Meadow Brook Wetlands	SW-24-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Reference - Shawsheen River	SW-27-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
REFERENCE STATIONS - SOUTHERN RI STUDY AREA - See Figure 2-5f											
Reference - Horn Pond, near Fowle Brook	SW-25-01-FW	2	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]
Reference - Wrights Pond	SW-26-01-FW	1	FW - 1995	M[1]		V[1]	SV[1]	PP[1]	TD[1]	TS[1]	DC[1]

TABLE 2-6 (cont.)
MSGRP FIELD INVESTIGATIONS - SURFACE WATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Notes:

1. INVESTIGATIONS:
   Field investigation performed by noted entity during stated time period
   FW - Foster Wheeler - Wells G&H Aberjona River Study - grab samples collected during one field event during summer 1995.
   TtNUS - Tetra Tech NUS - Industri-plex Site and Combined IP/Aberjona River Study Area.
   Baseflow samples collected monthly throughout investigation period by manual grab sampling methods.
   Storm event samples collected by automated samplers. See Section 2.2.2.2 for sampling criteria.

2. ANALYSES PERFORMED / ANALYTICAL METHODS USED IN INVESTIGATIONS:
   All samples in group analyzed by the method number indicated. For example: M^1 = all in group analyzed by metals method 1
   MET – total metals
   METD – dissolved (filtered) metals
   M^1 - EPA CLP ILM03.0
   M^2 - EPA CLP ILM04.1
   VOCs – volatile organic compounds
   V^1 - EPA CLP OLM03.1
   SVOCs – semi-volatile organic compounds
   SV^1 - EPA CLP OLM01.9
   PEST/PCBs – pesticides and polychlorinated biphenyls
   PP^1 - EPA CLP OLM01.9
   TDS - total dissolved solids
   TD^1 - unspecified DAS methods
   TSS - total suspended solids
   TS^1 - unspecified DAS methods
   TS^2 - EPA SW846 160.2
   DOC - dissolved organic carbon
   DC^1 - EPA SW846 9060-mod

TABLE 2-7
MSGRP FIELD INVESTIGATIONS - FISH SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	MATRIX SAMPLED/ TISSUE*	SAMPLE TYPE[1]	SAMPLE NUMBERS	ANALYSES PERFORMED[2]				
				MET	SVOCs	PEST/ PCBs	PCT. LIPID	PCT. MOIST.
FOSTER WHEELER FIELD INVESTIGATION - 1995 (SEE SECTON 2.2.1.1)								
Aberjona River – Reach 1	small fish	SF-RV-	09, 10, 12, 13	X		(10,12,13)	X	X
		LF-RV-	18	X		X	X	X
	crayfish	CF-RV	06, 07	X		X	X	X
Aberjona River – Reach 2	large fish	LF-RV-	16	X		X	X	X
	small fish	LF-RV-	17	X		X	X	X
		SF-RV-	06 - 08	X		(06)	X	X
	crayfish	CF-RV	03, 04	X		X	X	X
Aberjona River – Reach 3	large fish/F, O*	LF-RV-	01 - 04	X	fillets (01-03)	X	X	X
	large fish/F, O	LF-LK-	06 - 10	X	fillets (exc. 07)	X	X	X
	small fish	LF-LK-	01 - 05	X		X	X	X
		SF-LK-	01 - 05	X		X	X	X
	crayfish	CF-RV	01, 02	X		X	X	X
	crayfish	CF-LK	01	X		X	X	X
Aberjona River – Reach 4	large fish/F, O	LF-LK-	11 - 14, 36	X	fillets	X	X	X
	large fish	LF-LK-	15 - 19	X		X	X	X
	small fish	SF-LK-	06 - 09	X		X	X	X
Aberjona River – Reach 5	large fish	LF-RV-	8, 9, 11, 12	X		X	X	X
	large fish/F, O	LF-RV-	5, 6, 10, 13-15	X	fillets	X	X	X
	large fish/O	LF-RV-	21, 21, 23, 24	X		X	X	X
	small fish	LF-RV-	07	X		X	X	X
		SF-RV-	01 - 05	X		X	X	X
	crayfish	CF-RV-	05	X		X	X	X
Aberjona River – Reach 6	large fish/F, O	LF-LK-	20 - 25	X	fillets	X	X	X
	large fish	LF-LK-	31 - 35	X	X	X	X	X
	small fish	SF-LK-	10 - 13	X		X	X	X
Reach 7 - Wright's Pond - Reference Loc. SW-26-FW	large fish/F, O	LF-LB-	01-10, 14-16	X	fillets (exc. 07, 14)	X	X	X
	large fish	LF-LB-	11-13, 17-21	X	X	X	X	X
	small fish	SF-LB-	01 - 06	X		X	X	X
Horn Pond - Reference Loc. SW-25-FW	large fish	LF-LB-	22 - 26	X		X	X	X
Shawsheen River - Reference Location	crayfish	CF-RB	02 - 03	X		X	X	X

TABLE 2-7 (cont.)
MSGRP FIELD INVESTIGATIONS - FISH SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Notes:

1. SAMPLE IDENTIFICATION FORMAT FOR THIS SAMPLE GROUP: matrix - location type - sample number - sample tissue type.

Matrix codes	Location codes	Tissue types
LF - large fish	RV - river	* whole body unless otherwise noted
SF - small fish	LK - lake	F- fillet
CF - crayfish	LB - lake reference	O- offal
	RB - river reference	

Sample nomenclature: (LF-RV-03-F) = large fish-river-03-fillet

Note: some samples were mislabelled during sampling, i.e. several large fish samples were incorrectly labelles "SF" and several lake samples from Reach 6 were incorrectly labelled "RV". This table presents the samples in their correct categories.

2. ANALYSES PERFORMED / ANALYTICAL METHODS USED IN INVESTIGATIONS:
All samples in group analyzed by the method indicated unless indicated by parenthesis.
For example: M^1 = all in group analyzed by metals method 1

MET – total metals, including cyanide - EPA CLP ILM03.0
SVOCs – semi-volatile organic compounds (selected samples only) - EPA CLP OLM01.9
PEST/PCBs – pesticides/polychlorinated biphenyls - EPA CLP OLM01.9
PCT. LIPID – percent lipid - DAS Method

TABLE 2-8
MSGRP FIELD INVESTIGATIONS - PLANT TISSUE SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION	LOCATIONS SAMPLED AT STATION	COMPOSITION OF SAMPLES[1]	ANALYSES PERFORMED[2]			
				MET	SVOCs	PEST/ PCBs	PCT. MOIST.
FOSTER WHEELER FIELD INVESTIGATION - 1995 (SEE SECTION 2.2.1.1)							
Wells G & H Wetlands, near Rifle Range Road	18	01, 02	cattail, common reed, arrowhead, bulrush, spike rush	X	X	X	X
Wells G & H Wetlands	20	01, 02	cattail, burreed, arrowhead, spike rush	X	X	X	X
Wells G & H Wetlands	21	01, 02	cattail, common reed, arrowhead, spike rush	X	X	X	X
Reference – Lubbers Brook at Aberjona River	23	1	cattail, pondweed, pickerelweed, burreed	X	X	X	X

Notes:

1. Samples include roots, stems, and leaves. For tall emergent species such as cattails and reeds, only basal portions of stems and leaves were included.

2. ANALYSES PERFORMED / ANALYTICAL METHODS USED IN INVESTIGATIONS:
All samples in group analyzed by the method indicated unless indicated by parenthesis.
For example: M^1 = all in group analyzed by metals method 1
MET – total metals, including cyanide - EPA CLP ILM03.0
SVOCs – semi-volatile organic compounds (selected samples only) - EPA CLP OLM01.9
PEST/PCBs – pesticides/polychlorinated biphenyls - EPA CLP OLM01.9
PCT. MOIST. – percent moisture - CLP gravimetric (modified)

TABLE 2-9
MSGRP FIELD INVESTIGATIONS - SOIL SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

LOCATION	STATION	LOCATIONS SAMPLED AT STATION[1]	INVESTIGATION[2]	ANALYSES PERFORMED[3]			
				MET	TOC	CR VI	SULF
REACH 0 - INDUSTRI-PLEX STUDY AREA (SEE SECTION 2.2.2.3 (TtNUS) AND SECTION 2.2.3.1 (EPA NERL)) - See Figure 2-3a							
Area 2 - Core samples at Dundee Park, west of West Hide Pile	A2	01 through 07, 1 ft intervals to 3 ft*	TtNUS - 9/2000	M[1]		CR[1] (3 of 18 samples)	S[1] (3 of 18 samples)
Area 5B - Core samples at 110 Commerce Way, north of Boston Edison ROW No. 9	A5	01 through 03, 1 ft intervals to 3 ft	TtNUS - 8/2000	M[1]		CR[1] (2 of 9 samples)	S[1] (2 of 9 samples)
Area 6 - Core samples at Custodial Trust/Boston Edison property, south of Boston Edison ROW No. 9 east of railroad tracks	A6	01 through 13, 1 ft intervals to 3 ft*	TtNUS - 8/2000	M[1]		CR[1] (7 of 37 samples)	S[1] (7 of 37 samples)
Area 7 - Core samples at Winn Trucking property, south of Boston Edison ROW No. 9 on west side of railroad tracks	A7	01 through 07, 1 ft intervals to 3 ft	TtNUS - 9/2000	M[1]		CR[1] (5 of 21 samples)	S[1] (5 of 21 samples)
Boston Edison Right-of-Way - surface soils on embankment above drainage channels	BSO	01 through 04	EPA NERL - 7/2002	M	T		
Halls Brook Holding Area -surface soils along dirt access road east of the wetland in the middle of HBHA	HB04	01 through 10	EPA NERL - 7/2002	M	T		
REACH 1 - ABERJONA RIVER STUDY AREA (SEE SECTION 2.2.3.1) - See Figure 2-3b							
Normac Road - surface soils along river bank in north end of Wells G&H wetland off Normac Road	NR	16 through 20	EPA NERL - 9/2002	M	T		
Salem Street West (residence) - surface soils in yard at residential property just west of Salem Street bridge	WSS	01 through 05	EPA NERL - 7/2002	M	T		
REACH 2 - ABERJONA RIVER STUDY AREA (SEE SECTION 2.2.3.1) - See Figure 2-3c							
Cranberry Bog Conservation Area - surface soils off dirt foot path on west side of conservation area	CB-05	01 through 10	EPA NERL - 7/2002	M	T		
Kraft Foods - surface soils along east bank of the Aberjona River in the Kraft Foods wellfield	KFSO	01 through 10	EPA NERL - 9/2002	M (08)	T		
Danielson Park - surface soils along bank of river across from park, downstream of Washington St. crossing	DAP	01 through 05	EPA NERL - 7/2002	M	T		
REACH 3 - ABERJONA RIVER STUDY AREA (SEE SECTION 2.2.2.3) - See Figure 2-3d							
Davidson Park - surface soils in depositional areas of floodplain on east, south, and west sides of Davidson Park pond	DP	01 through 26	TtNUS - 7/2000	M[1]		CR[1] (5 of 26 samples)	S[1] (5 of 26 samples)
REACH 5 - ABERJONA RIVER STUDY AREA (SEE SECTION 2.2.3.1) -See Figure 2-3e							
Aberjona River Winchester - embankment above ponded area south of Bacon Street	AJRW	08 - 24 even numbers	EPA NERL - 4/2004	M	T		

TABLE 2-9 (cont.)
MSGRP FIELD INVESTIGATIONS - SOIL SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Notes:

1. Sample station and location designations are combined to form sample location identifier. For example A2, locations 01 through 07 are designated as A201 through A207 (in some cases the station and location designations are separated by a hyphen). Sample depth equals 0 to 6 inches unless otherwise noted.

* Soil core samples collected from 0-1 ft, 1-2 ft and 2-3 ft bgs, except where refusal encountered at 2 ft (A204, A205, A207, A609, A612) third interval not sampled.

2. INVESTIGATIONS:

Field investigation performed by noted entity during stated time period

TtNUS - Tetra Tech NUS - various studies for the Industri-plex Site and Combined IP/Aberjona River Study Area.

EPA NERL - EPA New England Regional Laboratory - Supplemental Sampling for Combined IP/Aberjona River Study

3. ANALYSES PERFORMED / ANALYTICAL METHODS USED IN INVESTIGATIONS:

All samples in group analyzed by the method number indicated, except where parenthesis indicate that only a fraction of samples in group were analyzed for this parameter.
See data summary tables in Section 4 and Appendix 4A to identify samples analyzed for CR VI and Sulfides.

MET (M) – total metals
1. EPA CLP ILM04.1

TOC (T)- total organic carbon
1. Lloyd Kahn Method. EPA Region II, July 1986
2. ASTM D2974-87 (total combustible organics)

CR VI (CR)- hexavalent chromium
1. EPA SW-846 3060A/7196A (colormetric)

SULF (S)- total sulfides
1. EPA SW-846 9030B/9034

TABLE 2-10
MSGRP FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION	DEPTH (ft bgs)[1]	Elevation (ft-NGVD 88)	ANALYSES PERFORMED[2]						
			MET	METD	VOCS	SVOCS	AS	ANIONS	TDS
MSGRP HYDROGEOLOGIC STUDY, JANUARY - APRIL 2002, TtNUS (SEE SECTION 2.2.2.4) - See Figure 2-4									
Area A (Areas A-4 and A-5)									
AA01-0009	9	66.06	M		V	SV			
AA01-0025	25	50.06	M		V	SV			
AA02-0010	10	65.96	M		V	SV			
AA03-0006	6	68.34	M		V	SV			
AA04-	NS	--	not sampled						
AA05-0024	24	62.78	M		V	SV			
AA06-0008	8	68.14	M		V	SV			
AA06-0016	16	60.14	M		V	SV			
AA06-0023	23	53.14	M		V	SV			
AA07-0008	8	68.63	M		V	SV			
AA07-0016	16	60.63	M		V	SV			
AA07-0035	35	41.63	M		V	SV			
AA08-0013	13	66.13	M		V	SV			
AA09-0010	10	69.82	M		V	SV			
Area C (Areas C-3 and C-5)									
AC01-0019	19	45.67	M		V				
AC01-0037	37	27.67	M		V				
AC02-0015	15	42.00	M		V				
AC02-0020	20	37.00	M		V				
AC02-0037	37	20.00	M		V				
AC03-0015	15	42.50	M		V				
AC03-0033	33	24.50	M		V				
AC03-0044	44	13.50	M		V				
AC04-0012	12	45.37	M		V				
AC04-0028	28	29.37	M		V				
AC04-0047	47	10.37	M		V				
AC05-0015	15	42.99	M		V				
AC05-0029	29	28.99	M		V				
AC06-0016	16	51.72	M		V				
AC06-0019	19	48.72	M		V				
AC06-0029	29	38.72	M		V				
Area E (Areas E-1 and E-2)									
AE01-0011	11	42.48	M	M	V		AS	AN	TD
AE01-0045	45	8.48	M	M	V		AS	AN	TD
AE01-0049	49	4.48	M	M	V		AS	AN	TD
AE01-0067	67	-13.52	M	M	V		AS	AN	TD
AE01M	36	18.09	M	M	V		AS	AN	TD
AE02-0012	12	41.31	M	M	V		AS	AN	TD
AE02-0046	46	7.31	M	M	V		AS	AN	TD
AE02-0072	72	-18.69	M	M	V		AS	AN	TD
AE03-0010	10	44.23	M	M	V		AS	AN	TD
AE03-0050	50	4.23	M	M	V		AS	AN	TD
AE03-0078	78	-23.77	M	M	V		AS	AN	TD
AE04-0013	13	44.02	M	M	V		AS	AN	TD
AE04-0061	61	-4.98	M	M	V		AS	AN	TD
AE04-0088	88	-31.98	M	M	V		AS	AN	TD

TABLE 2-10 (cont.)
MSGRP FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION	DEPTH (ft bgs)[1]	Elevation (ft-NGVD 88)	ANALYSES PERFORMED[2]						
			MET	METD	VOCS	SVOCS	AS	ANIONS	TDS
Area E (Areas E-1 and E-2) (cont.)									
AE05-0012	12	41.60	M	M	V		AS	AN	TD
AE05-0028	28	25.60	M	M	V		AS	AN	TD
AE05-0061	61	-7.40	M	M	V		AS	AN	TD
AE06-0010	10	45.94	M	M	V		AS	AN	TD
AE06-0023	23	32.94	M	M	V		AS	AN	TD
AE06-0043	43	12.94	M	M	V		AS	AN	TD
AE07-0013	13	44.31	M	M	V		AS	AN	TD
AE07-0028	28	29.31	M	M	V		AS	AN	TD
Area F (Area F-1)									
AF01-0025	25	40.34	M		V				
AF01-0074	74	-8.66	M		V				
AF01-0115	115	-49.7	M		V				
AF02-0014	14	40.20	M		V				
AF02-0032	32	22.20	M		V				
AF02-0075	75	-20.80	M		V				
AF03-0018	18	43.57	M		V				
AF03-0037	37	24.57	M		V				
AF03-0049	49	12.57	M		V				
AF03-0061	61	0.57	M		V				
Area G (Area G-1)									
AG01-0012	12	46.51	M		V				
AG01-0055	55	3.51	M		V				
AG01-0071	71	-12.49	M		V				
AG02-0013	13	42.78	M		V				
AG02-0039	39	16.78	M		V				
AG02-0078	78	-22.22	M		V				
AG03-0015	15	39.38	M		V				
AG03-0053	53	1.38	M		V				
AG03-0079	79	-24.62	M		V				
Presidential Way									
AP01-0013	13	67.19	M		V				
AP01-0019	19	61.19	M		V				
AP02-0013	13	68.35	M		V				
AP02-0018	18	63.35	M		V				
AP02-0028	28	53.35	M		V				
AP03-0015	15	65.73	M		V				
AP03-0021	21	59.73	M		V				
Class A Properties									
CA01	location abandoned								
CA02-0007	7	58.16	M		V				
CA03-0005	5	61.54	M		V				
CA03-0012	12	54.54	M		V				
CA03-0016	16	50.54	M		V				
CA04-0004	4	60.75	M		V				
CA04-0017	17	47.75	M		V				
CA04-0025	25	39.75	M		V				

TABLE 2-10 (cont.)
MSGRP FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION	DEPTH (ft bgs)[1]	Elevation (ft-NGVD 88)	ANALYSES PERFORMED[2]						
			MET	METD	VOCS	SVOCS	AS	ANIONS	TDS
Class A Properties (cont.)									
CA05-0007	7	64.34	M		V				
CA05-0015	15	56.34	M		V				
CA05-0030	30	41.34	M		V				
CA06-0007	6	57.74	M		V				
CA06-0013	13	50.74	M		V				
CA06-0023	23	40.74	M		V				
CA07-0007	7	60.04	M		V				
CA08-0015	15[D]	59.09	M		V				
CA09-0012	12	57.15	M		V				
CA09-0016	16	53.15	M		V				
CA09-0029	29	40.15	M		V				
CA10	location abandoned								
CA11	location abandoned								
Observation Monitoring Wells (various locations)									
MW01	location abandoned								
MW02	location not sampled								
MW03	location not sampled								
MW04-0012	12	52.96	M		V				
MW04-0014	14	50.29	M		V				
MW04-0023	23	41.96	M		V				
MW04-0036	36	28.39	M		V				
MW05	location not sampled								
MW06	location not sampled								
MW07	location not sampled								
MW08	location not sampled								
MW09	location not sampled								
MSGRP/GSIP "SPLIT" SAMPLING PROGRAM - JULY 2002, TtNUS (SEE SECTION 2.2.2.4) - See Figure 2-4									
Buried Aquifer Conditions Transects Throughout IP Site Study Area (B)									
B1-04GW01	11.95	69.67						AN	TD
B2-05GW02	20.65	52.74						AN	TD
B2-05GW03	29.4	43.99						AN	TD
B2-06GW02	11.8	62.05						AN	TD
B3-02GW01	16.7	59.68						AN	TD
B3-02GW03	21.4	54.98						AN	TD
B3-03GW03	29.1	39.1						AN	TD
B4-03GW03	43.8	18.96						AN	TD
B4-04GW01	17.89	55.36						AN	TD
B4-04GW02	28.82	44.43						AN	TD
B4-05GW03	32	41.06						AN	TD
B5-01GW01	13.25	54.13						AN	TD
B5-02GW02	19.13	51.83						AN	TD
B5-02GW03	26.9	44.06						AN	TD
B5-03GW03	34.2	36.01						AN	TD
B6-03GW01	14.29	55.05						AN	TD
B6-03GW02	20.3	49.04						AN	TD
B6-03GW03	30.3	39.04						AN	TD

TABLE 2-10 (cont.)
MSGRP FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

SAMPLE LOCATION	DEPTH (ft bgs)[1]	Elevation (ft-NGVD 88)	ANALYSES PERFORMED[2]						
			MET	METD	VOCS	SVOCS	AS	ANIONS	TDS
Buried Aquifer Conditions Transects Throughout IP Site Study Area (B) (cont.)									
B7-01GW01	9.8	50.41						AN	TD
B7-01GW03	61.1	-0.89						AN	TD
B7-02GW01	18.3	48.01						AN	TD
B7-02GW02	27.6	38.71						AN	TD
B7-03GW01	15.5	49.24						AN	TD
B7-03GW02	30.7	34.04						AN	TD
B7-03GW03	50.5	14.24						AN	TD
B8-01GW01	18.1	47.96						AN	TD
B8-01GW03	72.6	-6.54						AN	TD
B8-04GW02	39	26.31						AN	TD
B9-01GW01	10.7	44.93						AN	TD
B9-01GW03	32.9	22.73						AN	TD
B9-02GW02	26.4	27.72						AN	TD
B9-04GW01	6.4	54.19						AN	TD
B9-05GW01	7.9	45.10						AN	TD
Eastern Side of Boston Edison Right of Way Transects (E)									
E3-02GW03	50.8	1.15						AN	TD
E4-02GW01	10.75	55.12						AN	TD
E4-03GW01	7.3	55.84						AN	TD
E4-03GW03	23.6	39.54						AN	TD
Western Side of Boston Edison Right of Way Transects (W)									
W5-03GW01	8.9	46.78						AN	TD
W5-03GW02	33.7	21.98						AN	TD
W5-03GW03	58.2	-2.52						AN	TD
W5-05GW02	30.9	24.67						AN	TD
W5-05GW03	49.75	5.82						AN	TD
W5-08GW01	11.9	52.03						AN	TD
Halls Brook Holding Area Buried Valley Transects (H)									
H1-04GW04	36.1	20.56						AN	TD
H1-04GW05	45.4	11.26						AN	TD
H2-02GW02	15.5	39.2						AN	TD
H2-02GW05	39.8	15.72						AN	TD
H2-04GW05	56.7	-1.18						AN	TD
H2-04GW06	67.4	-11.88						AN	TD
Former Mishawum Lake Area Transects (L)									
L2-03GW01	14.8	45.81						AN	TD
L2-03GW02	25.7	34.91						AN	TD
L2-05GW01	12.7	45.30						AN	TD
L2-05GW03	32.5	25.5						AN	TD

TABLE 2-10 (cont.)
MSGRP FIELD INVESTIGATIONS - GROUNDWATER SAMPLE SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

NOTES:

1. Sample depths and methods:
   Shallow samples - low flow sample collected from temporary well unless noted by [D]. See App 3B-3 for well construction logs.
   Intermediate & Deep samples - low flow samples collected from DPT boring (no well constructed) unless noted by [w].
   [D] Sample collected from DPT boring, see comments
   [w] Sample collected from temporary well, see comments
2. Analyses Performed/Analytical Methods Used in Investigation - All samples in group analyzed by the method indicated.
   MET (M) - total metals (EPA Region 1 method ILM04.1MT)
   METD (M) - dissolved (filtered) metals (EPA CLP ILM04.1MT)
   VOCS (V) - volatile organic compounds (EPA CLP OLC02.1V/OLC03.2V)
   SVOCS (SV) - semi-volatile organic compounds (EPA CLP OLC02.1S/OLC03.2S)
   AS - arsenic speciation (EPA National Risk Management Research Lab method: arsenic speciation)
   ANIONS (AN) - major anions (chloride, nitrite, nitrate, phosphate, sulfate by EPA SW-846 300.0;
   bicarbonate by Standard Method 2320)
   TDS (TD) - total dissolved solids (EPA SW-846 160.1)

TABLE 3-1
GROUNDWATER USERS IN WOBURN AND WINCHESTER, MASSACHUSETTS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

WOBURN				
Location	**Service Dates**	**Current Status**	**Well Use**	**Property Information**
29 High Street	8/2/2001 - Present	In Use	industrial	Martignetti Enterprises Inc.
242 Salem Street	1/13/1997 - Present	In Use	irrigation	Charle's ice cream
174 Washington Circle	12/8/1992 - Present	In Use	irrigation	Richard Danielson Residence
Nashua Street Woburn	2/10/1992 - Present	In Use	industrial	Arlington Candy Company
2 Draper Street	2/10/1992 - Present	In Use	industrial	Arlington Candy Company
Salem Street (Wells G&H)	Well G = 1964 - 1979 Well H = 1967 - 1979	Not in Use	water supply	Wells G&H Wetlands (former municipal water supply wells)
228 Salem Street	1958- 1989	Not in Use	industrial	Riley Production Well
228 Salem Street	1958 - 1989	Not in Use	industrial	Riley Production Well
Washington Street	1958 - Unknown	Not in Use	irrigation	Johnson Brothers Greenhouses
Cedar Street	1962 - Unknown	Not in Use	water supply	New England Plastics
Cedar Street	1962 - Unknown	Not in Use	water supply	New England Plastics
Cedar Street	1952 - Unknown	Not in Use	water supply	New England Plastics
39 Cedar Street	1935 - 1987	Not in Use	unknown	Independent Tallow
Hill Street (AG-1)	1935 - 2001	Not in Use	industrial	Atlantic Gelatin
Hill Street (AG-2)	1936 - Present	In Use	industrial	Atlantic Gelatin
Hill Street (AG-3)	1940 - 1966	Not in Use	industrial	Atlantic Gelatin
Hill Street (AG-4)	1941 - early 1970's	Not in Use	industrial	Atlantic Gelatin
Hill Street (AG-5)	1957 - Present	In Use	industrial	Atlantic Gelatin
Hill Street (AG-6)	1965 - 1992	Not in Use	industrial	Atlantic Gelatin
Hill Street (AG-7)	1960 - Present	In Use	industrial	Atlantic Gelatin
10 Micro Drive	1926 - Present	In Use	industrial	Printed Circuit Corp.
Horn Pond (Well A-2)	1931 - Present	In Use	water supply	Municipal Water Supply Wells
Horn Pond (Well B)	1931 - Present	In Use	water supply	Municipal Water Supply Wells
Horn Pond (Well C-2)	1931 - Present	In Use	water supply	Municipal Water Supply Wells
Horn Pond (Well D)	1937 - Present	In Use	water supply	Municipal Water Supply Wells
Horn Pond (Well E)	1937 - 1994	Not in Use	water supply	Municipal Water Supply Wells
Horn Pond (Well F)	1937 - 1999	Not in Use	water supply	Municipal Water Supply Wells
Horn Pond (Well I)	1985 - Present	In Use	water supply	Municipal Water Supply Wells
Unknown	1952 - Unknown	Unknown	industrial	Sylvania Electric
Unknown	1/27/66 - Unknown	Unknown	commercial	Sylvania Electric
Unknown	Unknown	Unknown	industrial	WIN Crush Stone
Unknown	Unknown	Unknown	industrial	Prime Tanning
Presidential Way	8/20/96 - Unknown	Unknown	irrigation	KMS Corporation
17 Presidential Way	6/3/97 - Present	In Use	irrigation	Connisseurs Inc.
Mishawum Road	2/16/93 - Present	In Use	irrigation	Courtyard Marriott
39 Dragon Court	10/2/89 - Unknown	Not in Use	irrigation	Lord's Prayer (Formerly Woburn Christian Church)
(SC-1)	1952 - Unknown	Unknown	industrial	Stauffer Chemical
(SC-2)	1934 - Unknown	Unknown	industrial	Stauffer Chemical
(SC-3)	1935 - Unknown	Unknown	industrial	Stauffer Chemical
(SC-4)	1936 - Unknown	Unknown	industrial	Stauffer Chemical
(SC-5)	1937 - Unknown	Unknown	industrial	Stauffer Chemical
(SC-6)	1959 - Unknown	Unknown	industrial	Stauffer Chemical
(SC-7)	1964 - Unknown	Unknown	industrial	Stauffer Chemical

TABLE 3-1 (cont.)
GROUNDWATER USERS IN WOBURN AND WINCHESTER, MASSACHUSETTS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

WINCHESTER				
Location	**Service Dates**	**Current Status**	**Well Use**	**Property Information**
118 Church Street	4/17/1989 - Present	In Use	irrigation	Biff Kazrizian Residence
59 Bacon Street	6/16/1991 - Present	In Use	irrigation	Claude Stanziani Residence
Cross Street	April 1992 - Present	In Use	irrigation	Arnold Manson Residence
12 Nathaniel Road	3/1/1993 - Present	In Use	irrigation	Jack Rabbit Residence
21 Ginn Road	8/6/1993 - Present	In Use	irrigation	Michael Simeone Residence
954 Main Street	6/13/1996 - Present	In Use	irrigation	Nynex Building - address 125 High Street
114 Church Street	6/26/1996 - Present	In Use	irrigation	First Church of Christ
Skillings Road	7/25/1990 - Present	In Use	Private	Unknown
25 Glen Green Ave.	4/26/1989 - Present	In Use	irrigation	Mark Kramer Residence
23 Glen Green Road	4/26/1989 - Present	In Use	irrigation	Paul Lynch Address
540 Main Street	December 1967 - unknown	Unknown	domestic	Richard J. Jr. Donovan Residence
Flinstone Road	5/15/1973 - unknown	Unknown	domestic	Virginia Shurgy Residence
154 Mt. Vernon Street	6/21/2000 - Present	In Use	irrigation	Whip Salt + Marsh
156 Mt. Vernon Street	3/4/2002 - Present	In Use	irrigation	Whipsalt Marsh
1 Lakeview Street	8/9/2001 - Present	In Use	irrigation	Attorney Jeff Woolf Residence
12 Wedgmere Street	11/17/2000 - Present	In Use	irrigation	Frasier Walsh Residence
37 Wedgmere Street	8/5/1996 - Present	In Use	irrigation	Jeffrey Beir Residence
25 Foxcroft Road	8/11/1997 - Present	In Use	irrigation	Jay Pensavalle Residence
159 Sugar Hill Road	7/18/2000 - Present	In Use	domestic	Bob Scott Residence
16 Webster Street	7/6/2000 - Present	In Use	irrigation	David Pywell Residence
17 Meadowcroft Road	5/2/2001 - Present	In Use	irrigation	Keith Butbage Residence
19 Sheffield Road West	4/24/2000 - Present	In Use	irrigation	Ralph Dineen Residence
33 Dix Road	11/10/2000 - Present	In Use	irrigation	Patrick Fortin Residence
6 Lakeview Road	2/17/2000 - Present	In Use	irrigation	Forest Fontana Residence
6 Mystic valley Parkway	12/23/1999 - Present	In Use	irrigation	Arlen Fuller Residence
8 Salisbury Street	10/12/1999 - Present	In Use	irrigation	Glen Lamuraglia
134 Cross Street	January, 1971 - unknown	Not in Use	industrial	J.O. Whitten Company
458 Main Street	3/7/89 - Present	In Use	irrigation	Manchester Field
458 Main Street	11/7/1988 - Present	In Use	irrigation	Manchester Field
242 Cambridge Street	6/18/1989 - Present	In Use	irrigation	Mahoney's Rocky Ledge
242 Cambridge Street	10/16/1989 - Present	In Use	irrigation	Mahoney's Rocky Ledge
242 Cambridge Street	8/5/1995 - Present	In Use	irrigation	Mahoney's Rocky Ledge
242 Cambridge Street	8/9/1995 - Present	In Use	irrigation	Mahoney's Rocky Ledge
Leonard Field	Unknown - Present	In Use	irrigation	Leonard Field
Swanton Street	Unknown	Unknown	irrigation	Parkview Apartments
620 Washington Street	Unknown - 1995	Not in Use	industrial	McCord Winn Textron Facility
620 Washington Street	Unknown - 1995	Not in Use	industrial	McCord Winn Textron Facility
Unknown	Unknown	Unknown	industrial	Eastern Felt Co.
Unknown	1966 - Unknown	Unknown	industrial	Kako Boadakian
Unknown	1938 - Unknown	Unknown	municipal	Town of Winchester

Note: This summary is based on the Well Completion reports filed at the Massachusetts Department of Environmental Management.

TABLE 4-1
POTENTIAL CONTAMINATION SOURCES
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Number on Figure 4-1a	Potential Source / Location	Dates of Operation	Industry/ Manufacturing, Chemicals and Products	Potential Contaminants*	Reference
Northern RI Study Area					
1	Woburn Chemical Works/ Merrimac Chemical Industri-plex site	1853-1899	Chemicals for textile, leather, paper industries; Sulfuric acid, muriatic acid, hydrochloric acid, aluminum hydrate	Zinc, copper, lead, calcium, magnesium, arsenic	Stauffer, 1983; HNUS, 1997
1	Merrimac Chemical Industri-plex site	1899-1915	Lead arsenate pesticides; sulfuric acid, muriatic acid, nitric acid	Lead, arsenic, sulfur, mercury, chromium	Stauffer, 1983; HNUS, 1997
1	New England Manufacturing Industri-plex site	1915-1929	Munitions; phenol, benzene, picric acid, toluene, TNT	Organics	Stauffer, 1983; HNUS, 1997
1	Monsanto Chemical Industri-plex site	1929-1931	Rendering	Hide and leather residues, organic matter, heavy metals, chromium	Stauffer, 1983; HNUS, 1997
1	New England Chemical/ Stauffer Industri-plex Site	1934-1969	Dried glue in bulk; lime, caustic, sulfuric acid, muriatic acid, magnesium carbonate	Hide and leather residues, organic matter, heavy metals, chromium	Stauffer, 1983; HNUS, 1997
2	Olin Chemical, 51 Eames St. Wilmington	1953-1986	Specialty chemicals	Arsenic, chromium, lead, sulfate, chloride, ammonia, bis(2-ethylhexyl) phthalate	HNUS, 1997; MADEP, 2004
3	Ritter Trucking 856 Woburn St., Wilmington	1961-late 1980s	Truck washing	Arsenic, copper, lead, cadmium, toluene, PAHs	HNUS, 1997; Weston, 1998
4	Former Mishawum Lake	1700s - ealry 1970s	Receiving waters for discharges from Industri-plex Site	Arsenic	HNUS, 1997; MSGRP RI
5	Raffi & Swanson, 100 Eames St; Wilmington	1923-Present	Surface coatings	Toluene	HNUS, 1997; MADEP, 2004
6	E.C. Whitney & Sons Woburn St Wilmington	1960s to presdnt	Barrel/drum recycling	Organic solvents, fuels	HNUS, 1997; MADEP, 2004
7	All State Sand and Gravel Dump; New Boston St; Woburn	1953-1968	Open dump converted from gravel pit	Organic solvents, fuels, heavy metals	HNUS, 1997
8	Woburn Municpal Landfill; Merrimac St; Woburn	1966-2003	Unlined landfill (currenlty capped)	Organic solvents, fuels, heavy metals	HNUS, 1997; Weston, 1998

TABLE 4-1 (cont.)
POTENTIAL CONTAMINATION SOURCES
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Number on Figure 4-1a	Potential Source / Location	Dates of Operation	Industry/ Manufacturing, Chemicals and Products	Potential Contaminants*	Reference
Southern RI Study Area					
9	Unifirst[(1)], 15 Olympia Ave., Woburn	1966-1989	Dry cleaning	TCE, PCE, TCA	TtNUS, 2003
10	W.R. Grace[(1)] 369 Washington St., Woburn	1961-present	Food wrapping materials manufacturing/packaging equipment/machinery	TCE, PCE, vinyl chloride, arsenic, lead	TtNUS, 2003
11	Wildwood Property[(1)] Salem St., Woburn	well used 1958-1989	Undeveloped land (process water supply well for Reilly tannery)	TCE, PCE, 1,1,1-TCA, arsenic, chromium, lead, PCBs, PAHs, organic pesticides	TtNUS, 2003
12	New England Plastics[(1)] Salem St., Woburn	Late 1940s-present	Vinyl siding, plastic products	TCE, PCE, lead, PCBs	TtNUS, 2003
13	Olympia Nominee Trust[(1)] 60 Olympia Ave. Woburn		Undeveloped land/ trucking terminal	TCE, PCE, PAHs, arsenic, chromium, lead, PCBs, chlordane	TtNUS, 2003
14	Murphy Waste Oil[(2)] 252 Salem St., Woburn		Oil recycling	BTEX, PAHs, PCBs, chromium, lead, cyanide, pesticides	Retech, 1994; TtNUS, 2003
15	Aberjona Auto Parts[(2)] 278 Salem St., Woburn	1950s-	Salvage operations, waste oil storage	TCE, PCE, BTEX, PAHs, PCBs, lead, pesticides, cyanide	Retech, 1994; TtNUS, 2003
16	Whitney Barrel[(2)], 256 Salem St., Woburn	1949-	Reconditioning of drums, tanks, etc.	TCE, PCE, PCBs, PAHs, arsenic, lead, chromium, cyanide, pesticides	Retech, 1994; TtNUS, 2003
17	J.O. Whitten 134 Cross St. Winchester	1900-1980	Rendering, glue manufacture (produced edible gelatin, glue)	Arsenic, lead, chromium, mercury, barium, cyanide, copper	GEI, 1997; Weston, 2001
18	Independent Tallow, 39 Cedar St., Woburn	1904-1987	Tannery, tallow and crackling production	Arsenic, chromium, PAHs	Geotechnical Consultants, 1986; TtNUS, 2003
19	Atlantic Gelatin, Hill St., Woburn	1919-present	Gelatin processing (produced gelatin, food products)	SVOCs, metals	Weston, 1998; TtNUS, 2003

TABLE 4-1 (cont.)
POTENTIAL CONTAMINATION SOURCES
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Number on Figure 4-1a	Potential Source / Location	Dates of Operation	Industry/ Manufacturing, Chemicals and Products	Potential Contaminants*	Reference
Southern RI Study Area					
20	American Shoe Machinery/Custom Machine 30 Nashua St., Woburn	1974-present	Production, maintenance, refurbishment of shoe manufacturing machinery	Chromium, lead, arsenic, TCE	Knoll, 1993; TtNUS, 2003
21	Crane's Court Industrial Park 22 Crane's Court, Woburn	1888-2001	Former patent leather manufacturing, misc. industrial	Arsenic, chromium	GeoInsight, 2002; TtNUS, 2003
22	J.J. Riley Tannery, 228 Salem St., Woburn	1909-1988	Tannery	Barium, chromium, lead, zinc, PAHs	TtNUS, 2003; Weston, 2004
23	Massachusetts Rifle Association, Rifle Range Rd; Woburn	1875-Present	Recreational shooting range	Lead	TtNUS, 2003

1. Wells G&H Source Area properties (OU-1)
2. Wells G&H Southwest Properties (OU-2)

***** Found in groundwater, soils, and/or sediment

TABLE 4-2a
INDUSTRI-PLEX SITE PERIMETER SOIL DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	IP Soil Cover Remedy Action Levels[5]		EPA Region 9 PRGs - Residential Soil 2004[6]		MADEP Natural Soil Background[7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
IP Perimeter Soils - All															
Metals (mg/kg)															
Aluminum	85	85	5450	5450	1950	10200	0	0	IPSO-A202-0203-090100			76000	0	10000	1
Antimony	19	83	4.7	19.4	4.8 J	50.3 J	0.36	1.5	IPSO-A608-0001-082800			31	1	1	19
Arsenic	85	85	116	116	1.9 J	744	0	0	IPSO-A607-0102-082800	300	14	0.39	85	20	26
Barium	85	85	63	63	9.7	535	0	0	IPSO-A608-0001-082800			5400	0	50	23
Beryllium	10	85	0.12	0.28	0.13 J	0.39	0.038	0.36	IPSO-A704-0102-092000			150	0	0.4	0
Cadmium	27	73	0.39	0.93	0.076 J	2.8 J	0.059	0.4	IPSO-A607-0102-082800, IPSO-A607-0203-082800-AVG			37	0	2	6
Calcium	84	85	6430	6510	472	225000	316	316	IPSO-A203-0203-090100						
Chromium	85	85	205	205	6.9	2680	0	0	IPSO-A610-0001-082800	1000	5	100000	0	30	34
Chromium VI	10	15	2.1	3.1	0.55 J	9.2 J	0.4	0.4	IPSO-A611-0102-082800-AVG			30	0	30	0
Cobalt	85	85	4.8	4.8	1	19 J	0	0	IPSO-A206-0203-090100			900	0	4	49
Copper	85	85	105	105	5.5	668	0	0	IPSO-A607-0102-082800			3100	0	40	33
Iron	85	85	15400	15400	3240	66900	0	0	IPSO-A608-0001-082800			23000	18	20000	19
Lead	85	85	437	437	3.5	5200	0	0	IPSO-A608-0001-082800	600	20	400	22	100	22
Magnesium	85	85	2240	2240	628	5420	0	0	IPSO-A205-0102-090100					5000	1
Manganese	85	85	128	128	41	353	0	0	IPSO-A606-0001-082800			1800	0	300	1
Mercury	56	85	1.4	2.1	0.041 J	11.8	0.038	0.18	IPSO-A607-0102-082800			6.1	8	0.3	22
Nickel	85	85	9.8	9.8	3.1	18.5	0	0	IPSO-A205-0102-090100			1600	0	20	0
Potassium	85	85	799	799	255	2730	0	0	IPSO-A205-0102-090100						
Selenium	29	85	1.5	3.4	0.85 J	7.6 J	0.95	3.2	IPSO-A608-0001-082800			390	0	0.5	29
Silver	24	85	1.1	3.8	0.15 J	16.6	0.11	0.19	IPSO-A608-0001-082800			390	0	0.6	23
Sodium	3	85	138	618	602	644	103	555	IPSO-A607-0203-082800-AVG						
Thallium	72	85	8.4	9.6	1.3 J	42.4	1.6	5.3	IPSO-A608-0001-082800			5.2	48	0.6	72
Vanadium	85	85	17	17	6.3	37.4 J	0	0	IPSO-A611-0001-082800			78	0	30	4
Zinc	85	85	178	178	10.4	901	0	0	IPSO-A610-0001-082800			23000	0	100	31

(1) The parameters listed for each group are only those detected in that group, except for chromium VI, which is listed when analyzed, even when not detected.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

(5) Industri plex Site Soil Cover Remedy Soil Action Levels - from Record of Decision, Industri-plex, Woburn, Massachusetts. September 30, 1986. (EPA, 1986)

(6) EPA Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil. (USEPA, 2004)

(7) Massachusetts Department of Environmental Protection (MADEP) Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Natural Soil. MADEP Background Technical Update, May 2002. (MADEP, 2002b)

TABLE 4-2b
FORMER MISHAWUM LAKE BED SOIL CORE DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004[5]		MADEP Natural Soil Background[6]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Mishawum Lake Bed Soil Cores - Surface Samples													
Metals (mg/kg)													
Aluminum	20	20	7720	7720	4500	13500 J	0	0	SO-20-SS-01	76000	0	10000	4
Antimony	4	20	0.66	1.9	0.82 J	2.6 J	0.67	0.78	SO-13-SS-01	31	0	1	3
Arsenic	20	20	45.5	45.5	5.7 J	192 J	0	0	SO-13-SS-01	0.39	20	20	9
Barium	20	20	23.6	23.6	11.2	47.9	0	0	SO-18-SS-01	5400	0	50	0
Beryllium	8	20	0.24	0.3	0.2 J	0.67	0.23	0.56	SO-20-SS-01	150	0	0.4	1
Cadmium	8	20	0.37	0.63	0.078 J	2 J	0.061	1.2	SO-16-SS-01	37	0	2	0
Calcium	20	20	1830	1830	763	5360	0	0	SO-18-SS-01				
Chromium	20	20	68.4	68.4	8.9 J	274 J	0	0	SO-14-SS-01	100000	0	30	12
Cobalt	20	20	4.6	4.6	1.4 J	11.3	0	0	SO-18-SS-01	900	0	4	11
Copper	20	20	77.4	77.4	7.1	300 J	0	0	SO-14-SS-01	3100	0	40	8
Iron	20	20	10700	10700	4500	21300 J	0	0	SO-18-SS-01	23000	0	20000	1
Lead	17	20	37.9	43.6	6.6 J	128 J	6.6	16.4	SO-13-SS-01	400	0	100	2
Magnesium	20	20	2830	2830	1280	7670 J	0	0	SO-18-SS-01			5000	1
Manganese	20	20	135	135	56.3	384 J	0	0	SO-18-SS-01	1800	0	300	1
Mercury	17	20	0.87	1	0.0051 J	5.8 J	0.0026	0.016	SO-13-SS-01	6.1	0	0.3	6
Nickel	20	20	10.2	10.2	4.6 J	23.5	0	0	SO-18-SS-01	1600	0	20	1
Potassium	20	20	982	982	406	2280	0	0	SO-18-SS-01				
Selenium	8	20	0.95	2	0.69 J	3.9	0.5	0.58	SO-14-SS-01	390	0	0.5	8
Silver	3	20	0.096	0.21	0.18 J	0.23 J	0.14	0.17	SO-14-SS-01	390	0	0.6	0
Sodium	19	20	147	154	48.4 J	339	41.3	41.3	SO-10-SS-01				
Vanadium	20	20	18.6	18.6	8.9	41	0	0	SO-18-SS-01	78	0	30	1
Zinc	20	20	74.1	74.1	12.7	252 J	0	0	SO-14-SS-01	23000	0	100	4
Semivolatile Organic Compounds (µg/kg)													
Acenaphthene	1	20	29	220	220 J	220 J	35	40	SO-09-SS-01	3700000	0	500	0
Acenaphthylene	3	20	26	67	44 J	110 J	35	40	SO-19-SS-01	56000	0	500	0
Anthracene	3	20	58	280	89 J	670	35	40	SO-09-SS-01	22000000	0	1000	0
Benzo(a)anthracene	10	20	370	720	36 J	5800	35	39	SO-09-SS-01	620	1	2000	1
Benzo(a)pyrene	11	20	490	880	39 J	7900	35	39	SO-09-SS-01	62	8	2000	1
Benzo(b)fluoranthene	13	20	700	1100	44 J	11000	35	39	SO-09-SS-01	620	3	2000	1

TABLE 4-2b (cont.)
FORMER MISHAWUM LAKE BED SOIL CORE DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004[5]		MADEP Natural Soil Background[6]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Mishawum Lake Bed Soil Cores - Surface Samples (cont.)													
Semivolatile Organic Compounds (µg/kg) (cont.)													
Benzo(g,h,i)perylene	8	20	310	750	42 J	5000	35	39	SO-09-SS-01	56000	0	1000	1
Benzo(k)fluoranthene	9	20	280	610	44 J	4400	35	39	SO-09-SS-01	6200	0	1000	1
bis(2-Ethylhexyl)phthalate	15	20	210	260	82 J	1200	72	77	SO-04-SS-01	35000	0		
Butylbenzylphthalate	1	20	39	76	76 J	76 J	71	81	SO-09-SS-01	12000000	0		
Carbazole	2	20	120	840	76 J	1600	71	81	SO-09-SS-01	24000	0		
Chrysene	13	20	590	900	32 J	9400	35	39	SO-09-SS-01	62000	0	2000	1
Dibenzo(a,h)anthracene	4	20	89	370	43 J	1300	35	40	SO-09-SS-01	62	2	500	1
Dibenzofuran	2	20	26	93	46 J	140 J	35	40	SO-09-SS-01	150000	0		
Fluoranthene	15	20	1200	1500	37 J	19000	35	39	SO-09-SS-01	2300000	0	4000	1
Fluorene	2	20	34	170	38 J	310 J	35	40	SO-09-SS-01	2700000	0	1000	0
Indeno(1,2,3-cd)pyrene	10	20	370	720	38 J	6000	35	39	SO-09-SS-01	620	1	1000	1
Phenanthrene	10	20	540	1100	46 J	8100	35	39	SO-09-SS-01	56000	0	3000	1
Pyrene	15	20	1000	1300	38 J	16000	35	39	SO-09-SS-01	2300000	0	4000	1
Volatile Organic Compounds (µg/kg)													
1,1-Dichloroethene	5	20	2	5	2 J	10	1	1	SO-12-SS-01	120000	0		
2-Butanone	3	20	3	8	5 J	9 J	4	6	SO-11-SS-01, SO-14-SS-01	22000000	0		
Acetone	18	20	31	34	9 J	100	8	9	SO-11-SS-01	14000000	0		
Benzene	1	20	0.5	1	1 J	1 J	1	1	SO-02-SS-01	640	0		
Carbon Disulfide	1	20	0.8	7	7	7	1	1	SO-12-SS-01	360000	0		
Mishawum Lake Bed Soil Cores - Bottom Samples													
Metals (mg/kg)													
Aluminum	15	15	9880	9880	3700	28500 J	0	0	SO-13-SB-01	76000	0	10000	4
Antimony	7	15	6.8	14	0.65 J	81.4 J	0.73	1	SO-13-SB-01	31	1	1	5
Arsenic	15	15	341	341	1.6 J	2680 J	0	0	SO-13-SB-01	0.39	15	20	11
Barium	15	15	22.9	22.9	8 J	58.8	0	0	SO-16-SB-01	5400	0	50	2
Beryllium	6	15	0.34	0.31	0.18 J	0.47 J	0.22	2	SO-08-SB-01	150	0	0.4	2
Cadmium	8	15	3.7	6.5	0.18 J	41.2 J	0.18	1.4	SO-13-SB-01	37	1	2	2
Calcium	15	15	2460	2460	695	8380 J	0	0	SO-13-SB-01				

TABLE 4-2b (cont.)
FORMER MISHAWUM LAKE BED SOIL CORE DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004[5]		MADEP Natural Soil Background[6]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Mishawum Lake Bed Soil Cores - Bottom Samples (cont.)													
Metals (mg/kg) (cont.)													
Chromium	15	15	158	158	8.8 J	536 J	0	0	SO-14-SB-01-AVG	100000	0	30	13
Cobalt	15	15	8.1	8.1	1.7 J	47.7 J	0	0	SO-13-SB-01	900	0	4	8
Copper	15	15	275	275	2.2 J	1600 J	0	0	SO-13-SB-01	3100	0	40	10
Iron	15	15	15900	15900	2990 J	86700 J	0	0	SO-11-SB-01	23000	2	20000	3
Lead	13	15	130	149	8.2 J	1090 J	7.8	15.6	SO-13-SB-01	400	1	100	3
Magnesium	15	15	1870	1870	658 J	5570 J	0	0	SO-16-SB-01			5000	1
Manganese	15	15	115	115	31.4 J	304 J	0	0	SO-16-SB-01	1800	0	300	1
Mercury	15	15	1.5	1.5	0.017 J	9.2 J	0	0	SO-13-SB-01	6.1	1	0.3	10
Nickel	15	15	10.1	10.1	2.8 J	21.9	0	0	SO-16-SB-01	1600	0	20	1
Potassium	15	15	638	638	306	1900	0	0	SO-16-SB-01	0	0		
Selenium	13	15	3.6	4.1	0.46 J	22.3 J	0.61	0.68	SO-13-SB-01	390	0	0.5	12
Silver	3	14	0.18	0.49	0.18 J	1.1 J	0.15	0.22	SO-13-SB-01	390	0	0.6	1
Sodium	13	15	180	204	60 J	831 J	44.7	59	SO-13-SB-01				
Thallium	2	15	1.2	5.2	3.5 J	6.9 J	0.92	1.4	SO-13-SB-01	5.2	1	0.6	2
Vanadium	15	15	22.1	22.1	7.3	68.8 J	0	0	SO-13-SB-01	78	0	30	3
Zinc	15	15	776	776	58.2 J	7390 J	0	0	SO-13-SB-01	23000	0	100	11
Semivolatile Organic Compounds (µg/kg)													
Benzo(a)anthracene	3	14	48	140	65 J	200 J	37	53	SO-13-SB-01	620	0	2000	0
Benzo(a)pyrene	4	14	53	130	46 J	230 J	37	53	SO-09-SB-01	62	3	2000	0
Benzo(b)fluoranthene	10	14	86	110	32 J	310 J	46	51	SO-09-SB-01	620	0	2000	0
Benzo(g,h,i)perylene	2	14	43	160	140 J	190 J	37	53	SO-09-SB-01	56000	0	1000	0
Benzo(k)fluoranthene	1	13	31	130	130 J	130 J	37	53	SO-09-SB-01	6200	0	1000	0
bis(2-Ethylhexyl)phthalate	14	15	390	410	98 J	1500	76	76	SO-08-SB-01	35000	0		
Chrysene	7	14	74	120	29 J	290 J	39	51	SO-13-SB-01	62000	0	2000	0
Dibenzo(a,h)anthracene	1	13	24	46	46 J	46 J	37	53	SO-09-SB-01	62	0	500	0
Diethylphthalate	1	14	72	430	430 J	430 J	75	110	SO-11-SB-01	49000000	0		
Fluoranthene	10	14	110	150	35 J	460	46	51	SO-09-SB-01	2300000	0	4000	0
Indeno(1,2,3-cd)pyrene	3	14	45	130	56 J	180 J	37	53	SO-09-SB-01	620	0	1000	0
Naphthalene	2	13	31	79	48 J	110 J	38	53	SO-16-SB-01	56000	0	500	0

TABLE 4-2b (cont.)
FORMER MISHAWUM LAKE BED SOIL CORE DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004[5]		MADEP Natural Soil Background[6]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Mishawum Lake Bed Soil Cores - Bottom Samples (cont.)													
Semivolatile Organic Compounds (µg/kg) (cont.)													
N-Nitrosodiphenylamine	7	14	290	560	48 J	3300 J	37	51	SO-13-SB-01				
Phenanthrene	3	13	46	120	70 J	230 J	37	53	SO-09-SB-01	56000	0	3000	0
Pyrene	10	14	110	150	36 J	540 J	46	51	SO-13-SB-01	2300000	0	4000	0
Volatile Organic Compounds (µg/kg)													
1,1-Dichloroethene	4	13	15	2	1 J	3 J	1	140	SO-09-SB-01, SO-14-SB-01-AVG	120000	0		
2-Butanone	10	15	140	130	7 J	660 J	5	570	SO-13-SB-01	22000000	0		
Acetone	11	15	330	330	15 J	1500 J	460	1000	SO-13-SB-01	14000000	0		
Carbon Disulfide	3	14	22	38	3 J	99 J	1	140	SO-13-SB-01	360000	0		
cis-1,2-Dichloroethene	1	14	14	11	11 J	11 J	1	140	SO-11-SB-01	43000	0		
Methylene Chloride	1	14	29	16	16 J	16 J	2	290	SO-11-SB-01	9100	0		
Toluene	1	14	14	12	12 J	12 J	1	140	SO-11-SB-01	520000	0		

(1) The parameters listed for each group are only those detected in that group, except for chromium VI, which is listed when analyzed, even when not detected.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

(5) EPA Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil. (USEPA, 2004)

(6) Massachusetts Department of Environmental Protection (MADEP) Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Natural Soil. MADEP Background Technical Update, May 2002. (MADEP, 2002b)

TABLE 4-2c
BENZENE AND TOLUENE SOURCE AREA SOIL DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER(1)	Detects	Count	Average Conc.(2)	Average Detected Conc.(3)	Detected Concentrations		Detection Limits of Non-Detects(4)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004(5)		MADEP Natural Soil Background(6)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Vining Property													
Benzene	15	17	13000	15000	1.3 J	110000	1.2	1.5	RX-8	640	4		
Toluene	11	17	8700	13000	1.8 J	98000	1.2	1.8	RX-9-AVG	520000	0		
West Hide Pile													
Benzene	3	3	70000	70000	12	210000	0	0	RX-18-1015	640	1		
Toluene	3	3	5300	5300	1.4 J	16000	0	0	RX-18-1015	520000	0		

(1) The parameters listed for each group are only those detected in that group, except for chromium VI, which is listed when analyzed, even when not detected.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

(5) EPA Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil. (USEPA, 2004)

(6) Massachusetts Department of Environmental Protection (MADEP) Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Natural Soil. MADEP Background Technical Update, May 2002. (MADEP, 2002b)

TABLE 4-2d
FLOODPLAIN SOIL DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004[5]		MADEP Natural Soil Background[6]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 0 - Boston Edison ROW													
Aluminum	4	4	7560	7560	4040	14300	0	0	BSO-04	76000	0	10000	1
Antimony	2	4	1.9	3.4	1.4	5.5	0.58	0.93	BSO-01	31	0	1	2
Arsenic	4	4	69.6	69.6	6.1 J	250 J	0	0	BSO-01	0.39	4	20	1
Barium	4	4	18.7	18.7	10.1	32.7 J	0	0	BSO-04	5400	0	50	0
Beryllium	4	4	0.32	0.32	0.22 J	0.51	0	0	BSO-04	150	0	0.4	1
Calcium	4	4	1740	1740	459	3860	0	0	BSO-04				
Chromium	4	4	22.1	22.1	8	46.3	0	0	BSO-01	100000	0	30	1
Cobalt	4	4	6.4	6.4	2.1	13.7	0	0	BSO-04	900	0	4	2
Copper	4	4	43.1	43.1	20	98.5	0	0	BSO-01	3100	0	40	1
Iron	4	4	14700	14700	6120	29300	0	0	BSO-04	23000	1	20000	1
Lead	4	4	53.7	53.7	7.1	188 J	0	0	BSO-01	400	0	100	1
Magnesium	4	4	2770	2770	931	6050	0	0	BSO-04			5000	1
Manganese	4	4	260	260	36.9	654 J	0	0	BSO-04	1800	0	300	1
Mercury	1	4	0.34	1.3	1.3	1.3	0.04	0.05	BSO-01	6.1	0	0.3	1
Nickel	4	4	11.2	11.2	4.5	23.8	0	0	BSO-04	1600	0	20	1
Potassium	4	4	845	845	302	1660 J	0	0	BSO-04				
Selenium	2	4	1.5	2.7	1.1 J	4.3	0.58	0.58	BSO-01	390	0	0.5	2
Silver	1	4	0.12	0.21	0.21 J	0.21 J	0.19	0.19	BSO-01	390	0	0.6	0
Sodium	4	4	775	775	311 J	992 J	0	0	BSO-03				
Thallium	2	4	0.98	1.7	0.62 J	2.7 J	0.58	0.58	BSO-04	5.2	0	0.6	2
Vanadium	4	4	17.5	17.5	8.2	31	0	0	BSO-04	78	0	30	1
Zinc	4	4	45.5	45.5	26.8 J	66.4	0	0	BSO-04	23000	0	100	0
Reach 0 - HBHA dirt access road East side of wetland													
Aluminum	10	10	3730	3730	2270	5150	0	0	HB04-02	76000	0	10000	0
Antimony	7	10	0.67	0.83	0.58 J	1.1 J	0.6	0.6	HB04-03	31	0	1	1
Arsenic	10	10	22.2	22.2	9.6 J	32.9 J	0	0	HB04-02	0.39	10	20	6
Barium	10	10	12.6	12.6	7.1	17.7	0	0	HB04-02	5400	0	50	0
Beryllium	8	10	0.22	0.25	0.21 J	0.3 J	0.2	0.2	HB04-02	150	0	0.4	0
Cadmium	9	10	0.32	0.34	0.22 J	0.72	0.2	0.2	HB04-04	37	0	2	0
Calcium	10	10	1260	1260	611	1890	0	0	HB04-07				
Chromium	10	10	25.4	25.4	9.7	39	0	0	HB04-03	100000	0	30	3
Cobalt	10	10	2.8	2.8	1.6	4.2	0	0	HB04-07	900	0	4	1

TABLE 4-2d (cont.)
FLOODPLAIN SOIL DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004[5]		MADEP Natural Soil Background[6]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 0 - HBHA dirt access road East side of wetland (cont.													
Copper	10	10	28.4	28.4	11.6	43.7	0	0	HB04-02	3100	0	40	2
Iron	10	10	6370	6370	4040	8490	0	0	HB04-02	23000	0	20000	0
Lead	10	10	20.2	20.2	7.9 J	49.5 J	0	0	HB04-02	400	0	100	0
Magnesium	10	10	1520	1520	900	2060	0	0	HB04-02			5000	0
Manganese	10	10	75.6	75.6	47.9	97.8	0	0	HB04-07	1800	0	300	0
Mercury	9	10	0.16	0.17	0.08 J	0.32	0.05	0.05	HB04-03	6.1	0	0.3	1
Nickel	10	10	6.1	6.1	4.4	8.3	0	0	HB04-07	1600	0	20	0
Potassium	10	10	559	559	356	731	0	0	HB04-02				
Selenium	6	10	0.54	0.7	0.58 J	0.84 J	0.57	0.61	HB04-09	390	0	0.5	6
Sodium	10	10	887	887	221	1140 J	0	0	HB04-04				
Thallium	6	10	0.58	0.76	0.7 J	0.81 J	0.6	0.61	HB04-03	5.2	0	0.6	6
Vanadium	10	10	9.6	9.6	5.5	13	0	0	HB04-02	78	0	30	0
Zinc	10	10	53.2	53.2	23.9 J	83.8 J	0	0	HB04-04	23000	0	100	0
Reach 1 - Normac Road													
Aluminum	5	5	4610	4610	2890	8250	0	0	NR-20	76000	0	10000	0
Arsenic	5	5	111	111	39.6	266	0	0	NR-20	0.39	5	20	5
Barium	5	5	37.6	37.6	16.8	74.2	0	0	NR-20	5400	0	50	1
Beryllium	3	5	0.27	0.4	0.3	0.56	0.15	0.16	NR-20	150	0	0.4	1
Cadmium	2	5	0.98	2.1	1.2	3	0.3	0.69	NR-20	37	0	2	1
Calcium	5	5	2210	2210	1090	4450	0	0	NR-20				
Chromium	5	5	97.9	97.9	40	228	0	0	NR-20	100000	0	30	5
Cobalt	5	5	6	6	3	12.8	0	0	NR-20	900	0	4	3
Copper	5	5	96.9	96.9	38.6	228	0	0	NR-20	3100	0	40	3
Iron	5	5	17200	17200	7960	36900	0	0	NR-20	23000	1	20000	1
Lead	5	5	85.4	85.4	35.6	187	0	0	NR-20	400	0	100	1
Magnesium	5	5	1640	1640	1070	2700	0	0	NR-20	0	0	5000	0
Manganese	5	5	307	307	111	830	0	0	NR-20	1800	0	300	2
Mercury	5	5	0.81	0.81	0.38	2	0	0	NR-20	6.1	0	0.3	5
Nickel	4	5	8.2	9.6	4.2 J	14.9	4.9	4.9	NR-20	1600	0	20	0
Potassium	5	5	364	364	236	548	0	0	NR-20				
Selenium	3	5	0.92	1.3	0.68 J	2.4 J	0.6	0.6	NR-20	390	0	0.5	3
Silver	5	5	1.1	1.1	0.31 J	2.7	0	0	NR-20	390	0	0.6	3

TABLE 4-2d (cont.)
FLOODPLAIN SOIL DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004[5]		MADEP Natural Soil Background[6]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 1 - Normac Road (cont.)													
Sodium	5	5	339	339	189 J	602	0	0	NR-16				
Vanadium	5	5	16.2	16.2	8.8	31.8	0	0	NR-20	78	0	30	1
Zinc	5	5	290	290	105 J	708 J	0	0	NR-20	23000	0	100	5
Reach 1 - Salem St. West Residence													
Aluminum	5	5	8090	8090	6530	9400	0	0	WSS03	76000	0	10000	0
Antimony	1	5	0.86	0.76	0.76 J	0.76 J	1.7	1.8	WSS05	31	0	1	0
Arsenic	5	5	8.9	8.9	8.1	10.9	0	0	WSS03	0.39	5	20	0
Barium	5	5	34.6	34.6	28.9	43.6	0	0	WSS04	5400	0	50	0
Beryllium	4	5	0.22	0.24	0.18 J	0.33 J	0.2	0.2	WSS05	150	0	0.4	0
Cadmium	2	5	0.2	0.34	0.31 J	0.37 J	0.19	0.2	WSS05	37	0	2	0
Calcium	5	5	1930	1930	1330	2240	0	0	WSS04				
Chromium	5	5	13.5	13.5	9.3	19.7	0	0	WSS05	100000	0	30	0
Cobalt	5	5	3.9	3.9	2.3	5.3	0	0	WSS05	900	0	4	2
Copper	5	5	26.7	26.7	18.3	33.8 J	0	0	WSS02-AVG	3100	0	40	0
Iron	5	5	9230	9230	6600	10800	0	0	WSS05	23000	0	20000	0
Lead	5	5	67.9	67.9	55.5	93.3	0	0	WSS03	400	0	100	0
Magnesium	5	5	2010	2010	1360	2390	0	0	WSS04			5000	0
Manganese	5	5	148	148	90.6	204	0	0	WSS05	1800	0	300	0
Mercury	5	5	0.1	0.1	0.09 J	0.13 J	0	0	WSS01	6.1	0	0.3	0
Nickel	5	5	8	8	6.7	9.7	0	0	WSS03	1600	0	20	0
Potassium	5	5	581	581	452	859	0	0	WSS04				
Selenium	1	5	0.55	0.76	0.76 J	0.76 J	0.77	1.4	WSS05	390	0	0.5	1
Sodium	5	5	419	419	267	960 J	0	0	WSS05				
Thallium	1	5	0.77	1.5	1.5 J	1.5 J	0.6	1.4	WSS01	5.2	0	0.6	1
Vanadium	5	5	18.7	18.7	13.1	24.3	0	0	WSS03	78	0	30	0
Zinc	5	5	54	54	33.5	81.5 J	0	0	WSS05	23000	0	100	0
Reach 2 - Cranberry Bog - off dirt foot path on west side													
Aluminum	10	10	5770	5770	4820	7240	0	0	CB05-08	76000	0	10000	0
Antimony	6	10	0.91	1.1	0.67 J	1.6	0.65	1.9	CB05-05	31	0	1	3
Arsenic	10	10	30	30	16.8	86.3	0	0	CB05-05	0.39	10	20	7
Barium	10	10	26.7	26.7	17.1	40.1	0	0	CB05-08	5400	0	50	0
Beryllium	8	10	0.26	0.3	0.26 J	0.38 J	0.21	0.22	CB05-08	150	0	0.4	0

TABLE 4-2d (cont.)
FLOODPLAIN SOIL DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004[5]		MADEP Natural Soil Background[6]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 2 - Cranberry Bog - off dirt foot path on west side (cont.)													
Cadmium	9	10	0.49	0.54	0.22 J	1.1	0.22	0.22	CB05-06	37	0	2	0
Calcium	10	10	2170	2170	1240	4010	0	0	CB05-06				
Chromium	10	10	56.3	56.3	13.4	211	0	0	CB05-03	100000	0	30	5
Cobalt	10	10	5.6	5.6	3.7	9.5	0	0	CB05-05	900	0	4	9
Copper	10	10	40.2	40.2	26.5	82.9	0	0	CB05-05	3100	0	40	2
Iron	10	10	10100	10100	6690	14500	0	0	CB05-05	23000	0	20000	0
Lead	10	10	50.3	50.3	28.9	90.9	0	0	CB05-05	400	0	100	0
Magnesium	10	10	2260	2260	1620	3020	0	0	CB05-01			5000	0
Manganese	10	10	194	194	128 J	309	0	0	CB05-05	1800	0	300	1
Mercury	10	10	0.17	0.17	0.07 J	0.6	0	0	CB05-05	6.1	0	0.3	1
Nickel	10	10	9.7	9.7	8.5	11.3	0	0	CB05-08	1600	0	20	0
Potassium	10	10	720	720	421	1000	0	0	CB05-02				
Selenium	2	10	0.52	1.2	1.1 J	1.2 J	0.65	0.83	CB05-05	390	0	0.5	2
Sodium	10	10	337	337	276	391	0	0	CB05-08				
Thallium	4	10	0.78	1.4	0.72 J	1.8 J	0.65	0.8	CB05-09, CB05-10-AVG	5.2	0	0.6	4
Vanadium	10	10	22.7	22.7	17.2	34.9	0	0	CB05-05	78	0	30	1
Zinc	10	10	130	130	60.7 J	259	0	0	CB05-06	23000	0	100	5
Reach 2 - Danielson Park - along river bank across from park, downstream of Washington St. bridge													
Aluminum	5	5	6980	6980	5160	10900	0	0	DAP03	76000	0	10000	1
Arsenic	5	5	98.6	98.6	21.8 J	272 J	0	0	DAP03	0.39	5	20	5
Barium	5	5	35.3	35.3	11	90.6	0	0	DAP03	5400	0	50	1
Beryllium	2	5	0.22	0.38	0.24 J	0.53	0.21	0.24	DAP03	150	0	0.4	1
Cadmium	4	5	1.4	1.7	0.3 J	4.6 J	0.23	0.23	DAP03	37	0	2	1
Calcium	5	5	1570	1570	556	4060	0	0	DAP03				
Chromium	5	5	193	193	32.6 J	550 J	0	0	DAP03	100000	0	30	5
Cobalt	5	5	9	9	2.8	25.7	0	0	DAP03	900	0	4	4
Copper	5	5	145	145	41.4 J	320 J	0	0	DAP03	3100	0	40	5
Iron	5	5	16900	16900	9240	37000	0	0	DAP03	23000	1	20000	1
Lead	5	5	134	134	67.4 J	274 J	0	0	DAP03	400	0	100	3
Magnesium	5	5	1920	1920	1360	2630	0	0	DAP02			5000	0
Manganese	5	5	791	791	58.1	2850	0	0	DAP03	1800	1	300	2
Mercury	5	5	1.2	1.2	0.31 J	3.4	0	0	DAP03	6.1	0	0.3	5

TABLE 4-2d (cont.)
FLOODPLAIN SOIL DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004[5]		MADEP Natural Soil Background[6]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 2 - Danielson Park - along river bank across from park, downstream of Washington St. bridge (cont.)													
Nickel	5	5	11.3	11.3	6.5	22.2	0	0	DAP03	1600	0	20	1
Potassium	5	5	394	394	300	487	0	0	DAP03				
Selenium	3	5	1.1	1.5	1.2 J	2 J	0.86	0.86	DAP03	390	0	0.5	3
Silver	1	5	0.15	0.28	0.28 J	0.28 J	0.21	0.24	DAP03	390	0	0.6	0
Sodium	5	5	358	358	272	559	0	0	DAP03				
Thallium	2	5	1.5	2.5	1.6 J	3.4	1.5	1.7	DAP03	5.2	0	0.6	2
Vanadium	5	5	26.7	26.7	14.1	41.9	0	0	DAP03	78	0	30	2
Zinc	5	5	275	275	53.1	843	0	0	DAP03	23000	0	100	3
Reach 2 - Kraft Foods well field - along east bank of river													
Aluminum	10	10	5600	5600	3840	7550	0	0	KFSO-05-AVG	76000	0	10000	0
Arsenic	10	10	39.7	39.7	19.9	54.6	0	0	KFSO-05-AVG	0.39	10	20	9
Barium	10	10	51	51	27.3	77	0	0	KFSO-05-AVG	5400	0	50	4
Beryllium	10	10	0.36	0.36	0.21	0.48 , J	0	0	KFSO-02, KFSO-05-AVG	150	0	0.4	2
Cadmium	7	10	1	1.4	0.86	2 J	0.44	0.76	KFSO-05-AVG	37	0	2	0
Calcium	10	10	2830	2830	1620	3570	0	0	KFSO-05-AVG				
Chromium	10	10	102	102	48.4	141	0	0	KFSO-02	100000	0	30	10
Cobalt	10	10	9	9	5.5	13.4	0	0	KFSO-05-AVG	900	0	4	10
Copper	10	10	90.9	90.9	50.6	144	0	0	KFSO-05-AVG	3100	0	40	10
Iron	10	10	14900	14900	9840	21800	0	0	KFSO-05-AVG	23000	0	20000	1
Lead	10	10	160	160	86.5	266	0	0	KFSO-05-AVG	400	0	100	8
Magnesium	10	10	2180	2180	1590	2880	0	0	KFSO-05-AVG			5000	0
Manganese	10	10	638	638	245	1340	0	0	KFSO-05-AVG	1800	0	300	9
Mercury	10	10	0.59	0.59	0.27 J	0.86 J	0	0	KFSO-05-AVG	6.1	0	0.3	9
Nickel	10	10	11.8	11.8	5.6	17.8	0	0	KFSO-05-AVG	1600	0	20	0
Potassium	10	10	389	389	254 J	511 J	0	0	KFSO-02	0	0		
Selenium	2	10	0.39	0.76	0.65 J	0.87 J	0.58	0.6	KFSO-10	390	0	0.5	2
Silver	9	10	0.59	0.64	0.47 J	0.88	0.4	0.4	KFSO-05-AVG	390	0	0.6	4
Sodium	7	10	174	217	171 J	279 J	150	152	KFSO-05-AVG	0	0		
Vanadium	10	10	25.2	25.2	15.5	37.4	0	0	KFSO-05-AVG	78	0	30	2
Zinc	10	10	334	334	181 J	489	0	0	KFSO-05-AVG	23000	0	100	10

TABLE 4-2d (cont.)
FLOODPLAIN SOIL DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004[5]		MADEP Natural Soil Background[6]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 3 - Davidson Park adjacent to pond & w/in park													
Aluminum	26	26	7890	7890	5940 J	10600 J	0	0	IPSO-DP09-0005-071100, IPSO-DP26-0005-071100-AVG	76000	0	10000	2
Arsenic	26	26	33.2	33.2	6.1 J	219	0	0	IPSO-DP26-0005-071100-AVG	0.39	26	20	13
Barium	26	26	42.9	42.9	20.3	152	0	0	IPSO-DP26-0005-071100-AVG	5400	0	50	5
Beryllium	1	9	0.074	0.44	0.44	0.44	0.05	0.07	IPSO-DP26-0005-071100-AVG	150	0	0.4	1
Cadmium	1	26	0.091	0.65	0.65 J	0.65 J	0.1	0.28	IPSO-DP26-0005-071100-AVG	37	0	2	0
Calcium	26	26	2660	2660	1140 J	7240	0	0	IPSO-DP26-0005-071100-AVG				
Chromium	26	26	110	110	24.4 J	316 J	0	0	IPSO-DP26-0005-071100-AVG	100000	0	30	23
Chromium VI	0	5	1.2	0	0	0	2.1	2.896	None	30	0	30	0
Cobalt	26	26	7.1	7.1	3.9	13.3	0	0	IPSO-DP03-0005-071100	900	0	4	25
Copper	26	26	80.4	80.4	20.8	299	0	0	IPSO-DP26-0005-071100-AVG	3100	0	40	19
Iron	26	26	17100	17100	7890	134000 J	0	0	IPSO-DP16-0005-071100	23000	1	20000	2
Lead	26	26	119	119	25	261	0	0	IPSO-DP12-0005-071100	400	0	100	16
Magnesium	26	26	2500	2500	1370	5020	0	0	IPSO-DP03-0005-071100			5000	1
Manganese	26	26	264	264	84.8 J	818	0	0	IPSO-DP25-0005-071100	1800	0	300	9
Mercury	21	26	0.77	0.93	0.22 J	2.4	0.13	0.26	IPSO-DP26-0005-071100-AVG	6.1	0	0.3	20
Nickel	26	26	12.4	12.4	6.5 J	21 J	0	0	IPSO-DP16-0005-071100	1600	0	20	1
Potassium	26	26	416	416	190	755	0	0	IPSO-DP25-0005-071100				
Selenium	10	26	0.99	1.7	0.93 J	6.1	0.81	2.5	IPSO-DP16-0005-071100	390	0	0.5	10
Silver	24	25	0.69	0.71	0.41 J	1.3	0.42	0.42	IPSO-DP11-0005-071100	390	0	0.6	16
Sodium	1	25	88.6	216	216 J	216 J	80.6	268	IPSO-DP26-0005-071100-AVG				
Thallium	10	26	1.6	2.4	1.8 J	3.6 J	1.6	2.7	IPSO-DP16-0005-071100	5.2	0	0.6	10
Vanadium	26	26	27.8	27.8	15.6	58.1	0	0	IPSO-DP12-0005-071100	78	0	30	9
Zinc	26	26	1920	1920	55.8	44800	0	0	IPSO-DP16-0005-071100	23000	1	100	23
Reach 5 - Aberjona River Winchester after Bacon St.													
Aluminum	9	9	11300	11300	6400	17000	0	0	AJRW12R	76000	0	10000	5
Arsenic	7	9	46.4	56.9	24	98	19	20	AJRW22	0.39	7	20	7
Barium	9	9	62.2	62.2	20	220	0	0	AJRW16	5400	0	50	3
Calcium	9	9	2090	2090	680	4800	0	0	AJRW10-AVG				
Chromium	9	9	39.9	39.9	19	90	0	0	AJRW18	100000	0	30	5
Cobalt	9	9	9.1	9.1	3.5	21	0	0	AJRW12R	900	0	4	8
Copper	9	9	63.6	63.6	26	200	0	0	AJRW24	3100	0	40	4

TABLE 4-2d (cont.)
FLOODPLAIN SOIL DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER[1]	Detects	Count	Average Conc.[2]	Average Detected Conc.[3]	Detected Concentrations		Detection Limits of Non-Detects[4]		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004[5]		MADEP Natural Soil Background[6]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 5 - Aberjona River Winchester after Bacon St. (cont.)													
Iron	9	9	17700	17700	11000	34000	0	0	AJRW12R	23000	1	20000	2
Lead	9	9	298	298	88	930	0	0	AJRW16	400	2	100	8
Magnesium	9	9	4220	4220	1600	11000	0	0	AJRW12R			5000	2
Manganese	9	9	229	229	63	600	0	0	AJRW12R	1800	0	300	2
Mercury	9	9	0.43	0.43	0.22	1.2	0	0	AJRW10-AVG	6.1	0	0.3	4
Nickel	9	9	14.4	14.4	7	33	0	0	AJRW12R	1600	0	20	1
Potassium	1	9	583	1300	1300	1300	960	1000	AJRW12R				
Total Organic Carbon	9	9	70000	70000	35400	143000	0	0	AJRW16				
Vanadium	9	9	44.1	44.1	29	70	0	0	AJRW12R	78	0	30	8
Zinc	9	9	112	112	25	250	0	0	AJRW24	23000	0	100	4

(1) The parameters listed for each group are only those detected in that group, except for chromium VI, which is listed when analyzed, even when not detected.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

(5) EPA Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil. (USEPA, 2004)

(6) Massachusetts Department of Environmental Protection (MADEP) Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Natural Soil. MADEP Background Technical Update, May 2002. (MADEP, 2002b)

TABLE 4-3a
STUDY AREA GROUNDWATER METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
ALL AQUIFER LAYERS													
Metals													
Aluminum	UG/L	67	191	499	35	15000	19.6	660	IPGW-AA03-0006-011602				
Antimony	UG/L	3	191	2.5	1.6 J	49.7 J	1.5	29.5	CB7-01-GW-01			300	0
Arsenic	UG/L	360	467	217	0.16	24400	0.2	9.4	B7-01-GW-01-AVG			400	44
Barium	UG/L	189	190	68.9	4 J	1540	17.5	17.5	CB7-01-GW-01			30000	0
Beryllium	UG/L	6	191	0.34	0.51	10.5	0.2	3.2	CB9-02-GW-02			50	0
Cadmium	UG/L	34	191	0.89	0.24	19.9	0.3	3.2	IPGW-AP03-0015-012902-AVG			10	3
Calcium	UG/L	191	191	100000	454	783000	0	0	CE4-03-GW-01NS-F-072401				
Chromium	UG/L	177	463	38.9	0.62	5570	0.5	6.6	B6-04-GW-02RNS-F			2000	2
Cobalt	UG/L	109	191	7.8	0.61	120	0.7	9	CB7-02-GW-02, IPGW-AP02-0028-012402				
Copper	UG/L	65	191	86.9	2.2	14100	1	20.2	CB4-04-GW-02NS-F				
Iron	UG/L	421	462	17400	19.3 J	262000	6.7	2060	B9-06-GW-02				
Lead	UG/L	49	463	24.6	1.3 J	2640	1.1	44	B7-01-GW-03			30	23
Magnesium	UG/L	191	191	21200	839	165000	0	0	CB6-03-GW-02				
Manganese	UG/L	189	191	1290	4.6	14400	15.2	19.6	IPGW-AE03-0078-020402				
Mercury	UG/L	19	463	0.15	0.043	15.9	0.02	8.8	B7-01-GW-03			1	8
Nickel	UG/L	94	191	9.1	1.4	114	1	14.1	IPGW-AP02-0028-012402			80	5
Potassium	UG/L	191	191	11000	661	92000	0	0	CW5-05-GW-02R				
Selenium	UG/L	24	191	2.5	2.2 J	40.8 J	1.9	21.5	IPGW-MW04-0014-032802			80	0
Silver	UG/L	7	191	0.54	0.58 J	2 J	0.5	6.5	P1-02-GW-06NS-F-110601			7	0
Sodium	UG/L	191	191	110000	4200	1950000	0	0	CW5-05-GW-03				
Thallium	UG/L	10	191	3.7	3.9	14.3 J	2.2	44	CB9-02-GW-02			400	0
Vanadium	UG/L	65	191	6.5	1.1 J	215	0.4	1.7	CB5-03-GW-03			2000	0
Zinc	UG/L	105	188	423	2.6	31700	3.2	76.8	CB4-04-GW-02NS-F			900	11
Metals Speciation (GSIP and MSGRP Investigations)													
Arsenic (III)	UG/L	157	171	337	0.038 J	20358 J	0.006	0.075	CB7-01-GW-01				
DMA	UG/L	15	120	24.7	1.6	1296 J	0.025	350	E4-03-GW-02NS-F				
Inorganic Arsenic	UG/L	121	121	736	0.465 J	32629 J	0	0	CB7-01-GW-01				
MMA	UG/L	24	121	63.6	0.289 J	3715 J	0.07	350	E4-03-GW-02NS-F				

TABLE 4-3a (cont.)
STUDY AREA GROUNDWATER METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
ALL AQUIFER LAYERS (cont.)													
Metals Speciation (EPA Natural Attenuation Study)													
Arsenic (III)	MG/L	7	13	0.77	0.009	5.118	0.001	0.005	A06-1-101899				
Arsenic (V)	MG/L	7	13	0.15	0.01	0.639	0.001	0.005	A06-1-101899				
Arsenic Percent Recovery	%	6	6	119	107	136	0	0	A03-2-101599				
Total Arsenic (HCl)	MG/L	10	13	0.86	0.105	5.127	0.033	0.033	A06-1-101899				
Total Arsenic (HNO3)	MG/L	9	13	0.97	0.014	6.012	0.007	0.033	A06-1-101899				
Miscellaneous Water Quality Parameters													
Alkalinity	MG/L AS	13	13	339	44	1035	0	0	A02-1-101499				
Alkalinity to pH 4.5	MG/L	20	20	704	7.4	7600	0	0	CB8-04-GW-02NS-AVG				
Bicarbonate	MG/L	43	43	400	7.4	7600	0	0	CB8-04-GW-02NS-AVG				
Chloride	MG/L	23	23	108	3.2 J	407	0	0	IPGW-AE07-0013-022102-AVG				
Conductivity	MS/CM	13	13	1650	818	3470	0	0	A01-1-101499				
Dissolved Organic Carbon	MG/L	45	79	42.3	3	923	1.69	8	CB1-04-GW-01NS-110701				
DO(Chemet)	MG/L	9	9	0.21	0.04	0.4	0	0	A23-1-033100				
DO(electrode)	MG/L	12	12	0.62	0.14	3.38	0	0	A22-1-033100				
Ferrous Iron	MG/L	15	15	7.3	1.16	21.5	0	0	A23-2-040300				
Nitrate	MG/L	15	44	1.5	0.07 J	33	0.04	0.2	CB3-02-GW01NS				
Nitrite-N	MG/L	17	44	0.19	0.02 J	4.8	0.015	1	CH2-04GW06-AVG				
Nitrogen, Ammonia	MG/L	19	20	251	0.078 J	2200	0.16	0.16	CB8-04-GW-02NS-AVG				
ORP	MV	4	4	76.9	14.4	141.8	0	0	A23-1-033100				
pH	S.U.	13	13	6.4	4.64	7.27	0	0	A06-1-101899				
Sulfate	MG/L	29	43	314	1.9	3210	1	2400	CW5-03-GW-03NS				
Temperature	°C	3	3	13	11.8	13.7	0	0	A23-1-033100				
Total Dissolved Solids	MG/L	23	23	700	85	3400	0	0	CB104GW01NS				
Total Phosphorus as PO4 water	MG/L	20	20	63.9	0.35	364	0	0	P1-01-GW-06NS-110701				
Total Suspended Solids	MG/L	68	68	29700	8.4 J	826000	0	0	P1-03-GW-06NS-051601				
Turbidity	NTU	11	11	52.8	2.8	201	0	0	A07-2-101899				

TABLE 4-3a (cont.)
STUDY AREA GROUNDWATER METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 1 (ELEVATION 72 TO 47 FT MSL)													
Metals													
Aluminum	UG/L	30	79	672	71.9 J	15000	19.6	660	IPGW-AA03-0006-011602				
Antimony	UG/L	3	79	2.7	1.6 J	49.7 J	1.5	5.9	CB7-01-GW-01			300	0
Arsenic	UG/L	168	210	385	0.229 J	24400	0.2	7.3	B7-01-GW-01-AVG			400	25
Barium	UG/L	79	79	81.4	6.2	1540	0	0	CB7-01-GW-01			30000	0
Beryllium	UG/L	1	79	0.24	0.51	0.51	0.2	1.6	IPGW-AP03-0015-012902-AVG			50	0
Cadmium	UG/L	16	79	1.2	0.24	19.9	0.3	2.8	IPGW-AP03-0015-012902-AVG			10	3
Calcium	UG/L	79	79	117000	5040	783000	0	0	CE4-03-GW-01NS-F-072401				
Chromium	UG/L	95	205	68.5	0.62	5570	0.5	6.6	B6-04-GW-02RNS-F			2000	2
Cobalt	UG/L	47	79	7.4	1.1 J	120	0.7	4.3	IPGW-AP02-0028-012402				
Copper	UG/L	35	79	200	2.2	14100	1.2	15.5	CB4-04-GW-02NS-F				
Iron	UG/L	185	205	18700	20.6 J	176000	6.7	2060	IPGW-AP02-0013-012502-AVG				
Lead	UG/L	30	205	23.5	1.8 J	801	1.1	30	CB7-01-GW-01			30	17
Magnesium	UG/L	79	79	23100	1220	165000	0	0	CB6-03-GW-02				
Manganese	UG/L	78	79	1360	10.2	8560	19.6	19.6	IPGW-AA07-0008-012102				
Mercury	UG/L	12	205	0.1	0.043	4.2	0.03	1.2	B5-01-GW-01			1	5
Nickel	UG/L	36	79	7.9	1.5	114	1	9.2	IPGW-AP02-0028-012402			80	2
Potassium	UG/L	79	79	9380	661	35200	0	0	IPGW-AC05-0015-041002-AVG				
Selenium	UG/L	13	79	2.8	2.2 J	40.8 J	1.9	4.6	IPGW-MW04-0014-032802			80	0
Silver	UG/L	3	79	0.48	0.58 J	1.3 J	0.5	1.3	CB3-02-GW-01NS-F-070901			7	0
Sodium	UG/L	79	79	70000	6500	845000	0	0	P1-06-GW-01				
Thallium	UG/L	2	79	3.2	3.9	7.6 J	2.2	17.2	IPGW-CA09-0016-010902			400	0
Vanadium	UG/L	36	79	3.3	1.1 J	24.6	0.4	1.7	CB6-03-GW-02			2000	0
Zinc	UG/L	39	78	758	2.6	31700	3.2	33.4	CB4-04-GW-02NS-F			900	7
Metals Speciation (GSIP and MSGRP Investigations)													
Arsenic (III)	UG/L	95	103	490	0.038 J	20358 J	0.006	0.075	CB7-01-GW-01				
DMA	UG/L	2	78	23.6	125 J	1296 J	0.025	350	E4-03-GW-02NS-F				
Inorganic Arsenic	UG/L	79	79	968	0.465 J	32629 J	0	0	CB7-01-GW-01				
MMA	UG/L	10	79	89.2	0.289 J	3715 J	0.07	350	E4-03-GW-02NS-F				

TABLE 4-3a (cont.)
STUDY AREA GROUNDWATER METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 1 (ELEVATION 72 TO 47 FT MSL) (cont.)													
Metals Speciation (EPA Natural Attenuation Study)													
Arsenic (III)	MG/L	7	13	0.77	0.009	5.118	0.001	0.005	A06-1-101899				
Arsenic (V)	MG/L	7	13	0.15	0.01	0.639	0.001	0.005	A06-1-101899				
Arsenic Percent Recovery	%	6	6	119	107	136	0	0	A03-2-101599				
Total Arsenic (HCl)	MG/L	10	13	0.86	0.105	5.127	0.033	0.033	A06-1-101899				
Total Arsenic (HNO3)	MG/L	9	13	0.97	0.014	6.012	0.007	0.033	A06-1-101899				
Miscellaneous Water Quality Parameters													
Alkalinity	MG/L AS	12	12	348	44	1035	0	0	A02-1-101499				
Alkalinity to pH 4.5	MG/L	7	7	709	7.4	1680	0	0	CE4-03-GW-01NS-072401				
Bicarbonate	MG/L	13	13	518	7.4	1680	0	0	CE4-03-GW-01NS-072401				
Chloride	MG/L	6	6	171	3.2 J	407	0	0	IPGW-AE07-0013-022102-AVG				
Conductivity	MS/CM	13	13	1650	818	3470	0	0	A01-1-101499				
Dissolved Organic Carbon	MG/L	20	27	54.8	5.2	923	1.89	5.6	CB1-04-GW-01NS-110701				
DO(Chemet)	MG/L	9	9	0.21	0.04	0.4	0	0	A23-1-033100				
DO(electrode)	MG/L	12	12	0.62	0.14	3.38	0	0	A22-1-033100				
Ferrous Iron	MG/L	14	14	7.7	1.16	21.5	0	0	A23-2-040300				
Nitrate	MG/L	8	13	4.6	0.07 J	33	0.04	0.05	CB3-02-GW01NS				
Nitrite-N	MG/L	6	13	0.15	0.021 J	0.14 J	0.015	1	CB4-04-GW-02NS				
Nitrogen, Ammonia	MG/L	7	7	364	1.87	2150	0	0	CB1-04-GW-01NS-110701				
ORP	MV	4	4	76.9	14.4	141.8	0	0	A23-1-033100				
pH	S.U.	13	13	6.4	4.64	7.27	0	0	A06-1-101899				
Sulfate	MG/L	9	13	210	14.5	660	1	75	CE4-03-GW-01NS-072401				
Temperature	°C	3	3	13	11.8	13.7	0	0	A23-1-033100				
Total Dissolved Solids	MG/L	6	6	1130	429	3400	0	0	CB104GW01NS				
Total Phosphorus as PO4 water	MG/L	7	7	11.2	0.45 J	64.7	0	0	CB1-04-GW-01NS-110701				
Total Suspended Solids	MG/L	31	31	3990	8.4 J	34600 J	0	0	B6-04-GW-03RNS				
Turbidity	NTU	11	11	52.8	2.8	201	0	0	A07-2-101899				

TABLE 4-3a (cont.)
STUDY AREA GROUNDWATER METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 2 (ELEVATION 47 TO 32 FT MSL)													
Metals													
Aluminum	UG/L	16	41	429	50.3	4600	19.6	272	CL2-03-GW-02-AVG				
Arsenic	UG/L	80	104	82.2	0.219 J	1119	0.2	3.7	B5-02-GW-03			400	6
Barium	UG/L	41	41	60.2	4 J	208	0	0	IPGW-AF02-0014-032702-AVG			30000	0
Cadmium	UG/L	8	41	0.67	0.31 J	7.8 J	0.3	3.2	CB7-02-GW-02			10	0
Calcium	UG/L	41	41	90100	5990	587000	0	0	CB4-05-GW-03NS-F				
Chromium	UG/L	34	106	15.6	0.91 J	403	0.5	6.6	CB5-03-GW-03			2000	0
Cobalt	UG/L	25	41	8.3	0.61	120	0.7	5.8	CB7-02-GW-02				
Copper	UG/L	10	41	5.3	2.5 J	79.1	1	14.9	CB7-02-GW-02				
Iron	UG/L	100	105	16000	30 J	262000	23.8	434	B9-06-GW-02				
Lead	UG/L	8	106	12.5	1.3 J	292	1.1	44	B7-02-GW-02			30	2
Magnesium	UG/L	41	41	17100	1240	127000	0	0	CB5-03-GW-03				
Manganese	UG/L	40	41	1080	10.5	5500	15.2	15.2	CE4-03-GW-03-AVG				
Mercury	UG/L	2	106	0.066	0.17 J	0.82	0.02	1.2	B9-01-GW-02-AVG			1	0
Nickel	UG/L	21	41	5.7	1.4	77.1 J	1	7.7	CB5-03-GW-03			80	0
Potassium	UG/L	41	41	10000	1540	43100	0	0	CB5-03-GW-03				
Selenium	UG/L	4	41	2.1	2.5 J	5.1 J	1.9	21.5	P1-03-GW-02			80	0
Sodium	UG/L	41	41	88600	4200	306000	0	0	P1-01-GW-02R				
Thallium	UG/L	2	41	3.9	13.7 J	13.8 J	2.2	44	CB4-05-GW-03NS-F			400	0
Vanadium	UG/L	12	41	8.4	1.8 , J	215	0.4	1.7	CB5-03-GW-03			2000	0
Zinc	UG/L	21	40	242	4.7 J	8560	3.2	76.8	CB7-02-GW-02			900	1
Metals Speciation (GSIP and MSGRP Investigations)													
Arsenic (III)	UG/L	27	33	119	0.104	791	0.029	0.075	B8-03-GW-02R				
DMA	UG/L	5	18	28.2	10.5 J	204 J	0.025	28	CB5-03-GW-03				
Inorganic Arsenic	UG/L	18	18	343	46.5	1038	0	0	B8-03-GW-02R				
MMA	UG/L	6	18	19.8	0.34	117 J	0.7	28	B5-03-GW-03				

TABLE 4-3a (cont.)
STUDY AREA GROUNDWATER METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 2 (ELEVATION 47 TO 32 FT MSL) (cont.)													
Miscellaneous Water Quality Parameters													
Alkalinity	MG/L AS	1	1	233	233	233	0	0	A04-3-101599				
Alkalinity to pH 4.5	MG/L	2	2	99.6	22.3	177	0	0	CB4-05-GW-03NS				
Bicarbonate	MG/L	6	6	74.2	22	177	0	0	CB4-05-GW-03NS				
Chloride	MG/L	4	4	93	16.8	216	0	0	IPGW-AE07-0028-022002				
Dissolved Organic Carbon	MG/L	8	19	30.2	5.4	423	2.6	8	CB5-03-GW-03-F				
Ferrous Iron	MG/L	1	1	2.3	2.27	2.27	0	0	A04-3-101599				
Nitrate	MG/L	2	6	0.39	0.32 J	1.94	0.04	0.05	IPGW-AE07-0028-022002				
Nitrite-N	MG/L	2	6	0.067	0.036 J	0.04 J	0.05	0.5	CB4-05-GW-03NS				
Nitrogen, Ammonia	MG/L	2	2	11	0.078 J	21.9	0	0	CB4-05-GW-03NS				
Sulfate	MG/L	3	6	276	10.6	1590	5	30	CB4-05-GW-03NS				
Total Dissolved Solids	MG/L	4	4	271	85	538 J	0	0	IPGW-AE07-0028-022002				
Total Phosphorus as PO4 water	MG/L	2	2	42.2	14.3	70	0	0	P1-07-GW-03NS-073101				
Total Suspended Solids	MG/L	5	5	1360	500	2020	0	0	CB4-05-GW-03NS				
AQUIFER LAYER 3 (ELEVATION 32 TO 15 FT MSL)													
Metals													
Aluminum	UG/L	8	26	687	192	9760	19.6	292	P1-02-GW-02				
Arsenic	UG/L	57	73	122	0.16	1124	0.2	3.7	B8-04-GW-02			400	11
Barium	UG/L	24	25	80	8.8 J	609	17.5	17.5	CW5-05-GW-02R			30000	0
Beryllium	UG/L	3	26	0.85	0.99 J	10.5	0.2	3.2	CB9-02-GW-02			50	0
Cadmium	UG/L	5	26	0.95	0.97 J	6.9 J	0.3	3.2	P1-03-GW-04			10	0
Calcium	UG/L	26	26	92800	454	592000	0	0	CW5-03-GW-02R-AVG				
Chromium	UG/L	29	74	21.5	1.6 J	164	0.5	6.6	W5-05-GW-02			2000	0
Cobalt	UG/L	10	26	5.6	2.1	41.4 J	0.7	9	CH2-02-GW-05				
Copper	UG/L	7	26	12.4	4.4	146	2.4	20.2	IPGW-MW04-0036-032802				
Iron	UG/L	67	74	16500	19.3 J	189000	13.9	566	W5-03-GW-02R				
Lead	UG/L	7	74	25.8	2	1040	1.1	44	B7-01-GW-02R			30	2
Magnesium	UG/L	26	26	26400	2470	90000	0	0	IPGW-MW04-0036-032802				
Manganese	UG/L	26	26	1180	4.6	8830	0	0	IPGW-AC01-0037-012802				
Mercury	UG/L	3	74	0.16	0.07 J	5.2	0.03	1.8	B7-01-GW-02R			1	2

TABLE 4-3a (cont.)
STUDY AREA GROUNDWATER METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 3 (ELEVATION 32 TO 15 FT MSL) (cont.)													
Metals (cont.)													
Nickel	UG/L	15	26	13.8	2.9 J	95.8	1	8	CB8-04-GW-02NS-F-AVG			80	1
Potassium	UG/L	26	26	20700	2700	92000	0	0	CW5-05-GW-02R				
Selenium	UG/L	3	26	2.9	4	6.7 J	1.9	21.5	CW5-05-GW-02R			80	0
Silver	UG/L	1	26	0.75	0.9 J	0.9 J	0.5	6.5	IPGW-AC01-0037-012802			7	0
Sodium	UG/L	26	26	246000	15400	1850000	0	0	CB9-02-GW-02				
Thallium	UG/L	2	26	5.5	9.3	14.3 J	2.2	44	CB9-02-GW-02			400	0
Vanadium	UG/L	10	26	19.9	2.1 J	117	0.4	1.7	CW5-05-GW-02R			2000	0
Zinc	UG/L	15	25	65.5	3.6 J	466	3.2	55.7	P1-02-GW-02			900	0
Metals Speciation (GSIP and MSGRP Investigations)													
Arsenic (III)	UG/L	21	21	112	0.142	559	0	0	B7-01-GW-02R				
DMA	UG/L	5	14	26.8	1.6	174	0.7	14	CB8-04-GW-02NS-F-AVG				
Inorganic Arsenic	UG/L	14	14	347	15.4	1088	0	0	B8-04-GW-02				
MMA	UG/L	5	14	18.1	1.6	159	0.7	14	B8-03-GW-03NS-F				
Miscellaneous Water Quality Parameters													
Alkalinity to pH 4.5	MG/L	1	1	7600	7600	7600	0	0	CB8-04-GW-02NS-AVG				
Bicarbonate	MG/L	3	3	2560	23	7600	0	0	CB8-04-GW-02NS-AVG				
Chloride	MG/L	2	2	112	24.2	200	0	0	IPGW-AE05-0028-021902				
Dissolved Organic Carbon	MG/L	10	15	60.2	3	370	1.99	3.3	CW5-05-GW-02R-F				
Nitrate	MG/L	1	4	0.07	0.21 J	0.21 J	0.04	0.05	P1-01-GW-03NS-050701				
Nitrite-N	MG/L	1	4	0.08	0.039	0.039	0.015	0.5	CB8-04-GW-02NS-AVG				
Nitrogen, Ammonia	MG/L	1	1	2200	2200	2200	0	0	CB8-04-GW-02NS-AVG				
Sulfate	MG/L	3	3	14.7	1.9	22	0	0	IPGW-AE05-0028-021902				
Total Dissolved Solids	MG/L	2	2	290	126	453 J	0	0	IPGW-AE05-0028-021902				
Total Phosphorus as PO4 water	MG/L	1	1	48	48	48	0	0	CB8-04-GW-02NS-AVG				
Total Suspended Solids	MG/L	12	12	2430	84	15900 J	0	0	H1-04-GW-05NS-020701				

TABLE 4-3a (cont.)
STUDY AREA GROUNDWATER METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 4 (ELEVATION 15 TO -5 FT MSL)													
Metals													
Aluminum	UG/L	5	19	201	63.2	2310 J	22.5	262	IPGW-AC03-0044-041002				
Arsenic	UG/L	28	40	51.2	0.35	1120 J	0.2	3.6	B7-01-GW-03			400	1
Barium	UG/L	19	19	53.4	10.5	221	0	0	CH1-04-GW-05R			30000	0
Beryllium	UG/L	1	19	0.28	1.1 J	1.1 J	0.2	0.64	CW5-05-GW-03			50	0
Cadmium	UG/L	3	19	0.48	0.88 J	2.7	0.3	1.1	IPGW-AG01-0055-012102			10	0
Calcium	UG/L	19	19	75200	3340	259000	0	0	CW5-05-GW-03				
Chromium	UG/L	12	42	14.1	2.1 J	119	0.5	6.6	B8-04-GW-03			2000	0
Cobalt	UG/L	10	19	3.9	1.2 J	16	1.8	2	IPGW-AF03-0061-022502-AVG				
Copper	UG/L	5	19	5.6	4.1	22 J	1.8	6.7	IPGW-AC03-0044-041002				
Iron	UG/L	38	42	15400	116	244000	9.5	662	W5-03-GW-03				
Lead	UG/L	4	42	74.6	3.3	2640	1.1	30	B7-01-GW-03			30	2
Magnesium	UG/L	19	19	17800	839	64900	0	0	CW5-05-GW-03				
Manganese	UG/L	19	19	876	11.5	4630	0	0	CH1-04-GW-05R				
Mercury	UG/L	2	42	0.57	0.2	15.9	0.02	3.5	B7-01-GW-03			1	1
Nickel	UG/L	6	19	2.9	1.8 J	23.5 J	1	8.9	CW5-05-GW-03			80	0
Potassium	UG/L	19	19	10200	1600	90600	0	0	CW5-05-GW-03				
Selenium	UG/L	3	19	2.2	4.3 J	10.9	1.9	4.3	CW5-05-GW-03			80	0
Sodium	UG/L	19	19	173000	9860	1950000	0	0	CW5-05-GW-03				
Vanadium	UG/L	3	19	4.1	3.6	55.8	0.4	1.7	CW5-05-GW-03			2000	0
Zinc	UG/L	9	19	26.9	13.1	79.6	3.2	34.8	IPGW-AF03-0049-022202			900	0
Metals Speciation (GSIP and MSGRP Investigations)													
Arsenic (III)	UG/L	8	8	35.1	0.676 J	125	0	0	B7-01-GW-03				
DMA	UG/L	3	6	37.6	3.01	165 J	0.07	7	B8-04-GW-03				
Inorganic Arsenic	UG/L	6	6	125	17.4 J	305 J	0	0	B7-01-GW-03				
MMA	UG/L	3	6	5.7	3.26 J	20.1 J	0.07	7	B8-04-GW-03				
Miscellaneous Water Quality Parameters													
Alkalinity to pH 4.5	MG/L	2	2	73.5	62	85.1	0	0	P1-03-GW-05NS				
Bicarbonate	MG/L	6	6	74.9	26	126	0	0	IPGW-AE06-0043-020602				
Chloride	MG/L	4	4	56.6	22.8	103	0	0	IPGW-AE06-0043-020602				

TABLE 4-3a (cont.)
STUDY AREA GROUNDWATER METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 4 (ELEVATION 15 TO -5 FT MSL) (cont.)													
Miscellaneous Water Quality Parameters (cont.)													
Dissolved Organic Carbon	MG/L	2	7	42	3.8	283	1.69	4.3	CW5-05-GW-03-F				
Nitrate	MG/L	1	6	0.068	0.29	0.29	0.04	0.05	P1-05-GW-04NS				
Nitrite-N	MG/L	2	6	0.025	0.02 J	0.028 J	0.05	0.05	P1-05-GW-04NS				
Nitrogen, Ammonia	MG/L	1	2	0.41	0.74	0.74	0.16	0.16	P1-03-GW-05NS				
Sulfate	MG/L	6	6	56	17.5	160	0	0	P1-03-GW-05NS				
Total Dissolved Solids	MG/L	4	4	876	99	2680	0	0	IPGW-AE02-0046-021302				
Total Phosphorus as PO4 water	MG/L	2	2	18	9.6	26.4	0	0	P1-05-GW-04NS				
Total Suspended Solids	MG/L	5	5	24800	2110 J	79400	0	0	B8-02-GW-03NS-022101				
AQUIFER LAYER 5 (ELEVATION -5 TO -50 FT MSL)													
Metals													
Aluminum	UG/L	8	26	116	35	1170	32	185	IPGW-AG01-0071-013102				
Arsenic	UG/L	27	40	26.8	0.721	652 J	0.268	9.4	CB8-01-GW-03			400	1
Barium	UG/L	26	26	45.6	10 J	147	0	0	P1-02-GW-06NS-F-110601			30000	0
Beryllium	UG/L	1	26	0.28	1.3 J	1.3 J	0.2	0.64	CW5-03-GW-03NS-F			50	0
Cadmium	UG/L	2	26	0.63	2.7	6.3 J	0.3	1.7	CB7-01-GW-03			10	0
Calcium	UG/L	26	26	92200	14800	466000	0	0	CW5-03-GW-03NS-F				
Chromium	UG/L	7	36	3.3	1.9 J	28.3 J	0.6	6.6	W5-06-GW-03-100500			2000	0
Cobalt	UG/L	17	26	13.2	0.77 J	85.9	0.7	2	IPGW-AE01-0067-021202				
Copper	UG/L	8	26	6.3	3.2 , J	74.4	1.8	9.1	CB7-01-GW-03				
Iron	UG/L	31	36	18000	39 J	228000	23.8	338	B8-01-GW-03NS-F				
Magnesium	UG/L	26	26	19300	3230	130000	0	0	CW5-03-GW-03NS-F				
Manganese	UG/L	26	26	1840	64.6	14400	0	0	IPGW-AE03-0078-020402				
Nickel	UG/L	16	26	18	2.1 J	111 J	1	14.1	P1-01-GW-07NS-F			80	2
Potassium	UG/L	26	26	8520	2130 J	49400	0	0	CW5-03-GW-03NS-F				
Selenium	UG/L	1	26	2	6.4 J	6.4 J	1.9	7.3	P1-03-GW-06NS-F-051601			80	0
Silver	UG/L	3	26	0.57	0.67 J	2 J	0.5	1.3	P1-02-GW-06NS-F-110601			7	0
Sodium	UG/L	26	26	85100	9770	734000	0	0	CW5-03-GW-03NS-F				
Thallium	UG/L	4	26	3.9	4.7 J	10	2.2	8.8	IPGW-AE03-0078-020402			400	0
Vanadium	UG/L	4	26	1.2	2.4 J	6.3 J	0.77	1.7	CW5-03-GW-03NS-F			2000	0
Zinc	UG/L	21	26	328	6 J	3000	3.2	43.4	P1-01-GW-07NS-F			900	3

TABLE 4-3a (cont.)
STUDY AREA GROUNDWATER METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum	MCP Method 1 Groundwater GW-2 (4)		MCP Method 1 Groundwater GW-3 (4)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 5 (ELEVATION -5 TO -50 FT MSL) (cont.)													
Metals Speciation (GSIP and MSGRP Investigations)													
Arsenic (III)	UG/L	6	6	110	0.106 J	569 J	0	0	CB8-01-GW-03				
Inorganic Arsenic	UG/L	4	4	200	7.55 J	550 J	0	0	CB8-01-GW-03				
Miscellaneous Water Quality Parameters													
Alkalinity to pH 4.5	MG/L	8	8	145	33.8	479	0	0	CW5-03-GW-03NS				
Bicarbonate	MG/L	15	15	125	33.8	479	0	0	CW5-03-GW-03NS				
Chloride	MG/L	7	7	89.2	37.4	172	0	0	IPGW-AE04-0061-020402				
Dissolved Organic Carbon	MG/L	5	11	8	3.3	27.9	3.1	7.2	CB8-01-GW-03-F				
Nitrate	MG/L	3	15	0.16	0.16	1.2	0.04	0.2	CH2-04GW06-AVG				
Nitrite-N	MG/L	6	15	0.36	0.028 J	4.8	0.015	0.05	CH2-04GW06-AVG				
Nitrogen, Ammonia	MG/L	8	8	31.6	0.16	249	0	0	CW5-03-GW-03NS				
Sulfate	MG/L	8	15	584	29.7	3210	1	2400	CW5-03-GW-03NS				
Total Dissolved Solids	MG/L	7	7	594	185 J	1120	0	0	IPGW-AE03-0078-020402				
Total Phosphorus as PO4 water	MG/L	8	8	129	0.35	364	0	0	P1-01-GW-06NS-110701				
Total Suspended Solids	MG/L	15	15	116000	194	826000	0	0	P1-03-GW-06NS-051601				

(1) The parameters listed for each group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Zero values are shown when there are no non-detects for the parameter in that group.

(4) Massachusetts Contingency Plan Method 1 Groundwater Standards (310 CMR 40.0974, MADEP, June 1999) applicable in areas where the groundwater is considered to be one or more of the following categories per 310 cmr 40.0932:
- GW-2 applies to groundwater that may impact the air inside occupied structures.
- GW-3 applies to groundwater that may impact surface water.

TABLE 4-3b
STUDY AREA GROUNDWATER ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
ALL AQUIFER LAYERS													
Semi-Volatile Organic Compounds													
1,2-Dichlorobenzene	UG/L	11	88	0.9	1 , J	11	0.9	3	CB5-02-GW-03	10000	0	8000	0
1,4-Dichlorobenzene	UG/L	7	88	0.7	1 J	6 J	0.9	3	CB5-02-GW-03	30000	0	8000	0
2,4,5-Trichlorophenol	UG/L	1	104	2	8 J	8 J	2	20	CE4-03-GW-01NS-F-072501			100	0
2,4,6-Trichlorophenol	UG/L	1	104	1	4 J	4 J	2	7	CB1-04-GW-01NS-F-081501	40000	0	10000	0
2,4-Dichlorophenol	UG/L	9	104	1	1 J	35	0.9	5	CW5-05-GW-02R			4000	0
2,4-Dimethylphenol	UG/L	11	104	1	1 J	11	0.9	5	CW5-05-GW-02R			20000	0
2-Chloronaphthalene	UG/L	4	100	1	2 J	22	0.9	5	CB6-03-GW-02				
2-Chlorophenol	UG/L	1	104	0.8	1 J	1 J	0.9	5	CW5-05-GW-02R			40000	0
2-Methylphenol	UG/L	11	104	3	1 J	200	0.9	5	CW5-05-GW-02R				
4-Chloro-3-methylphenol	UG/L	11	104	1	1 J	23	0.9	5	CB1-04-GW-01NS-F-081501				
4-Methylphenol	UG/L	12	104	62	3 J	2200	3	10	CE4-03-GW-01NS-F-072501				
4-Nitroaniline	UG/L	1	101	2	8 J	8 J	2	20	CW5-03-GW-03NS-F				
Acenaphthene	UG/L	1	100	0.8	1 J	1 J	0.9	5	CW5-08-GW-01			5000	0
Benzaldehyde	UG/L	2	13	3	2.7 J	2.8 J	5	5	IPGW-AA07-0035-011802				
bis(2-Ethylhexyl)phthalate	UG/L	9	99	2	1.3 J	19	2	7	IPGW-AA01-0025-020802	50000	0	30	0
Dibenzofuran	UG/L	1	100	0.8	1 J	1 J	0.9	5	CE4-03-GW-01NS-F-072501				
Di-n-octylphthalate	UG/L	1	100	1	2	2	2	7	P1-02-GW-04-AVG				
Fluorene	UG/L	1	100	0.8	2 J	2 J	0.9	5	CB7-03-GW-02R			3000	0
Naphthalene	UG/L	15	100	8	3 J	220 , J	0.9	5	CE4-03-GW-01NS-F-072501, CW5-05-GW-02R	6000	0	6000	0
N-Nitrosodiphenylamine	UG/L	5	88	0.8	1 J	7 J	0.9	3	CB4-03-GW-03				
Pentachlorophenol	UG/L	2	104	3	10 J	150 J	3	10	CB1-04-GW-01NS-F-081501			80	1
Phenol	UG/L	15	104	7	1 J	360	0.9	5	CB1-04-GW-01NS-F-081501	50000	0	30000	0
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	12	117	0.4	0.11 J	3.4	0.5	10	IPGW-AE04-0088-020502	4000	0	50000	0
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	3	97	0.4	1.7	3.6	0.5	10	IPGW-AE04-0088-020502				
1,1-Dichloroethane	UG/L	29	117	0.8	0.2	9.9	0.5	10	IPGW-AC03-0033-041002	9000	0	50000	0
1,1-Dichloroethene	UG/L	12	117	0.5	0.4 , J	8.4	0.5	10	IPGW-AE03-0050-020402	1	6	50000	0
1,2,4-Trichlorobenzene	UG/L	3	97	0.3	0.11 J	0.25 J	0.5	10	IPGW-AP01-0019-012302	10000	0	500	0
1,2-Dichlorobenzene	UG/L	1	97	0.3	0.58	0.58	0.5	10	IPGW-MW04-0023-032802	10000	0	8000	0
1,2-Dichloroethane	UG/L	1	117	0.3	0.17 J	0.17 J	0.5	10	IPGW-AE04-0061-020402	20	0	50000	0

TABLE 4-3b (cont.)
STUDY AREA GROUNDWATER ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
ALL AQUIFER LAYERS (cont.)													
Volatile Organic Compounds (cont.)													
1,3-Dichlorobenzene	UG/L	2	97	0.3	0.11 J	1	0.5	10	IPGW-AC03-0015-041102-AVG	10000	0	8000	0
1,4-Dichlorobenzene	UG/L	2	97	0.3	0.1	0.3	0.5	10	IPGW-AC03-0015-041102-AVG	30000	0	8000	0
2-Butanone	UG/L	5	117	4	5 J	58	3	100	CB1-04-GW-01NS-073001	50000	0	50000	0
4-Methyl-2-Pentanone	UG/L	2	117	3	3 J	62	3	100	CB8-04-GW-02NS-AVG	50000	0	50000	0
Acetone	UG/L	14	117	11	6 J	410	2.3	100	CB8-04-GW-02NS-AVG	50000	0	50000	0
Benzene	UG/L	60	204	1100	0.1 J	69000	0.5	10	RX-17S	2000	18	7000	8
Carbon Disulfide	UG/L	4	117	0.4	0.15 J	9	0.5	10	CE4-03-GW-01NS-072301				
Chlorobenzene	UG/L	2	117	0.5	3 J	19	0.5	10	CB3-02-GW-01NS	1000	0	500	0
Chloroethane	UG/L	1	117	0.7	37 *J	37 *J	0.5	10	IPGW-AC05-0029-040802				
Chloroform	UG/L	2	117	0.4	0.43 J	1.2	0.5	10	IPGW-AC06-0016-013102	400	0	10000	0
cis-1,2-Dichloroethene	UG/L	25	117	1	0.2 J	50	0.5	10	CW5-03-GW-03NS	30000	0	50000	0
Ethylbenzene	UG/L	17	117	0.4	0.2 J	4	0.5	10	CB8-04-GW-02NS-AVG	30000	0	4000	0
Isopropylbenzene	UG/L	2	97	0.3	0.7	0.89 J	0.5	10	IPGW-MW04-0036-032802				
Methyl tert-Butyl Ether	UG/L	37	97	42	0.11 J	4000	0.5	2.5	IPGW-AF02-0014-032702-AVG	50000	0	50000	0
Styrene	UG/L	1	117	0.3	0.17 J	0.17 J	0.5	10	IPGW-AC04-0028-040902	900	0	50000	0
Tetrachloroethene	UG/L	9	117	0.4	0.11 J	2 J	0.5	10	CW5-03-GW-03NS	3000	0	5000	0
Toluene	UG/L	54	202	89	0.21 J	2500	0.2	10	RX-6D, W5-06-GW-02RNS	6000	0	50000	0
Total Xylenes	UG/L	25	117	1	0.25 J	17	0.5	10	IPGW-MW04-0036-032802	6000	0	50000	0
trans-1,2-Dichloroethene	UG/L	4	117	0.4	0.19 J	2	0.5	10	IPGW-AC03-0015-041102-AVG	20000	0	50000	0
Trichloroethene	UG/L	32	117	4	0.15 J	110 *	0.5	10	IPGW-AE03-0050-020402	300	0	20000	0
Vinyl Chloride	UG/L	4	117	0.4	0.49 J	1	0.5	10	IPGW-AC03-0015-041102-AVG	2	0	40000	0
AQUIFER LAYER 1 (ELEVATION 72 TO 47 FT MSL)													
Semi-Volatile Organic Compounds													
1,2-Dichlorobenzene	UG/L	4	30	1	3 J	11	0.9	1	CB5-02-GW-03	10000	0	8000	0
1,4-Dichlorobenzene	UG/L	4	30	0.9	1 J	6 J	0.9	1	CB5-02-GW-03	30000	0	8000	0
2,4,5-Trichlorophenol	UG/L	1	44	4	8 J	8 J	2	20	CE4-03-GW-01NS-F-072501			100	0
2,4,6-Trichlorophenol	UG/L	1	44	1	4 J	4 J	2	5	CB1-04-GW-01NS-F-081501	40000	0	10000	0
2,4-Dichlorophenol	UG/L	2	44	1	2 J	3 J	0.9	5	CE4-03-GW-01NS-F-072501			4000	0
2,4-Dimethylphenol	UG/L	3	44	1	3 J	3 J	0.9	5	CB1-04-GW-01NS-F-081501, CB6-03-GW-02, CE4-03-GW-01NS-F-072501			20000	0

TABLE 4-3b (cont.)
STUDY AREA GROUNDWATER ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 1 (ELEVATION 72 TO 47 FT MSL) (cont.)													
Semi-Volatile Organic Compounds (cont.)													
2-Chloronaphthalene	UG/L	1	42	2	22	22	0.9	5	CB6-03-GW-02				
2-Methylphenol	UG/L	3	44	1	1 J	11 J	0.9	5	CE4-03-GW-01NS-F-072501				
4-Chloro-3-methylphenol	UG/L	4	44	2	1 J	23	0.9	5	CB1-04-GW-01NS-F-081501				
4-Methylphenol	UG/L	3	44	73	6 J	2200	3	5	CE4-03-GW-01NS-F-072501				
Acenaphthene	UG/L	1	42	1	1 J	1 J	0.9	5	CW5-08-GW-01			5000	0
Benzaldehyde	UG/L	1	12	3	2.7 J	2.7 J	5	5	IPGW-AA03-0006-011602				
bis(2-Ethylhexyl)phthalate	UG/L	5	42	2	1.3 J	19	2	5	IPGW-AA01-0025-020802	50000	0	30	0
Dibenzofuran	UG/L	1	42	1	1 J	1 J	0.9	5	CE4-03-GW-01NS-F-072501				
Naphthalene	UG/L	6	42	8	4 J	220 J	0.9	5	CE4-03-GW-01NS-F-072501	6000	0	6000	0
Pentachlorophenol	UG/L	1	44	5	150 J	150 J	3	5	CB1-04-GW-01NS-F-081501			80	1
Phenol	UG/L	6	44	12	1 J	360	0.9	5	CB1-04-GW-01NS-F-081501	50000	0	30000	0
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	2	53	0.3	0.2	0.3 J	0.5	1	IPGW-AC04-0012-041002	4000	0	50000	0
1,1-Dichloroethane	UG/L	6	53	0.4	0.2	6	0.5	1	IPGW-AC05-0015-041002-AVG	9000	0	50000	0
1,1-Dichloroethene	UG/L	2	53	0.3	0.4	0.46 J	0.5	1	IPGW-AA01-0025-020802	1	0	50000	0
1,2,4-Trichlorobenzene	UG/L	1	46	0.2	0.25 J	0.25 J	0.5	0.5	IPGW-AP01-0019-012302	10000	0	500	0
1,4-Dichlorobenzene	UG/L	1	46	0.2	0.1	0.1	0.5	0.5	IPGW-AC05-0015-041002-AVG	30000	0	8000	0
2-Butanone	UG/L	2	53	4	24	58	3	5	CB1-04-GW-01NS-073001	50000	0	50000	0
4-Methyl-2-Pentanone	UG/L	1	53	2	3 J	3 J	3	5	CB1-04-GW-01NS-073001	50000	0	50000	0
Acetone	UG/L	5	53	11	8 J	280	2.3	15	CB1-04-GW-01NS-073001	50000	0	50000	0
Benzene	UG/L	32	106	1400	0.52 J	69000	0.5	10	RX-17S	2000	9	7000	5
Carbon Disulfide	UG/L	4	53	0.5	0.15 J	9	0.5	1	CE4-03-GW-01NS-072301				
Chlorobenzene	UG/L	1	53	0.6	19	19	0.5	1	CB3-02-GW-01NS	1000	0	500	0
Chloroform	UG/L	1	53	0.3	1.2	1.2	0.5	1	IPGW-AC06-0016-013102	400	0	10000	0
cis-1,2-Dichloroethene	UG/L	9	53	0.8	0.28 J	10	0.5	1	IPGW-AA07-0016-011802	30000	0	50000	0
Ethylbenzene	UG/L	10	53	0.3	0.2 J	1 J	0.5	1	CB1-04-GW-01NS-073001, CE4-03-GW-01NS-072301	30000	0	4000	0
Methyl tert-Butyl Ether	UG/L	17	46	0.5	0.11 J	2.6	0.5	1.6	IPGW-AP03-0021-012502	50000	0	50000	0
Tetrachloroethene	UG/L	2	53	0.3	0.11 J	0.32 J	0.5	1	IPGW-AG02-0013-022102	3000	0	5000	0
Toluene	UG/L	33	104	30	0.25 J	1700	0.2	10	RX-10D	6000	0	50000	0

TABLE 4-3b (cont.)
STUDY AREA GROUNDWATER ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 1 (ELEVATION 72 TO 47 FT MSL) (cont.)													
Volatile Organic Compounds (cont.)													
Total Xylenes	UG/L	17	53	0.7	0.25 J	3.3	0.5	4	IPGW-CA06-0007-011402	6000	0	50000	0
Trichloroethene	UG/L	8	53	0.6	0.2	5.4	0.5	1	IPGW-AA01-0025-020802	300	0	20000	0
Vinyl Chloride	UG/L	2	53	0.3	0.49 J	0.55	0.5	1	IPGW-AA01-0025-020802	2	0	40000	0
AQUIFER LAYER 2 (ELEVATION 47 TO 32 FT MSL)													
Semi-Volatile Organic Compounds													
1,2-Dichlorobenzene	UG/L	3	21	0.7	1 J	4 J	0.9	2	CB5-03-GW-03	10000	0	8000	0
2,4-Dichlorophenol	UG/L	1	22	0.7	2 J	2 J	0.9	5	CB5-03-GW-03			4000	0
2,4-Dimethylphenol	UG/L	2	22	0.8	1 J	4 J	0.9	5	CB5-03-GW-03			20000	0
2-Methylphenol	UG/L	2	22	0.9	2 J	5 J	0.9	5	CB5-03-GW-03				
4-Chloro-3-methylphenol	UG/L	2	22	0.9	2 J	6 J	0.9	5	CB5-03-GW-03				
4-Methylphenol	UG/L	3	22	46	4 J	940 J	3	7	CB5-03-GW-03				
Benzaldehyde	UG/L	1	1	3	2.8 J	2.8 J	0	0	IPGW-AA07-0035-011802				
bis(2-Ethylhexyl)phthalate	UG/L	1	22	1	1.3 J	1.3 J	2	4	IPGW-AA07-0035-011802	50000	0	30	0
Fluorene	UG/L	1	22	0.7	2 J	2 J	0.9	5	CB7-03-GW-02R			3000	0
Naphthalene	UG/L	3	22	2	4 J	24	0.9	5	CB5-03-GW-03	6000	0	6000	0
Phenol	UG/L	2	22	2	10	27	0.9	5	CB5-03-GW-03	50000	0	30000	0
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	4	22	0.6	0.11 J	1.5	0.5	10	IPGW-AC05-0029-040802	4000	0	50000	0
1,1-Dichloroethane	UG/L	6	22	1	0.2	6.7	0.5	10	IPGW-AC05-0029-040802	9000	0	50000	0
1,1-Dichloroethene	UG/L	2	22	0.6	0.76	1.4	0.5	10	IPGW-AE06-0023-020702	1	1	50000	0
1,2-Dichlorobenzene	UG/L	1	20	0.5	0.58	0.58	0.5	10	IPGW-MW04-0023-032802	10000	0	8000	0
1,3-Dichlorobenzene	UG/L	1	20	0.5	1	1	0.5	10	IPGW-AC03-0015-041102-AVG	10000	0	8000	0
1,4-Dichlorobenzene	UG/L	1	20	0.5	0.3	0.3	0.5	10	IPGW-AC03-0015-041102-AVG	30000	0	8000	0
2-Butanone	UG/L	1	22	5	12	12	3	100	P1-07-GW-03NS-050701	50000	0	50000	0
Acetone	UG/L	2	22	7	6 J	37	2.8	100	P1-07-GW-03NS-050701	50000	0	50000	0
Benzene	UG/L	17	40	1600	0.1 J	15000	0.5	10	RX-8D	2000	8	7000	3
Chloroethane	UG/L	1	22	2	37 *J	37 *J	0.5	10	IPGW-AC05-0029-040802				
cis-1,2-Dichloroethene	UG/L	4	22	2	0.2 J	31 *	0.5	10	IPGW-AA07-0035-011802	30000	0	50000	0
Ethylbenzene	UG/L	2	22	0.5	0.3 J	0.44 J	0.5	10	IPGW-AE02-0012-021402-AVG	30000	0	4000	0
Isopropylbenzene	UG/L	1	20	0.5	0.7	0.7	0.5	10	IPGW-MW04-0023-032802				

TABLE 4-3b (cont.)
STUDY AREA GROUNDWATER ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 2 (ELEVATION 47 TO 32 FT MSL) (cont.)													
Volatile Organic Compounds (cont.)													
Methyl tert-Butyl Ether	UG/L	5	20	200	0.2	4000	0.5	0.5	IPGW-AF02-0014-032702-AVG	50000	0	50000	0
Styrene	UG/L	1	22	0.5	0.17 J	0.17 J	0.5	10	IPGW-AC04-0028-040902	900	0	50000	0
Tetrachloroethene	UG/L	2	22	0.5	0.24 J	0.28 J	0.5	10	IPGW-AE06-0023-020702	3000	0	5000	0
Toluene	UG/L	13	40	270	0.27 J	2500	0.2	10	RX-6D	6000	0	50000	0
Total Xylenes	UG/L	3	22	0.8	0.43 J	4.4	0.5	10	IPGW-AE02-0012-021402-AVG	6000	0	50000	0
trans-1,2-Dichloroethene	UG/L	2	22	0.6	0.43 J	2	0.5	10	IPGW-AC03-0015-041102-AVG	20000	0	50000	0
Trichloroethene	UG/L	6	22	2	0.16 J	21	0.5	10	IPGW-AA07-0035-011802	300	0	20000	0
Vinyl Chloride	UG/L	1	22	0.5	1	1	0.5	10	IPGW-AC03-0015-041102-AVG	2	0	40000	0
AQUIFER LAYER 3 (ELEVATION 32 TO 15 FT MSL)													
Semi-Volatile Organic Compounds													
1,2-Dichlorobenzene	UG/L	4	16	0.8	1	3 J	0.9	1	CW5-05-GW-02R	10000	0	8000	0
1,4-Dichlorobenzene	UG/L	2	16	0.7	2 J	3	0.9	1	CW5-03-GW-02R-AVG	30000	0	8000	0
2,4-Dichlorophenol	UG/L	5	16	3	1 J	35	0.9	1	CW5-05-GW-02R			4000	0
2,4-Dimethylphenol	UG/L	4	16	2	3 J	11	0.9	1	CW5-05-GW-02R			20000	0
2-Chloronaphthalene	UG/L	2	15	0.7	2 J	2 J	0.9	1	CB9-01-GW-03, CB9-02-GW-02				
2-Chlorophenol	UG/L	1	16	0.5	1 J	1 J	0.9	1	CW5-05-GW-02R			40000	0
2-Methylphenol	UG/L	4	16	15	1 J	200	0.9	1	CW5-05-GW-02R				
4-Chloro-3-methylphenol	UG/L	4	16	3	2 J	22	0.9	1	CW5-05-GW-02R				
4-Methylphenol	UG/L	4	16	140	3 J	1900	3	3	CW5-05-GW-02R				
bis(2-Ethylhexyl)phthalate	UG/L	3	15	2	4 J	15	2	2	P1-04-GW-04	50000	0	30	0
Naphthalene	UG/L	5	15	19	3 J	220	0.9	1	CW5-05-GW-02R	6000	0	6000	0
N-Nitrosodiphenylamine	UG/L	4	16	1	1 J	7 J	0.9	1	CB4-03-GW-03				
Pentachlorophenol	UG/L	1	16	2	10 J	10 J	3	3	CW5-05-GW-02R			80	0
Phenol	UG/L	5	16	6	2 J	36	0.9	1	CW5-05-GW-02R	50000	0	30000	0
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	1	10	0.5	1.7	1.7	0.5	2.5	IPGW-AE05-0028-021902	4000	0	50000	0
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	1	9	0.6	2.1	2.1	0.5	2.5	IPGW-AE05-0028-021902				
1,1-Dichloroethane	UG/L	4	10	2	0.42 J	9.9	0.5	2.5	IPGW-AC03-0033-041002	9000	0	50000	0
1,1-Dichloroethene	UG/L	2	10	0.6	0.95 J	1.4	0.5	2.5	IPGW-AE05-0028-021902	1	1	50000	0
2-Butanone	UG/L	1	10	5	13	13	5	25	CB8-04-GW-02NS-AVG	50000	0	50000	0

TABLE 4-3b (cont.)
STUDY AREA GROUNDWATER ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 3 (ELEVATION 32 TO 15 FT MSL) (cont.)													
Volatile Organic Compounds (cont.)													
4-Methyl-2-Pentanone	UG/L	1	10	9	62	62	5	25	CB8-04-GW-02NS-AVG	50000	0	50000	0
Acetone	UG/L	1	10	45	410	410	5	42	CB8-04-GW-02NS-AVG	50000	0	50000	0
Benzene	UG/L	8	21	190	2 J	2300	0.5	1	W5-06-GW-02RNS	2000	1	7000	0
cis-1,2-Dichloroethene	UG/L	2	10	0.4	0.22 J	0.93	0.5	2.5	IPGW-AE05-0028-021902	30000	0	50000	0
Ethylbenzene	UG/L	2	10	0.9	3.3	4	0.5	0.5	CB8-04-GW-02NS-AVG	30000	0	4000	0
Isopropylbenzene	UG/L	1	9	0.3	0.89 J	0.89 J	0.5	0.5	IPGW-MW04-0036-032802				
Methyl tert-Butyl Ether	UG/L	4	9	0.7	0.2 J	2.6	0.5	2.5	IPGW-AC02-0037-041102	50000	0	50000	0
Toluene	UG/L	4	21	180	0.21 J	2500	0.5	4.1	W5-06-GW-02RNS	6000	0	50000	0
Total Xylenes	UG/L	2	10	4	16	17	0.5	0.5	IPGW-MW04-0036-032802	6000	0	50000	0
Trichloroethene	UG/L	4	10	2	0.15 J	14	0.5	2.5	IPGW-AE05-0028-021902	300	0	20000	0
AQUIFER LAYER 4 (ELEVATION 15 TO - 5 FT MSL)													
Semi-Volatile Organic Compounds													
2,4-Dichlorophenol	UG/L	1	9	2	12	12	0.9	2	CW5-05-GW-03			4000	0
2,4-Dimethylphenol	UG/L	1	9	1	5 J	5 J	0.9	2	CW5-05-GW-03			20000	0
2-Chloronaphthalene	UG/L	1	9	0.7	2 J	2 J	0.9	2	CW5-05-GW-03				
2-Methylphenol	UG/L	1	9	4	29	29	0.9	2	CW5-05-GW-03				
4-Chloro-3-methylphenol	UG/L	1	9	0.7	2 J	2 J	0.9	2	CW5-05-GW-03				
4-Methylphenol	UG/L	1	9	4	26	26	3	6	CW5-05-GW-03				
Di-n-octylphthalate	UG/L	1	9	1	2	2	2	4	P1-02-GW-04-AVG				
Naphthalene	UG/L	1	9	9	78	78	0.9	2	CW5-05-GW-03	6000	0	6000	0
Phenol	UG/L	1	9	2	17	17	0.9	2	CW5-05-GW-03	50000	0	30000	0
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	3	12	0.5	0.11 J	2.8	0.5	1	IPGW-AE06-0043-020602	4000	0	50000	0
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	1	10	0.4	1.7	1.7	0.5	0.5	IPGW-AE06-0043-020602				
1,1-Dichloroethane	UG/L	5	12	1	0.69	7.3	0.5	1	IPGW-AE03-0050-020402	9000	0	50000	0
1,1-Dichloroethene	UG/L	2	12	1	2.8	8.4	0.5	1	IPGW-AE03-0050-020402	1	2	50000	0
Benzene	UG/L	1	15	39	580	580	0.5	1	B8-02-GW-03NS-030101	2000	0	7000	0
Chloroform	UG/L	1	12	0.3	0.43 J	0.43 J	0.5	1	IPGW-AE06-0043-020602	400	0	10000	0
cis-1,2-Dichloroethene	UG/L	3	12	0.8	0.51	3.4	0.5	1	IPGW-AE03-0050-020402	30000	0	50000	0
Ethylbenzene	UG/L	1	12	0.3	0.34 J	0.34 J	0.5	1	IPGW-AG01-0055-012102	30000	0	4000	0

TABLE 4-3b (cont.)
STUDY AREA GROUNDWATER ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum	MCP Method 1 Groundwater GW-2 [4]		MCP Method 1 Groundwater GW-3 [4]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 4 (ELEVATION 15 TO -5 FT MSL) (cont.)													
Volatile Organic Compounds (cont.)													
Methyl tert-Butyl Ether	UG/L	7	10	1	0.32 J	2.2	0.5	0.5	IPGW-AE03-0050-020402	50000	0	50000	0
Tetrachloroethene	UG/L	2	12	0.3	0.21 J	0.57	0.5	1	IPGW-AE03-0050-020402	3000	0	5000	0
Toluene	UG/L	1	15	3	42	42	0.5	1	B8-02-GW-03NS-030101	6000	0	50000	0
Total Xylenes	UG/L	1	12	0.4	2	2	0.5	1	IPGW-AG01-0055-012102	6000	0	50000	0
Trichloroethene	UG/L	5	12	13	0.15 J	110 *	0.5	1	IPGW-AE03-0050-020402	300	0	20000	0
AQUIFER LAYER 5 (ELEVATION -5 TO -50 FT MSL)													
Semi-Volatile Organic Compounds													
1,4-Dichlorobenzene	UG/L	1	12	0.8	2 J	2 J	0.9	3	CB8-01-GW-03	30000	0	8000	0
2,4-Dimethylphenol	UG/L	1	13	0.7	1 J	1 J	0.9	3	CW5-03-GW-03NS-F			20000	0
2-Methylphenol	UG/L	1	13	0.8	3 J	3 J	0.9	3	CW5-03-GW-03NS-F				
4-Methylphenol	UG/L	1	13	2	7 J	7 J	3	10	CW5-03-GW-03NS-F				
4-Nitroaniline	UG/L	1	13	2	8 J	8 J	2	7	CW5-03-GW-03NS-F				
N-Nitrosodiphenylamine	UG/L	1	12	1	6 J	6 J	0.9	3	CB8-01-GW-03				
Phenol	UG/L	1	13	1	8 J	8 J	0.9	3	CW5-03-GW-03NS-F	50000	0	30000	0
Volatile Organic Compounds													
1,1,1-Trichloroethane	UG/L	2	20	0.5	0.46 J	3.4	0.5	1	IPGW-AE04-0088-020502	4000	0	50000	0
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/L	1	12	0.5	3.6	3.6	0.5	0.5	IPGW-AE04-0088-020502				
1,1-Dichloroethane	UG/L	8	20	1	0.45 J	4.9	0.5	1	IPGW-AE04-0088-020502	9000	0	50000	0
1,1-Dichloroethene	UG/L	4	20	0.7	0.4 J	4.8	0.5	1	IPGW-AE04-0088-020502	1	2	50000	0
1,2,4-Trichlorobenzene	UG/L	2	12	0.2	0.11 J	0.13 J	0.5	0.5	IPGW-AE03-0078-020402	10000	0	500	0
1,2-Dichloroethane	UG/L	1	20	0.3	0.17 J	0.17 J	0.5	1	IPGW-AE04-0061-020402	20	0	50000	0
1,3-Dichlorobenzene	UG/L	1	12	0.2	0.11 J	0.11 J	0.5	0.5	IPGW-AE03-0078-020402	10000	0	8000	0
2-Butanone	UG/L	1	20	2	5 J	5 J	3	5	P1-03-GW-06NS-051601	50000	0	50000	0
Acetone	UG/L	6	20	5	7 J	13 J	5	6	P1-01-GW-08NS-111301	50000	0	50000	0
Benzene	UG/L	2	22	43	420 J	520	0.5	1	CW5-03-GW-03NS	2000	0	7000	0
Chlorobenzene	UG/L	1	20	0.5	3 J	3 J	0.5	1	CW5-03-GW-03NS	1000	0	500	0
cis-1,2-Dichloroethene	UG/L	7	20	3	0.29 J	50	0.5	1	CW5-03-GW-03NS	30000	0	50000	0
Ethylbenzene	UG/L	2	20	0.4	0.48 J	1 J	0.5	1	CW5-03-GW-03NS	30000	0	4000	0
Methyl tert-Butyl Ether	UG/L	4	12	0.4	0.18 J	1.2	0.5	0.5	IPGW-AE02-0072-021402	50000	0	50000	0
Tetrachloroethene	UG/L	3	20	0.4	0.22 J	2 J	0.5	1	CW5-03-GW-03NS	3000	0	5000	0
Toluene	UG/L	3	22	0.8	1.6	6	0.5	1	CW5-03-GW-03NS	6000	0	50000	0

TABLE 4-3b (cont.)
STUDY AREA GROUNDWATER ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum	MCP Method 1 Groundwater GW-2 (4)		MCP Method 1 Groundwater GW-3 (4)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
AQUIFER LAYER 5 (ELEVATION -5 TO -50 FT MSL) (cont.)													
Volatile Organic Compounds (cont.)													
Total Xylenes	UG/L	2	20	1	3.4	12	0.5	1	CW5-03-GW-03NS	6000	0	50000	0
trans-1,2-Dichloroethene	UG/L	2	20	0.3	0.19 J	0.24 J	0.5	1	IPGW-AE03-0078-020402	20000	0	50000	0
Trichloroethene	UG/L	9	20	10	0.2	77	0.5	1	CW5-03-GW-03NS	300	0	20000	0
Vinyl Chloride	UG/L	1	20	0.4	0.61	0.61	0.5	1	IPGW-AE03-0078-020402	2	0	40000	0

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Zero values are shown when there are no non-detects for the parameter in that group.

(4) Massachusetts Contingency Plan Method 1 Groundwater Standards (310 CMR 40.0974, MADEP, June 1999) applicable in areas where the groundwater is considered to be one or more of the following categories per 310 cmr 40.0932:
- GW-2 applies to groundwater that may impact the air inside occupied structures.
- GW-3 applies to groundwater that may impact surface water.

TABLE 4-3c
SOUTHERN BOUNDARY WELLS GROUNDWATER DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum	MCP Method 1 Groundwater GW-1 (4)		MCP Method 1 Groundwater GW-2 (4)		MCP Method 1 Groundwater GW-3 (4)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
Metals															
Aluminum	UG/L	19	51	336	36.9 J	9760	32	262	P1-02-GW-02						
Arsenic	UG/L	36	57	9.1	0.989	92.4 J	0.975	3.7	P1-02-GW-02	50	3			400	0
Barium	UG/L	50	50	72	4 J	326	0	0	P1-06-GW-01	2000	0			30000	0
Beryllium	UG/L	1	51	0.3	0.99 J	0.99 J	0.2	0.64	P1-02-GW-02	4	0			50	0
Cadmium	UG/L	8	51	0.59	0.88 J	6.9 J	0.3	2.6	P1-03-GW-04	5	1			10	0
Calcium	UG/L	51	51	70300	14800	169000	0	0	IPGW-AF03-0061-022502-AVG						
Chromium	UG/L	8	51	1.7	1.9 J	29.8 J	0.6	2.2	P1-02-GW-02	100	0			2000	0
Cobalt	UG/L	26	51	4	0.77 J	16	0.7	3.6	IPGW-AF03-0061-022502-AVG						
Copper	UG/L	6	51	2.8	2.4 J	34.7	1.8	9.1	P1-02-GW-02						
Iron	UG/L	44	51	6360	39 J	47400	38	2060	P1-02-GW-02						
Lead	UG/L	5	51	6.7	14.4 J	87.6	1.1	8.8	P1-03-GW-04	15	4			30	1
Magnesium	UG/L	51	51	13600	1520	42800	0	0	IPGW-AF03-0061-022502-AVG						
Manganese	UG/L	51	51	764	10.5	6770	0	0	P1-02-GW-01						
Mercury	UG/L	2	51	0.054	0.2	1.1 J	0.02	0.3	P1-04-GW-04	2	0			1	1
Nickel	UG/L	28	51	10.8	1.5	111 J	1	14.1	P1-01-GW-07NS-F	100	1			80	2
Potassium	UG/L	51	51	7080	661	21400	0	0	P1-01-GW-03R						
Selenium	UG/L	5	51	2.3	4.4	6.4 J	1.9	4.6	P1-03-GW-06NS-F-051601	50	0			80	0
Silver	UG/L	1	51	0.61	2 J	2 J	0.5	1.3	P1-02-GW-06NS-F-110601	40	0			7	0
Sodium	UG/L	51	51	115000	9770	845000	0	0	P1-06-GW-01						
Thallium	UG/L	2	51	4.2	9.4 J	13.7 J	2.2	8.8	P1-04-GW-03	2	2			400	0
Vanadium	UG/L	8	51	1.6	1.8 J	32.1	0.77	1.7	P1-02-GW-02	50	0			2000	0
Zinc	UG/L	25	50	144	2.6	3000	3.2	43.4	P1-01-GW-07NS-F	2000	1			900	2
Metals Speciation (GSIP and MSGRP Investigations)															
Arsenic (III)	UG/L	4	4	40.1	21.8 J	58.2	0	0	P1-01-GW-06NS-F-110701						
Inorganic Arsenic	UG/L	4	4	86.7	50.4 J	172	0	0	P1-01-GW-06NS-F-110701						
Semi-Volatile Organic Compounds															
bis(2-Ethylhexyl)phthalate	UG/L	2	39	2	10	15	2	7	P1-04-GW-04	6	2	50000	0	30	0
Di-n-octylphthalate	UG/L	1	39	1	2	2	2	7	P1-02-GW-04-AVG						

TABLE 4-3c (cont.)
SOUTHERN BOUNDARY WELLS GROUNDWATER DATA - STATISTICAL SUMMARY
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum	MCP Method 1 Groundwater GW-1 (4)		MCP Method 1 Groundwater GW-2 (4)		MCP Method 1 Groundwater GW-3 (4)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
Volatile Organic Compounds															
1,1-Dichloroethane	UG/L	1	20	0.6	0.93	0.93	0.5	10	IPGW-AF01-0115-040802	70	0	9000	0	50000	0
2-Butanone	UG/L	2	20	5	5 J	12	3	100	P1-07-GW-03NS-050701	350	0	50000	0	50000	0
Acetone	UG/L	6	20	8	7 J	37	5	100	P1-07-GW-03NS-050701	3000	0	50000	0	50000	0
cis-1,2-Dichloroethene	UG/L	1	20	0.6	0.31 J	0.31 J	0.5	10	IPGW-AF01-0115-040802	70	0	30000	0	50000	0
Ethylbenzene	UG/L	1	20	0.6	0.48 J	0.48 J	0.5	10	IPGW-AF01-0074-011702	700	0	30000	0	4000	0
Methyl tert-Butyl Ether	UG/L	7	10	400	0.18 J	4000	0.5	0.5	IPGW-AF02-0014-032702-AVG	70	1	50000	0	50000	0
Toluene	UG/L	1	20	0.7	1.6	1.6	0.5	10	IPGW-AF01-0074-011702	1000	0	6000	0	50000	0
Total Xylenes	UG/L	1	20	0.8	3.4	3.4	0.5	10	IPGW-AF01-0074-011702	10000	0	6000	0	50000	0
Trichloroethene	UG/L	2	20	0.8	0.46 J	3.5 J	0.5	10	IPGW-AF01-0115-040802	5	0	300	0	20000	0
Miscellaneous Water Quality Parameters															
Alkalinity to pH 4.5	MG/L	10	10	85.2	22.3	148	0	0	P1-02-GW-06NS-110601						
Bicarbonate	MG/L	10	10	85.2	22.3	148	0	0	P1-02-GW-06NS-110601						
Dissolved Organic Carbon	MG/L	8	35	3.7	3	14.2	1.82	8	P1-01-GW-06NS-110701						
Nitrate	MG/L	4	11	0.11	0.16	0.32 J	0.04	0.2	P1-07-GW-03NS-050701						
Nitrite-N	MG/L	7	11	0.023	0.02 J	0.043 J	0.015	0.015	P1-02-GW-07NS						
Nitrogen, Ammonia	MG/L	9	10	0.45	0.078 J	1.15	0.16	0.16	P1-02-GW-06NS-110601						
Sulfate	MG/L	3	10	479	33	1500 J	30	2400	P1-03-GW-06NS-051601						
Total Phosphorus as PO4 water	MG/L	10	10	114	9.6	364	0	0	P1-01-GW-06NS-110701						
Total Suspended Solids	MG/L	15	15	117000	194	826000	0	0	P1-03-GW-06NS-051601						

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Zero values are shown when there are no non-detects for the parameter in that group.

(4) 4. Massachusetts Contingency Plan Method 1 Groundwater Standards (310 CMR 40.0974, MADEP, June 1999) applicable in areas where the groundwater is considered to be one or more of the following categories per 310 cmr 40.0932:
- GW-1 applies to groundwater in a current or potential drinking water source area.
- GW-2 applies to groundwater that may impact the air inside occupied structures.
- GW-3 applies to groundwater that may impact surface water.

TABLE 4-4a
SURFACE SEDIMENT REFERENCE STATION DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2)	Average Detected Conc. (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Metals (mg/kg)													
Aluminum	27	27	8580	8580	1100	20200	0	0	IPSD-PP03-062501	76000	0		
Antimony	20	27	1	1.2	0.5 J	5.6	0.43	1.4	IPSD-TT04-062601	31	0		
Arsenic	27	27	16.7	16.7	2.5	44.5	0	0	IPSD-TT04-062601	0.39	27	33	3
Barium	27	27	57	57	5.7	173	0	0	IPSD-TT04-062601	5400	0		
Beryllium	24	27	0.56	0.61	0.15	1.3 J	0.19	0.22	IPSD-PP03-062501	150	0		
Cadmium	20	27	1.3	1.8	0.08699	6.1	0.04	0.23	SD-MC-04	37	0	10	0
Calcium	22	22	3450	3450	610	10900	0	0	IPSD-TTSD01-062501				
Chromium	27	27	88.8	88.8	8.9	512	0	0	IPSD-TT04-062601	100000	0	110	6
Cobalt	27	27	8.6	8.6	0.76	21.8 J	0	0	IPSD-TT04-062601	900	0		
Copper	27	27	62.6	62.6	1.9	344	0	0	IPSD-TT04-062601	3100	0	110	4
Iron	27	27	16300	16300	2040	51600	0	0	IPSD-TT04-062601	23000	6	40000	1
Lead	27	27	194	194	5.6 J	755 J	0	0	SD-25-02-FW	400	4	250	8
Magnesium	22	22	2880	2880	324	5810	0	0	IPSD-PP03-062501				
Manganese	27	27	368	368	12.6 J	1980	0	0	IPSD-TT04-062601	1800	1	1100	3
Mercury	19	26	0.19	0.26	0.021 J	0.71	0.0095	0.08	SD-24-03-ME	6.1	0	2	0
Nickel	27	27	15.1	15.1	1.1	32.1	0	0	IPSD-PP03-062501	1600	0	75	0
Potassium	22	22	927	927	126	2410	0	0	SD-26-01-FW				
Selenium	9	27	0.81	1.7	0.88 J	3.2 J	0.48	1.1	SD-25-02-FW	390	0		
Silver	8	26	0.5	1	0.085 J	2.9	0.24	1	SD-24-03-FW	390	0		
Sodium	12	22	398	696	66.5	5400	41.5	187	IPSD-PP03-062501				
Thallium	2	26	0.5	1.6	1	2.2	0.12	2	SD-25-02-FW	5.2	0		
Vanadium	27	27	34.6	34.6	2.5	148	0	0	SD-24-03-FW	78	2		
Zinc	27	27	195	195	10.4 J	645 J	0	0	IPSD-PP03-062501	23000	0	820	0
Semivolatile Organic Compounds (µg/kg)													
2-Methylnaphthalene	6	26	260	110	22 J	360 J	230	3100	SD-24-02-FW				
4-Methylphenol	1	19	360	190	190 J	190 J	320	3100	SD-MC-01	310000	0		
Acenaphthene	8	26	300	280	50 J	1400 J	230	3100	SD-24-02-FW	3700000	0		
Acenaphthylene	10	26	300	270	22 J	800 J	230	3100	SD-24-02-FW	56000	0		
Anthracene	13	26	410	460	48 J	1900 J	230	3100	SD-24-02-FW	22000000	0	370000	0

TABLE 4-4a (cont.)
SURFACE SEDIMENT REFERENCE STATION DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2)	Average Detected Conc. (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Semivolatile Organic Compounds (µg/kg) (cont.)													
Benzo(a)anthracene	18	26	1200	1500	110 J	5900	370	1000	SD-24-02-FW	620	12	1480000	0
Benzo(a)pyrene	18	26	1100	1500	130 J	5500	370	1000	SD-24-02-FW	62	18	1440000	0
Benzo(b)fluoranthene	23	26	1500	1700	150 J	10000	460	1000	SD-24-02-FW	620	14		
Benzo(g,h,i)perylene	11	26	510	880	190 J	2200 J	230	1000	SD-25-02-FW	56000	0	320000	0
Benzo(k)fluoranthene	16	26	1400	2100	400	9600	230	1000	SD-24-02-FW	6200	2	1340000	0
bis(2-Ethylhexyl)phthalate	7	24	370	360	94 J	1200	230	3100	SD-MC-03	35000	0		
Butylbenzylphthalate	2	24	310	67	47 J	87 J	230	3100	SD-24-03-FW	12000000	0		
Carbazole	8	24	330	330	48 J	990 J	230	3100	SD-24-02-FW	24000	0		
Chrysene	18	26	1400	1900	140 J	7300	370	1000	SD-24-02-FW	62000	0	460000	0
Dibenzo(a,h)anthracene	11	26	290	350	110 J	1100 J	230	1000	SD-25-02-FW	62	11	130000	0
Dibenzofuran	5	24	310	310	120 J	1000 J	230	3100	SD-24-02-FW	150000	0		
Diethylphthalate	3	25	270	150	48 J	230 J	230	3100	SD-24-02-FW	49000000	0		
Di-n-Butylphthalate	6	24	300	180	150 J	240 J	230	3100	SD-26-03-FW	6100000	0		
Di-n-octylphthalate	1	24	320	220	220 J	220 J	230	3100	SD-26-02-FW-AVG	2400000	0		
Fluoranthene	24	26	2500	2700	71 J	15000	460	1000	SD-24-02-FW	2300000	0	1020000	0
Fluorene	11	26	380	440	44 J	2800	230	3100	SD-24-02-FW	2700000	0	160000	0
Indeno(1,2,3-cd)pyrene	14	26	680	1100	160 J	3700 J	230	1000	SD-25-02-FW	620	6	320000	0
Naphthalene	6	26	270	170	23 J	520 J	230	3100	SD-24-02-FW	56000	0		
Phenanthrene	18	26	1500	2100	170 J	12000	370	1000	SD-24-02-FW	56000	0	950000	0
Pyrene	19	26	2100	2700	81 J	11000	440	1000	SD-24-02-FW	2300000	0	850000	0
Volatile Organic Compounds (µg/kg)													
1,1,1-Trichloroethane	1	26	14	100	100 J	100 J	7	69	IPSD-PP03-062501	1200000	0		
1,1,2-Trichloro-1,2,2-trifluoroethane	1	5	24	52	52 J	52 J	16	55	IPSD-PP03-062501	5600000	0		
2-Butanone	4	22	52	250	18 J	680	10	32	SD-MC-02	22000000	0		
Acetone	12	24	190	330	23 J	2200 TB	13	220	SD-MC-02	14000000	0		
Benzene	1	24	8	4	4 J	4 J	7	32	SD-25-02-ME	640	0		
Carbon Disulfide	2	22	8	3	3 J	3 J	7	32	SD-26-02-FW-AVG, SD-27-03-FW	360000	0		

TABLE 4-4a (cont.)
SURFACE SEDIMENT REFERENCE STATION DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2)	Average Detected Conc. (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Volatile Organic Compounds (µg/kg) (cont.)													
Methyl Acetate	5	5	140	140	24	350 J	0	0	IPSD-PP03-062501	22000000	0		
Toluene	3	24	12	31	7.9 J	73 J	7	34	IPSD-PP03-062501	520000	0		
Pesticide/PCB (µg/kg)													
4,4'-DDD	20	26	48	59	1.1 J	390	3.4	31	SD-24-03-ME	2400	0	6000	0
4,4'-DDE	19	26	30	39	1.6 J	470	0.79	31	SD-MC-01	1700	0	19000	0
4,4'-DDT	16	26	22	33	2.1 J	180	0.79	30	SD-MC-01	1700	0	71000	0
Aldrin	3	26	2.7	0.81	0.29 J	1.6 J	0.16	16	SD-24-02-FW	29	0	8000	0
alpha-BHC	3	26	6.2	31	0.31 J	69 J	0.16	16	SD-MC-03	90	0	10000	0
alpha-Chlordane	4	26	3.1	4.2	1.3 J	8.4 J	0.76	15	SD-25-02-FW				
Aroclor-1248	2	26	65	170	56 J	290 J	3	310	SD-24-03-ME			150000	0
Aroclor-1260	2	26	61	120	47	200	3	310	SD-24-03-ME			24000	0
beta-BHC	2	26	2.7	0.57	0.4 J	0.75 J	0.16	16	SD-23-01-FW	320	0	21000	0
Dieldrin	6	26	4.9	5.6	1.1 J	18	0.32	30	SD-24-02-FW	30	0	91000	0
Endosulfan I	8	26	6.3	17	0.22 J	66 J	0.16	14	SD-25-02-FW				
Endosulfan II	5	26	5.1	4.9	0.33 J	9.4 J	0.76	30	SD-25-02-FW				
Endosulfan Sulfate	3	26	5.2	8.9	6.6	11 J	0.32	30	SD-25-02-FW				
Endrin	4	26	5.4	2	0.3 J	5.1	0.76	31	SD-24-02-FW	18000	0	130000	0
Endrin Aldehyde	3	21	6.8	3.8	1.1 J	5.9 J	1.9	31	SD-24-03-ME				
Endrin Ketone	4	26	5	5.6	2.7 J	9.1 J	0.32	30	SD-25-02-FW				
gamma-BHC	1	26	2.8	1.9	1.9 J	1.9 J	0.16	16	SD-24-02-FW	440	0	1000	0
gamma-Chlordane	6	26	2.9	2.2	0.31 J	4.6	0.76	16	SD-24-03-FW				
Heptachlor	1	26	2.8	0.84	0.84 J	0.84 J	0.16	16	SD-24-02-FW	110	0		
Heptachlor Epoxide	3	26	2.8	0.75	0.36 J	1.4 J	0.76	16	SD-24-02-FW	53	0	5000	0

TABLE 4-4a (cont.)
SURFACE SEDIMENT REFERENCE STATION DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2)	Average Detected Conc. (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.

Qualifer	Description
J	Quantitation approximate
TB	Trip blank contamination

(1) The parameters listed for each group are only those detected in that group, except for chromium VI, which is listed when analyzed, even when not detect

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

(5) EPA Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil (USEPA, 2004)

(6) Ontario Minestry of the Environment and Energy (OMEE) Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario - Severe-Effects Level guidelines (SELs) (Persaud *et al.* , 1993).

TABLE 4-4b
SURFACE SEDIMENT METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2) (mg/kg)	Average Detected Conc. (3) (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects (4) (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)		Study Area Average Background Concentration (7)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 0															
Aluminum	78	78	9530	9530	2270	21800	0	0	IPSD-ED07-020501	76000	0			8580	44
Antimony	40	61	4.1	5.8	0.99 J	20.3	0.26	4	AR04	31	0			1	39
Arsenic	78	78	380	380	7.4	2390	0	0	SD-MC-07	0.39	78	33	70	16.7	73
Barium	77	78	75.5	76.4	6.2	227	13.9	13.9	HB02-12	5400	0			57	45
Beryllium	61	78	0.87	1.1	0.27 J	3.4	0.25	0.73	IPSD-ED07-020501	150	0			0.56	51
Cadmium	75	77	10.7	10.9	0.63	45.1	0.3	0.46	IPSD-HB02-10-112701	37	1	10	31	1.3	67
Calcium	71	71	5580	5580	456 J	27500	0	0	BE05					3450	47
Chromium	78	78	278	278	10.2 J	1240	0	0	IPSD-ED09-020501	100000	0	110	51	88.8	52
Chromium VI	6	7	0.95	0.61	0.472	0.802	5.98	5.98	IPSD-HB01-08-112801	30	0				
Cobalt	78	78	28	28	2	136	0	0	IPSD-HB02-03-112701	900	0			8.6	61
Copper	78	78	388	388	21.1 J	2000 J	0	0	IPSD-HB01-05-112801	3100	0	110	58	62.6	65
Iron	78	78	57400	57400	3740 J	233000	0	0	HB02-11	23000	51	40000	36	16300	59
Lead	78	78	204	204	6.2 J	672 J	0	0	IPSD-HB01-04-112801	400	8	250	25	194	36
Magnesium	71	71	2230	2230	434	5330	0	0	HB02-17					2880	13
Manganese	78	78	937	937	34.3 J	4370 J	0	0	IPSD-ED03-020501-AVG	1800	14	1100	23	368	41
Mercury	67	74	0.91	1	0.06 J	3.8	0.049	0.37	SD-MC-09	6.1	0	2	8	0.19	54
Nickel	78	78	24	24	4.6	54.5	0	0	IPSD-HB02-03-112701	1600	0	75	0	15.1	58
Potassium	71	71	726	726	117 J	2470	0	0	IPSD-HB03-04-112601					927	13
Selenium	71	77	3.3	3.5	0.45 J	20 J	0.45	1	AR04	390	0			0.81	68
Silver	54	71	1.6	2.1	0.32 J	18.5	0.14	0.89	AR05	390	0			0.5	48
Sodium	70	71	702	711	70	4470	126	126	HB03-14					398	47
Thallium	32	60	2.5	4.3	0.79 J	17.8 J	0.41	3	HB02-11	5.2	8			0.5	32
Vanadium	78	78	34.9	34.9	5.4	84.2	0	0	HB02-17	78	3			34.6	36
Zinc	78	78	2280	2280	83.9 J	12900 J	0	0	IPSD-HB01-08-112801	23000	0	820	46	195	73
REACH 1															
Aluminum	147	147	12400	12400	2560	34400 J	0	0	SD-13-02-FW	76000	0			8580	94
Antimony	97	125	13.8	17.5	0.75 J	329 J	0.3	6.6	IPSD-TT2201-020701	31	13			1	91
Arsenic	144	145	422	425	4.4 J	4550	3.7	3.7	SD-12-03-ME	0.39	144	33	115	16.7	130
Barium	147	147	125	125	12.3	3420	0	0	IPSD-WW11-000.5-112800	5400	0			57	102

TABLE 4-4b (cont.)
SURFACE SEDIMENT METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (mg/kg)	Average Detected Conc. [3] (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects [4] (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 1 (cont.)															
Beryllium	119	142	0.87	1	0.2 , J	2.9	0.065	1.5	SD-19-01-ME	150	0			0.56	86
Cadmium	144	146	8.2	8.3	0.2	37.4 J	0.048	0.49	SD-15-01-FW	37	1	10	53	1.3	129
Calcium	146	146	9600	9600	1020	30500 J	0	0	SD-22-03-FW					3450	128
Chromium	147	147	2080	2080	7.1 J	24600 *J	0	0	IPSD-WW08-000.5-112800	100000	0	110	116	88.8	120
Chromium VI	1	15	4.6	17.3	17.3	17.3	0.777	15.2	IPSD-WW06-100802	30	0				
Cobalt	147	147	17.9	17.9	1.3	57.5	0	0	BW05	900	0			8.6	101
Copper	147	147	520	520	9.6 J	2340 J	0	0	SD-13-01-FW	3100	0	110	118	62.6	127
Cyanide	34	51	1.3	1.7	0.26 J	12.1 J	0.19	2	IPSD-WS08-0005-071100	1200	0				
Iron	147	147	34500	34500	2310 J	258000	0	0	IPSD-TT1901-061901	23000	65	40000	41	16300	89
Lead	147	147	858	858	16.8	41000 J	0	0	IPSD-TT2201-020701	400	77	250	101	194	112
Magnesium	146	146	2240	2240	184 J	7870 J	0	0	IPSD-WH02-100802					2880	32
Manganese	147	147	569	569	34.4 J	2020	0	0	IPSD-TT1901-061901	1800	3	1100	25	368	79
Mercury	126	136	3	3.3	0.05 J	44.8	0.02	0.39	SD-12-03-ME	6.1	16	2	39	0.19	112
Nickel	146	147	26.2	26.4	3.9	150	0.8	0.8	JY-07	1600	0	75	3	15.1	105
Potassium	141	144	572	580	84 J	2660 J	342	450	IPSD-WH02-100802					927	21
Selenium	130	144	4.6	5	0.53 J	30.3	0.61	2.5	SD-12-03-ME	390	0			0.81	125
Silver	48	124	0.8	1.6	0.21 J	14.7	0.12	2	IPSD-WW08-061301-AVG	390	0			0.5	39
Sodium	133	142	956	1000	57.2	5460 J	190	708	IPSD-TT2803-020701					398	112
Thallium	61	126	1.5	2.4	0.22 J	18.1 J	0.23	6.1	BW03	5.2	7			0.5	46
Vanadium	147	147	54.7	54.7	8.5	240 J	0	0	IPSD-WH02-100802	78	28			34.6	99
Zinc	142	147	1510	1560	23	4940 J	125	634	SD-21-01-ME-AVG	23000	0	820	100	195	129
REACH 2 - NORTH															
Aluminum	89	89	8100	8100	1860	21100 J	0	0	IPSD-CB0104-020901	76000	0			8580	37
Antimony	48	89	2.1	3.3	0.56 J	23.6 J	0.33	3.5	IPSD-TT3001-062201	31	0			1	36
Arsenic	89	89	140	140	6.4 J	1410	0	0	IPSD-CB0311-020801	0.39	89	33	56	16.7	73
Barium	87	89	53.6	54.7	6	389	13.9	16.3	IPSD-CB0207-020801	5400	0			57	32
Beryllium	75	89	0.49	0.56	0.12	2	0.016	1.6	IPSD-CB0104-020901	150	0			0.56	28
Cadmium	81	89	5.2	5.6	0.1	34.6	0.5	1.5	CB06-01	37	0	10	11	1.3	65
Calcium	89	89	5070	5070	569	18100	0	0	IPSD-CB0310-100802-AVG					3450	50

TABLE 4-4b (cont.)
SURFACE SEDIMENT METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (mg/kg)	Average Detected Conc. [3] (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects [4] (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 2 - NORTH (cont.)															
Chromium	89	89	370	370	3.3 J	5310 J	0	0	IPSD-TT3003-021201	100000	0	110	54	88.8	57
Chromium VI	0	3	3.3	0	0	0	0.82	16.8	None	30	0				
Cobalt	89	89	12.1	12.1	0.79	130 J	0	0	IPSD-CB0306-020801	900	0			8.6	37
Copper	89	89	257	257	4.2 J	3760 J	0	0	IPSD-TT3003-021201	3100	1	110	51	62.6	62
Iron	89	89	20200	20200	3870	86500	0	0	IPSD-CB0311-020801	23000	25	40000	11	16300	31
Lead	89	89	188	188	1.9 J	664	0	0	IPSD-TT3001-062201	400	11	250	26	194	33
Magnesium	89	89	2070	2070	460	5280	0	0	IPSD-TT3103-021201					2880	15
Manganese	89	89	344	344	28.9	2640 J	0	0	SD-09-10-FW	1800	4	1100	6	368	21
Mercury	81	86	2	2.2	0.05 J	89.2 J	0.04	0.06	IPSD-TT3003-021201	6.1	1	2	15	0.19	62
Nickel	89	89	19	19	1.6	177	0	0	CB04-03	1600	0	75	2	15.1	37
Potassium	75	89	418	448	121	1160	219	1160	CB04-07					927	3
Selenium	61	88	2.5	3.3	0.62	9.3 J	0.43	2.8	IPSD-TT3001-021201	390	0			0.81	59
Silver	15	74	0.5	1.7	0.22 J	11.5	0.11	1.6	CB04-02	390	0			0.5	8
Sodium	75	89	999	1170	92	8880 J	37.3	400	IPSD-CB0306-020801					398	66
Thallium	28	82	1.2	2.6	0.42 J	9.7 J	0.31	6.5	IPSD-TT3001-021201	5.2	3			0.5	27
Vanadium	89	89	41.1	41.1	4.2	114	0	0	IPSD-CB0107-020901	78	10			34.6	43
Zinc	89	89	861	861	36.4 J	8750 #	0	0	CB04-03	23000	0	820	28	195	67
REACH 2 - SOUTH															
Aluminum	14	14	5200	5200	2550	9080	0	0	KFSD-03	76000	0			8580	1
Antimony	4	14	0.98	1.3	0.74	2 J	1.7	1.8	IPSD-AM-01-071000	31	0			1	2
Arsenic	14	14	40.1	40.1	10.8 J	121	0	0	IPSD-AM-01-071000	0.39	14	33	7	16.7	9
Barium	14	14	32.1	32.1	15.7	58.4	0	0	IPSD-AM-01-071000	5400	0			57	1
Beryllium	10	14	0.3	0.39	0.24	0.64	0.11	0.19	IPSD-AM-01-071000	150	0			0.56	2
Cadmium	6	14	0.8	1.4	0.81	3.9	0.12	1.8	IPSD-AM-01-071000	37	0	10	0	1.3	1
Calcium	14	14	2280	2280	1200	3550	0	0	KFSD-03					3450	2
Chromium	14	14	83.2	83.2	17.8 J	322	0	0	IPSD-AM-01-071000	100000	0	110	3	88.8	5
Chromium VI	0	1	2.3	0	0	0	4.528	4.528	None	30	0				
Cobalt	14	14	7.7	7.7	3.1	20.3	0	0	IPSD-AM-01-071000	900	0			8.6	5

TABLE 4-4b (cont.)
SURFACE SEDIMENT METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (mg/kg)	Average Detected Conc. [3] (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects [4] (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 2 - SOUTH (cont.)															
Copper	14	14	86	86	21.9	197	0	0	IPSD-AM-01-071000	3100	0	110	4	62.6	8
Cyanide	1	4	0.44	0.85	0.85 J	0.85 J	0.6	0.61	IPSD-AM-01-071000	1200	0				
Iron	14	14	13000	13000	6580	23400 J	0	0	IPSD-AM-01-071000	23000	2	40000	0	16300	3
Lead	14	14	90.3	90.3	20	188	0	0	KFSD-05-AVG	400	0	250	0	194	0
Magnesium	14	14	1890	1890	1230	2520	0	0	KFSD-03					2880	0
Manganese	14	14	324	324	83.5	1140 J	0	0	IPSD-AM-01-071000	1800	0	1100	1	368	3
Mercury	14	14	0.6	0.6	0.1 J	1.9	0	0	IPSD-AM-01-071000	6.1	0	2	0	0.19	10
Nickel	11	14	8.7	10.6	5.8	20.2	2.5	5.3	SD-08-02-FW	1600	0	75	0	15.1	2
Potassium	14	14	379	379	246	510 J	0	0	KFSD-03					927	0
Selenium	2	14	0.4	0.86	0.61 J	1.1 J	0.58	0.9	IPSD-AM-01-071000	390	0			0.81	1
Silver	5	14	0.31	0.54	0.44 J	0.69 J	0.27	0.42	KFSD-05-AVG	390	0			0.5	2
Sodium	8	14	162	233	161 J	286 J	80.2	157	KFSD-03					398	0
Thallium	4	14	0.96	1.2	0.44 J	1.7	1.7	1.8	SD-08-02-FW	5.2	0			0.5	3
Vanadium	14	14	18.4	18.4	9.1	29.6	0	0	KFSD-03	78	0			34.6	0
Zinc	14	14	345	345	115 J	941	0	0	IPSD-AM-01-071000	23000	0	820	1	195	10
REACH 3															
Aluminum	30	30	9000	9000	2270	22600 J	0	0	SD-07-10-FW	76000	0			8580	14
Antimony	16	30	1.6	2.3	0.72	5.1 J	1.7	2.6	LP04	31	0			1	14
Arsenic	30	30	69.4	69.4	5.4	505 J	0	0	LP04	0.39	30	33	17	16.7	26
Barium	30	30	50.9	50.9	11.2	118	0	0	SD-07-05-ME	5400	0			57	10
Beryllium	25	30	0.49	0.56	0.14	1.3	0.2	0.32	SD-07-10-FW	150	0			0.56	12
Cadmium	22	30	3.2	3.9	0.14 J	13.3	0.12	6.1	IPSD-AS-02-071000	37	0	10	3	1.3	16
Calcium	30	30	3150	3150	704	6630	0	0	SD-07-05-ME					3450	13
Chromium	30	30	156	156	8.2	918	0	0	IPSD-AS-02-071000	100000	0	110	14	88.8	15
Chromium VI	0	2	3	0	0	0	5.935	6.2	None	30	0				
Cobalt	30	30	10.9	10.9	2.4	32.6	0	0	SD-07-10-FW	900	0			8.6	13
Copper	30	30	203	203	6.6	1560 J	0	0	LP04	3100	0	110	16	62.6	23
Cyanide	4	12	1	2.1	1.4	3.8 J	0.54	1.4	IPSD-AS-01-071000-AVG	1200	0				

TABLE 4-4b (cont.)
SURFACE SEDIMENT METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (mg/kg)	Average Detected Conc. [3] (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects [4] (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 3 (cont.)															
Iron	30	30	16100	16100	4420	35400	0	0	SD-07-05-ME	23000	8	40000	0	16300	11
Lead	30	30	195	195	6.4	661	0	0	IPSD-AS-02-071000	400	5	250	11	194	12
Magnesium	30	30	2820	2820	1160	5860 J	0	0	SD-07-08-FW					2880	11
Manganese	30	30	257	257	47.5	595 J	0	0	SD-07-04-FW	1800	0	1100	0	368	9
Mercury	27	30	1.1	1.2	0.16 J	5.7 J	0.09	0.11	SD-07-10-FW	6.1	0	2	5	0.19	24
Nickel	30	30	17.1	17.1	0.59 J	39.4 J	0	0	IPSD-AS-02-071000	1600	0	75	0	15.1	13
Potassium	29	30	743	758	199	1900 J	610	610	SD-07-08-FW					927	10
Selenium	10	30	1	1.8	0.92 J	3.1	0.49	3.2	LP04	390	0			0.81	10
Silver	7	30	0.33	0.82	0.6 J	1.1	0.19	0.79	SD-07-04-FW	390	0			0.5	7
Sodium	19	30	315	413	30.8 J	688	52.2	519	LP06-AVG					398	10
Thallium	20	30	1.5	1.9	0.82	3.8	0.44	2.2	SD-07-10-FW	5.2	0			0.5	20
Vanadium	30	30	30.1	30.1	6.5	79.2	0	0	SD-07-10-FW	78	1			34.6	11
Zinc	30	30	918	918	15.2	2800	0	0	LP03	23000	0	820	12	195	25
REACH 4															
Aluminum	8	8	9900	9900	4780	15700	0	0	IPSD-JP-01-071000	76000	0			8580	6
Antimony	8	8	2	2	1.1 J	2.8 J	0	0	SD-06-03-FW	31	0			1	8
Arsenic	8	8	68.8	68.8	21.8	135	0	0	IPSD-JP-01-071000, SD-06-03-ME	0.39	8	33	6	16.7	8
Barium	8	8	75.8	75.8	28.9	130	0	0	SD-06-03-ME	5400	0			57	6
Beryllium	8	8	0.58	0.58	0.28	1	0	0	SD-06-03-ME	150	0			0.56	4
Cadmium	8	8	5	5	1.5	9.8	0	0	IPSD-JP-01-071000	37	0	10	0	1.3	8
Calcium	8	8	3880	3880	1740	5850 J	0	0	IPSD-JP-01-071000					3450	6
Chromium	8	8	266	266	142	442	0	0	SD-06-03-FW	100000	0	110	8	88.8	8
Chromium VI	0	3	2.8	0	0	0	4.405	6.41	None	30	0				
Cobalt	8	8	13.7	13.7	6	20.9	0	0	SD-06-03-ME	900	0			8.6	7
Copper	8	8	224	224	83.9	435	0	0	IPSD-JP-01-071000	3100	0	110	6	62.6	8
Cyanide	4	6	1.7	2.2	0.46 J	3.3 J	1	1.5	IPSD-MP-02-071000	1200	0				
Iron	8	8	22100	22100	9930	40600	0	0	SD-06-03-ME	23000	2	40000	1	16300	6
Lead	8	8	345	345	193	455	0	0	SD-06-03-ME	400	2	250	6	194	7

TABLE 4-4b (cont.)
SURFACE SEDIMENT METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2) (mg/kg)	Average Detected Conc. (3) (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects (4) (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)		Study Area Average Background Concentration (7)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 4 (cont.)															
Magnesium	8	8	3180	3180	1610	4840	0	0	IPSD-JP-01-071000					2880	6
Manganese	8	8	584	584	290 J	1630	0	0	SD-06-03-ME	1800	0	1100	1	368	4
Mercury	8	8	1.2	1.2	0.4 J	3.2	0	0	IPSD-JP-01-071000	6.1	0	2	2	0.19	8
Nickel	8	8	22.3	22.3	10.7	35.5 J	0	0	IPSD-JP-01-071000	1600	0	75	0	15.1	6
Potassium	8	8	953	953	551 J	1380	0	0	SD-06-03-ME					927	4
Selenium	3	8	1.1	2	1 J	3.4 J	0.84	2.1	SD-06-03-ME	390	0			0.81	3
Silver	1	8	0.25	0.18	0.18 J	0.18 J	0.39	0.99	SD-06-03-ME	390	0			0.5	0
Sodium	7	8	454	474	214	755	617	617	SD-06-03-FW					398	4
Thallium	4	8	0.63	0.76	0.4 J	1.2	0.77	1.2	SD-06-03-FW	5.2	0			0.5	3
Vanadium	8	8	39.4	39.4	24.5	60.2	0	0	SD-06-03-ME	78	0			34.6	4
Zinc	8	8	1040	1040	384	1920	0	0	IPSD-JP-01-071000	23000	0	820	6	195	8
REACH 5															
Aluminum	19	19	7700	7700	3600	14000	0	0	AJRW03	76000	0			8580	7
Antimony	4	19	4.1	1.2	0.44 J	1.8 J	9.4	11	SD-05-03-FW	31	0			1	2
Arsenic	11	18	20.1	27	5.1	57.5 J	9.4	20	AJRW02-AVG	0.39	11	33	3	16.7	8
Barium	19	19	47.5	47.5	20	89.5	0	0	AJRW02-AVG	5400	0			57	5
Beryllium	5	19	0.47	0.41	0.18	0.98	0.94	1.1	AJRW03	150	0			0.56	1
Cadmium	5	19	1.6	2.7	0.62	3.8	0.03	3.3	AJRW02-AVG, AJRW05	37	0	10	0	1.3	4
Calcium	19	19	2730	2730	1340	5800	0	0	AJRW02-AVG					3450	3
Chromium	19	19	83.6	83.6	11	235	0	0	AJRW09-AVG	100000	0	110	6	88.8	8
Cobalt	19	19	8.6	8.6	4.1	17	0	0	AJRW03	900	0			8.6	6
Copper	19	19	81	81	10.9	190	0	0	AJRW09-AVG	3100	0	110	5	62.6	12
Iron	19	19	13800	13800	7990	25000	0	0	AJRW02-AVG	23000	1	40000	0	16300	4
Lead	19	19	254	254	35	1000	0	0	AJRW04	400	4	250	6	194	7
Magnesium	19	19	3070	3070	1400	4800	0	0	AJRW07					2880	10
Manganese	19	19	248	248	91	952	0	0	SD-05-02-FW	1800	0	1100	0	368	2
Mercury	16	19	0.48	0.57	0.051 J	1.2 J	0.025	0.05	SD-05-03-FW	6.1	0	2	0	0.19	14
Nickel	19	19	13.1	13.1	6.8	24	0	0	AJRW02-AVG	1600	0	75	0	15.1	5
Potassium	6	19	624	946	536 J	1300	487	1100	AJRW03					927	3

TABLE 4-4b (cont.)
SURFACE SEDIMENT METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (mg/kg)	Average Detected Conc. [3] (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects [4] (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 5 (cont.)															
Silver	1	19	1.2	0.45	0.45 J	0.45 J	0.23	3.3	SD-05-03-ME-AVG	390	0			0.5	0
Sodium	3	19	424	368	94.2	795 J	39.5	1100	AJRW02-AVG					398	1
Thallium	2	13	17.6	0.91	0.85	0.97	0.04	55	SD-05-02-FW	5.2	0			0.5	2
Vanadium	19	19	27.3	27.3	12.5	53	0	0	AJRW03	78	0			34.6	4
Zinc	19	19	313	313	51	820	0	0	AJRW03	23000	0	820	0	195	10
REACH 6															
Aluminum	44	44	12400	12400	2730	25000	0	0	IPSD-LM02-0005-071700	76000	0			8580	25
Antimony	19	28	1.7	2.4	0.32 J	11.1 J	0.42	0.93	SD-04-02-ME	31	0			1	12
Arsenic	44	44	117	117	2.4	1570	0	0	SD-04-02-ME	0.39	44	33	30	16.7	30
Barium	44	44	107	107	8.1	368	0	0	IPSD-LM02-0005-071700	5400	0			57	25
Beryllium	29	44	0.7	1	0.4	1.7 J	0.059	0.3	SD-04-02-ME	150	0			0.56	26
Cadmium	39	44	7.5	8.5	0.045	37.7	0.028	0.046	SD-01-06-FW	37	1	10	16	1.3	31
Calcium	44	44	4520	4520	493	9840	0	0	IPSD-TTA003-062701-AVG					3450	27
Chromium	44	44	272	272	6.9	3000 J	0	0	SD-04-02-ME	100000	0	110	25	88.8	27
Chromium VI	0	5	6.7	0	0	0	8.297	19.6	None	30	0				
Cobalt	44	44	21	21	2.6	72.2	0	0	IPSD-UM02-0005-071700	900	0			8.6	30
Copper	44	44	314	314	5.8	1250	0	0	SD-01-06-FW	3100	0	110	30	62.6	31
Cyanide	14	35	0.88	1.7	0.52 J	4.4	0.29	1.6	IPSD-UF02-0005-071800	1200	0				
Iron	44	44	31000	31000	3830	106000	0	0	IPSD-UM02-0005-071700	23000	23	40000	17	16300	27
Lead	44	44	429	429	5.7 J	1290	0	0	IPSD-UM02-0005-071700	400	24	250	27	194	28
Magnesium	44	44	4000	4000	913	12900	0	0	IPSD-LM01-0005-071700					2880	23
Manganese	44	44	605	605	48.5	3060	0	0	IPSD-UM02-0005-071700	1800	2	1100	7	368	24
Mercury	28	39	1	1.4	0.06 J	13.6	0.015	0.095	SD-04-02-ME	6.1	1	2	1	0.19	25
Nickel	44	44	27.4	27.4	4.8	64.3	0	0	IPSD-UM02-0005-071700	1600	0	75	0	15.1	27
Potassium	42	44	1160	1210	224 J	4390	257	369	IPSD-LM01-0005-071700					927	25
Selenium	23	44	1.6	2.6	1.4 J	5.1 J	0.43	2.7	SD-01-06-ME	390	0			0.81	23
Silver	21	44	0.48	0.74	0.38 J	1.4 J	0.21	1.9	IPSD-UF02-0005-071800	390	0			0.5	14
Sodium	23	36	364	555	103	1160	37	68.2	IPSD-TTUF02-062701-AVG					398	14

TABLE 4-4b (cont.)
SURFACE SEDIMENT METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2) (mg/kg)	Average Detected Conc. (3) (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects (4) (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)		Study Area Average Background Concentration (7)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 6															
Thallium	22	44	0.61	0.84	0.31 J	2.9	0.43	1.4	SD-01-06-FW	5.2	0			0.5	19
Vanadium	44	44	52	52	6.5	180	0	0	IPSD-UM02-0005-071700	78	12			34.6	26
Zinc	44	44	1900	1900	34.8	7670	0	0	SD-01-10-FW	23000	0	820	31	195	33

Qualifer	Description
J	Quantitation approximate
*J	Quantitation approximate; from dilution analysis
#	From dilution analysis

(1) The parameters listed for each group are only those detected in that group, except for chromium VI, which is listed when analyzed, even when not detected.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

(5) EPA Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil (USEPA, 2004)

(6) Ontario Minestry of the Environment and Energy (OMEE) Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario - Severe-Effects Level guidelines (SELs) (Persaud *et al.* , 1993).

(7) Study area average background concentrations calculated from surface sediment reference data set consisting of 27 local and regional reference stations that were judged to be representative of background conditions. Reference station samples were collected during MSGRP and GSIP investigations from 1995 through 2002. Reference stations are shown on Figures 2-7I and 2-7J. Average concentrations calculated as described in note 2.

TABLE 4-4c
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 0															
Semivolatile Organic Compounds															
2-Methylphenol	1	7	220	380	380 J	380 J	300	640	SD-MC-05-AVG	3100000	0				
Acenaphthene	4	7	280	330	130 J	800 J	300	640	SD-MC-05-AVG	3700000	0			300	1
Acenaphthylene	2	7	210	89	80 J	98 J	340	810	SD-MC-11	56000	0			300	0
Anthracene	5	7	450	540	220 J	1200 J	340	640	SD-MC-05-AVG	22000000	0	370000	0	410	2
Benzo(a)anthracene	7	7	2100	2100	460	4800 J	0	0	SD-MC-05-AVG	620	6	1480000	0	1200	4
Benzo(a)pyrene	7	7	3000	3000	690	7200	0	0	SD-MC-11	62	7	1440000	0	1100	5
Benzo(b)fluoranthene	7	7	4600	4600	1100	10000 J	0	0	SD-MC-05-AVG, SD-MC-11	620	7			1500	5
Benzo(g,h,i)perylene	7	7	1800	1800	480	4100 J	0	0	SD-MC-05-AVG	56000	0	320000	0	510	6
Benzo(k)fluoranthene	7	7	3400	3400	910	8300 J	0	0	SD-MC-05-AVG	6200	1	1340000	0	1400	6
bis(2-Ethylhexyl)phthalate	7	7	6800	6800	540	37000	0	0	SD-MC-06	35000	1			370	7
Carbazole	5	7	680	860	160 J	2100 J	340	640	SD-MC-05-AVG	24000	0			330	4
Chrysene	7	7	4500	4500	960	10000 J	0	0	SD-MC-05-AVG	62000	0	460000	0	1400	6
Dibenzo(a,h)anthracene	7	7	500	500	110 J	1200	0	0	SD-MC-11	62	7	130000	0	290	3
Dibenzofuran	4	7	290	350	150 J	830 J	300	640	SD-MC-05-AVG	150000	0			310	1
Diethylphthalate	2	7	260	290	110 J	460	300	810	SD-MC-11	49000000	0			270	1
Fluoranthene	7	7	7800	7800	1500	19000 J	0	0	SD-MC-05-AVG	2300000	0	1020000	0	2500	5
Fluorene	4	7	410	560	240 J	1300 J	300	640	SD-MC-05-AVG	2700000	0	160000	0	380	1
Indeno(1,2,3-cd)pyrene	7	7	2300	2300	560	5200 J	0	0	SD-MC-05-AVG	620	6	320000	0	680	6
Naphthalene	4	7	280	310	110 J	820 J	340	640	SD-MC-05-AVG	56000	0			270	1
N-Nitroso-diphenylamine	4	7	210	140	100 J	170 J	340	810	SD-MC-11	99000	0				
Phenanthrene	7	7	3600	3600	530	10000 J	0	0	SD-MC-05-AVG	56000	0	950000	0	1500	4
Phenol	2	7	240	340	120 J	550 J	300	640	SD-MC-05-AVG	18000000	0				
Pyrene	7	7	6000	6000	1300	14000	0	0	SD-MC-11	2300000	0	850000	0	2100	5
Volatile Organic Compounds															
1,1-Dichloroethane	2	7	16	36	27	45	10	24	SD-MC-07	510000	0				
2-Butanone	2	7	130	430	340	520 J	6	24	SD-MC-05-AVG	22000000	0			52	2
Acetone	7	7	650	650	31 JTB	2200 J	0	0	SD-MC-05-AVG	14000000	0			190	4
Benzene	4	7	6400	11000	9 J	45000 J	6	14	SD-MC-05-AVG	640	1			8	4

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 0 (cont.)															
Volatile Organic Compounds (cont.)															
Carbon Disulfide	4	7	19	28	13 J	60 J	10	24	SD-MC-05-AVG	360000	0			8	4
Chlorobenzene	1	7	10	26	26 J	26 J	6	24	SD-MC-05-AVG	150000	0				
cis-1,2-Dichloroethene	3	7	14	21	10 J	36 J	10	24	SD-MC-05-AVG	43000	0				
Ethylbenzene	1	7	78	500	500 J	500 J	6	24	SD-MC-05-AVG	400000	0				
m&p-Xylene	1	7	360	2400	2400 J	2400 J	13	47	SD-MC-05-AVG						
o-Xylene	1	7	49	300	300 J	300 J	6	24	SD-MC-05-AVG						
Toluene	1	7	20	92	92 J	92 J	6	24	SD-MC-05-AVG	520000	0			12	1
Trichloroethene	2	7	10	14	11	16 J	10	24	SD-MC-05-AVG	53	0				
Vinyl Chloride	1	7	8	12	12 J	12 J	6	24	SD-MC-05-AVG	79	0				
Pesticide/PCB															
4,4'-DDD	2	7	4	13	3.2	22 J	0.81	1.6	SD-MC-06	2400	0	6000	0	48	0
4,4'-DDE	1	7	1.4	2.7	2.7	2.7	0.81	7.6	SD-MC-10	1700	0	19000	0	30	0
alpha-Chlordane	1	7	14	92	92 J	92 J	0.81	1.6	SD-MC-06					3.1	1
gamma-Chlordane	1	7	14	93	93 J	93 J	0.81	1.6	SD-MC-06					2.9	1
REACH 1															
Semivolatile Organic Compounds															
2-Methylnaphthalene	12	32	250	33	10 J	140	6	2300	SD-21-01-ME-AVG					260	0
Acenaphthene	15	32	250	29	3 J	100 J	280	2300	SD-MC-13	3700000	0			300	0
Acenaphthylene	15	32	240	24	1 J	110 J	280	2300	SD-MC-13	56000	0			300	0
Anthracene	16	32	280	160	18 J	660 J	280	2300	SD-14-01-FW	22000000	0	370000	0	410	2
Benzo(a)anthracene	32	42	540	610	110 J	1700	400	890	SD-13-01-ME, SD-MC-13	620	12	1480000	0	1200	4
Benzo(a)pyrene	30	38	680	710	150 J	2600	540	2100	SD-MC-13	62	30	1440000	0	1100	6
Benzo(b)fluoranthene	42	48	1100	1200	120 J	3800	540	870	SD-MC-13	620	26			1500	10
Benzo(g,h,i)perylene	20	36	490	530	120 J	1600 J	280	2300	SD-18-03-ME	56000	0	320000	0	510	7
Benzo(k)fluoranthene	34	42	690	740	110 J	3400 J	67	2300	SD-13-03-FW	6200	0	1340000	0	1400	3
bis(2-Ethylhexyl)phthalate	25	34	1300	1600	120 J	8100 J	400	2100	SD-11-02-FW	35000	0			370	19
Butylbenzylphthalate	2	19	410	180	140 J	230 J	280	2300	SD-13-03-FW	12000000	0			310	0
Carbazole	2	19	420	250	170 J	320 J	280	2300	SD-MC-13	24000	0			330	0

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 1 (cont.)															
Semivolatile Organic Compounds (cont.)															
Chrysene	34	42	740	830	150 J	3000	410	890	SD-MC-13	62000	0	460000	0	1400	5
Dibenzo(a,h)anthracene	16	33	330	210	44 J	530	280	2300	SD-MC-13	62	13	130000	0	290	5
Fluoranthene	43	48	1300	1400	85 J	5200	540	890	SD-13-01-ME	2300000	0	1020000	0	2500	7
Fluorene	15	32	280	91	14 J	240	280	2300	SD-21-01-ME-AVG	2700000	0	160000	0	380	0
Indeno(1,2,3-cd)pyrene	24	39	540	580	79 J	2200	280	2300	SD-MC-13	620	8	320000	0	680	8
Naphthalene	16	33	360	280	12 J	2500 J	280	2300	SD-21-02-FW	56000	0			270	2
N-Nitroso-diphenylamine	6	21	430	410	100 J	560 J	280	2300	SD-10-01-FW-AVG	99000	0				
Phenanthrene	27	39	630	780	120 J	2700	280	890	SD-13-01-ME	56000	0	950000	0	1500	3
Pyrene	41	46	1000	1100	99 J	4100	540	870	SD-MC-13	2300000	0	850000	0	2100	6
Volatile Organic Compounds															
1,1,1-Trichloroethane	1	33	59	59	59 J	59 J	6	343	IPSD-TT1301-062201	1200000	0			14	1
1,1-Dichloroethane	1	26	62	3	3 J	3 J	6	343	SD-18-01-FW	510000	0				
1,2-Dichloroethene (total)	7	15	18	27	15 J	59	12	28	SD-18-01-FW						
2-Butanone	10	20	72	130	65 J	200 J	12	35	SD-11-02-FW	22000000	0			52	10
Acetone	18	26	580	810	58 J	4300 J*	12	430	IPSD-TT1301-062201	14000000	0			190	15
Benzene	5	26	13	13	7 J	22 J	6	46	SD-21-01-ME-AVG	640	0			8	3
Carbon Disulfide	3	14	12	22	18 J	29 J	6	28	IPSD-TT1002-062201	360000	0			8	3
cis-1,2-Dichloroethene	10	17	110	160	23 J	562 J	6	93	SD-20-01-ME	43000	0				
Ethylbenzene	1	26	12	9	9 J	9 J	6	46	SD-13-01-ME	400000	0				
Methylene Chloride	2	34	60	64	28 J	100 J	12	343	SD-22-03-FW	9100	0				
Tetrachloroethene	5	29	210	910	41 J	3164	6	790	SD-22-02-ME	480	2				
Toluene	1	12	10	3	3 J	3 J	6	35	SD-14-03-FW	520000	0			12	0
trans-1,2-Dichloroethene	1	17	110	390	387	387	6	343	SD-11-01-ME	69000	0				
Trichloroethene	12	30	130	300	19 J	2025 J	6	103	SD-20-01-ME	53	5				
Vinyl Chloride	2	26	68	130	2 J	255 J	6	343	SD-11-01-ME	79	1				
Pesticide/PCB															
4,4'-DDD	32	46	26	36	1.9	310	3.1	23	SD-13-03-ME	2400	0	6000	0	48	4
4,4'-DDE	44	50	19	20	0.52 J	160 J	3.2	23	SD-10-01-ME-AVG	1700	0	19000	0	30	7
4,4'-DDT	26	42	3.2	2.9	0.45 J	13	0.33	23	SD-MC-13	1700	0	71000	0	22	0

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 1 (cont.)															
Pesticide/PCB (cont.)															
Aldrin	7	35	1.7	3.3	0.47 J	18 J	0.15	12	SD-10-01-ME-AVG	29	0	8000	0	2.7	1
alpha-BHC	4	36	1.2	0.85	0.32 J	1.7 J	0.15	12	SD-13-03-FW	90	0	10000	0	6.2	0
alpha-Chlordane	35	47	12	16	0.62 J	93	0.84	6.1	SD-13-03-ME					3.1	24
Aroclor-1248	14	42	84	110	8.1 J	560 J	3.3	440	SD-10-01-ME-AVG			150000	0	65	5
Aroclor-1254	10	42	230	900	45	2600	3.1	230	JY-07	220	9	34000	0		
Aroclor-1260	26	44	290	470	11	2400	3.3	230	JY-07			24000	0	61	19
beta-BHC	7	39	1.4	2	0.71 J	3.1 J	0.15	12	SD-13-03-FW	320	0	21000	0	2.7	1
delta-BHC	4	32	1.7	4.3	0.14 J	15 J	0.16	12	SD-13-03-ME						
Dieldrin	24	41	3.3	3.5	0.33 J	20 J	0.32	21	SD-14-03-FW	30	0	91000	0	4.9	4
Endosulfan I	21	44	7.3	14	0.18 J	68 J	0.16	4.7	SD-21-01-FW					6.3	10
Endosulfan II	7	34	2.4	2.1	0.39 J	5.2	0.31	23	SD-21-01-ME-AVG					5.1	1
Endosulfan Sulfate	3	32	2.5	0.5	0.38 J	0.72 J	0.31	23	SD-11-01-ME					5.2	0
Endrin	22	40	3.1	2.7	0.087 J	16 J	0.31	23	SD-21-01-FW	18000	0	130000	0	5.4	3
Endrin Aldehyde	18	35	3.8	3.7	0.87 J	12 J	0.33	23	SD-10-01-ME-AVG					6.8	4
gamma-BHC	2	32	1.3	0.29	0.23 J	0.34 J	0.15	12	SD-12-03-ME	440	0	1000	0	2.8	0
gamma-Chlordane	32	45	20	27	0.17 J	650 J	0.84	12	SD-13-03-ME					2.9	15
Heptachlor Epoxide	10	33	1.5	1.1	0.17 J	4.9 J	0.16	12	SD-22-01-FW	53	0	5000	0	2.8	1
REACH 2 - NORTH															
Semivolatile Organic Compounds															
2-Methylnaphthalene	1	15	210	220	220 J	220 J	130	840	SD-09-06-FW					260	0
Acenaphthene	1	15	230	520	520	520	130	840	SD-09-06-FW	3700000	0			300	1
Acenaphthylene	1	15	210	82	82 J	82 J	130	840	SD-09-06-FW	56000	0			300	0
Anthracene	1	15	260	930	930	930	130	840	SD-09-06-FW	22000000	0	370000	0	410	1
Benzo(a)anthracene	10	15	230	220	40 J	1000	410	840	SD-09-06-FW	620	1	1480000	0	1200	0
Benzo(a)pyrene	11	16	220	210	33 J	1100	410	840	SD-09-06-FW	62	8	1440000	0	1100	0
Benzo(b)fluoranthene	12	16	360	390	45 J	2300	410	840	SD-09-06-FW	620	2			1500	1
Benzo(g,h,i)perylene	4	15	220	160	44 J	290 J	390	840	SD-09-06-FW	56000	0	320000	0	510	0
Benzo(k)fluoranthene	11	15	300	320	45 J	2100	410	840	SD-09-06-FW	6200	0	1340000	0	1400	1
bis(2-Ethylhexyl)phthalate	10	15	180	140	64 J	390 J	390	840	SD-09-07-FW	35000	0			370	1

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 2 - NORTH (cont.)															
Semivolatile Organic Compounds (cont.)															
Butylbenzylphthalate	2	15	190	130	130 J	130 J	130	520	IPSD-TT3202-062001, SD-16-01-FW	12000000	0			310	0
Carbazole	1	15	230	480	480	480	130	840	SD-09-06-FW	24000	0			330	1
Chrysene	11	16	250	250	40 J	1400	410	840	SD-09-06-FW	62000	0	460000	0	1400	0
Dibenzo(a,h)anthracene	1	15	200	80	80 J	80 J	130	840	SD-09-06-FW	62	1	130000	0	290	0
Dibenzofuran	1	15	230	500	500	500	130	840	SD-09-06-FW	150000	0			310	1
Fluoranthene	14	16	320	330	42 J	1800	410	420	SD-09-06-FW	2300000	0	1020000	0	2500	0
Fluorene	2	15	240	430	45 J	810	130	840	SD-09-06-FW	2700000	0	160000	0	380	1
Indeno(1,2,3-cd)pyrene	6	15	200	130	21 J	370 J	390	840	SD-09-06-FW	620	0	320000	0	680	0
Naphthalene	1	15	220	250	250 J	250 J	130	840	SD-09-06-FW	56000	0			270	0
Phenanthrene	10	15	300	320	62 J	1900	410	840	SD-09-06-FW	56000	0	950000	0	1500	1
Pyrene	14	16	330	350	52 J	2200	410	420	SD-09-06-FW	2300000	0	850000	0	2100	1
Volatile Organic Compounds															
1,1,1-Trichloroethane	1	16	16	110	110 J	110 J	12	69	IPSD-TT3001-062201	1200000	0			14	1
Acetone	3	16	490	2600	200 J	7300 J*	12	26	IPSD-TT3001-062201	14000000	0			190	3
Methyl Acetate	1	1	530	530	530 J*	530 J*	0	0	IPSD-TT3001-062201	22000000	0			140	1
Toluene	1	14	8	22	22 J	22 J	12	26	IPSD-TT3001-062201	520000	0			12	1
Pesticide/PCB															
4,4'-DDD	12	15	13	15	0.46 J	83	0.94	4.4	SD-09-07-FW	2400	0	6000	0	48	1
4,4'-DDE	14	15	5.7	5.9	0.089 J	27	3.9	3.9	SD-09-02-FW	1700	0	19000	0	30	0
4,4'-DDT	13	15	3.3	3.7	0.29 J	19	0.94	1.1	SD-09-07-FW	1700	0	71000	0	22	0
Aldrin	8	15	0.73	0.5	0.12 J	2 J	0.47	4.3	SD-09-02-FW	29	0	8000	0	2.7	0
alpha-BHC	2	15	0.93	0.29	0.11 J	0.46 J	0.47	4.3	SD-09-07-FW	90	0	10000	0	6.2	0
alpha-Chlordane	9	15	0.8	0.67	0.28 J	1.9 J	0.47	4.2	SD-09-07-FW					3.1	0
beta-BHC	5	15	0.8	0.34	0.1 J	0.92 J	0.47	4.3	SD-09-07-FW	320	0	21000	0	2.7	0
delta-BHC	3	15	0.92	0.41	0.08 J	0.85 J	0.47	4.3	SD-09-10-FW						
Dieldrin	13	15	1.9	2.1	0.32 J	7	0.94	1.1	SD-09-02-FW	30	0	91000	0	4.9	2
Endosulfan I	2	15	0.94	0.31	0.11 J	0.51 J	0.47	4.3	SD-09-07-FW					6.3	0
Endosulfan II	2	15	1.8	0.29	0.24 J	0.34 J	0.94	8.4	SD-09-05-FW					5.1	0

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 2 - NORTH (cont.)															
Pesticide/PCB (cont.)															
Endrin	6	15	1.4	0.36	0.1 J	1.4 J	0.94	8.4	SD-09-07-FW	18000	0	130000	0	5.4	0
Endrin Aldehyde	1	15	2	0.9	0.9 J	0.9 J	0.94	8.4	SD-09-02-FW					6.8	0
gamma-Chlordane	10	15	0.63	0.59	0.12 J	2.4	0.47	2.1	SD-09-07-FW					2.9	0
Heptachlor	5	15	0.75	0.25	0.067 J	0.34 J	0.47	4.3	SD-09-05-FW	110	0			2.8	0
REACH 2 - SOUTH															
Semivolatile Organic Compounds															
Acenaphthylene	2	3	130	100	81 J	120 J	400	400	SD-08-02-FW	56000	0			300	0
Anthracene	3	3	99	99	56 J	120 J	0	0	SD-08-02-FW, SD-08-03-FW	22000000	0	370000	0	410	0
Benzo(a)anthracene	3	3	480	480	290 J	680	0	0	SD-08-02-FW	620	1	1480000	0	1200	0
Benzo(a)pyrene	3	3	630	630	450	940	0	0	SD-08-02-FW	62	3	1440000	0	1100	0
Benzo(b)fluoranthene	3	3	1300	1300	950	1900	0	0	SD-08-02-FW	620	3			1500	1
Benzo(g,h,i)perylene	3	3	410	410	260 J	700	0	0	SD-08-02-FW	56000	0	320000	0	510	1
Benzo(k)fluoranthene	3	3	1400	1400	960	2000	0	0	SD-08-02-FW	6200	0	1340000	0	1400	1
bis(2-Ethylhexyl)phthalate	3	3	160	160	84 J	260 J	0	0	SD-08-03-FW	35000	0			370	0
Carbazole	2	3	130	86	63 J	110 J	420	420	SD-08-02-FW	24000	0			330	0
Chrysene	3	3	680	680	450	1000	0	0	SD-08-02-FW	62000	0	460000	0	1400	0
Dibenzo(a,h)anthracene	3	3	93	93	60 J	160 J	0	0	SD-08-02-FW	62	1	130000	0	290	0
Dibenzofuran	1	3	160	56	56 J	56 J	400	420	SD-08-02-FW	150000	0			310	0
Fluoranthene	3	3	900	900	520	1400	0	0	SD-08-02-FW	2300000	0	1020000	0	2500	0
Fluorene	3	3	73	73	50 J	100 J	0	0	SD-08-02-FW	2700000	0	160000	0	380	0
Indeno(1,2,3-cd)pyrene	3	3	400	400	240 J	680	0	0	SD-08-02-FW	620	1	320000	0	680	0
Naphthalene	3	3	98	98	41 J	200 J	0	0	SD-08-02-FW	56000	0			270	0
N-Nitroso-diphenylamine	1	3	170	58	58 J	58 J	400	490	SD-08-01-FW	99000	0				
Phenanthrene	3	3	480	480	280 J	610	0	0	SD-08-02-FW	56000	0	950000	0	1500	0
Pyrene	3	3	1200	1200	640 J	2000	0	0	SD-08-02-FW	2300000	0	850000	0	2100	0

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 2 - SOUTH (cont.)															
Pesticide/PCB															
4,4'-DDD	3	3	6.6	6.6	3.3 J	9.8	0	0	SD-08-01-FW	2400	0	6000	0	48	0
4,4'-DDE	3	3	3.9	3.9	3.5 J	4.2 J	0	0	SD-08-03-FW	1700	0	19000	0	30	0
4,4'-DDT	2	2	1.9	1.9	0.87 J	3 J	0	0	SD-08-01-FW	1700	0	71000	0	22	0
alpha-BHC	1	2	0.66	0.26	0.26 J	0.26 J	2.1	2.1	SD-08-02-FW	90	0	10000	0	6.2	0
alpha-Chlordane	1	3	1.3	1.5	1.5 J	1.5 J	2.1	2.5	SD-08-03-FW					3.1	0
delta-BHC	1	3	0.87	0.32	0.32 J	0.32 J	2.1	2.5	SD-08-03-FW						
Dieldrin	1	2	1.1	0.19	0.19 J	0.19 J	4.1	4.1	SD-08-02-FW	30	0	91000	0	4.9	0
Endosulfan II	2	2	0.7	0.7	0.29 J	1.1 J	0	0	SD-08-02-FW					5.1	0
Endrin	1	2	2.2	2.3	2.3 J	2.3 J	4.1	4.1	SD-08-02-FW	18000	0	130000	0	5.4	0
Endrin Aldehyde	1	2	1.3	0.47	0.47 J	0.47 J	4.1	4.1	SD-08-02-FW					6.8	0
Endrin Ketone	1	2	2.5	2.9	2.9 J	2.9 J	4.1	4.1	SD-08-02-FW					5	0
gamma-Chlordane	3	3	0.78	0.78	0.25 J	1.4 J	0	0	SD-08-03-FW					2.9	0
Heptachlor	1	2	0.59	0.13	0.13 J	0.13 J	2.1	2.1	SD-08-02-FW	110	0			2.8	0
Heptachlor Epoxide	3	3	0.73	0.73	0.45 J	1.1 J	0	0	SD-08-02-FW	53	0	5000	0	2.8	0
REACH 3															
Semivolatile Organic Compounds															
2-Methylnaphthalene	6	12	370	85	44 J	130 J	430	2700	SD-07-10-FW					260	0
Acenaphthene	11	13	240	240	110 J	390 J	430	540	SD-07-09-FW	3700000	0			300	3
Acenaphthylene	8	12	370	200	67 J	480 J	430	2700	SD-07-10-FW	56000	0			300	2
Anthracene	13	13	600	600	130 J	1100 J	0	0	SD-07-09-FW	22000000	0	370000	0	410	9
Benzo(a)anthracene	13	13	4000	4000	420 J	9600	0	0	SD-07-10-ME	620	12	1480000	0	1200	10
Benzo(a)pyrene	13	13	3900	3900	490 J	10000	0	0	SD-07-10-ME	62	13	1440000	0	1100	10
Benzo(b)fluoranthene	13	13	6800	6800	550	16000 J	0	0	SD-07-10-ME	620	12			1500	11
Benzo(g,h,i)perylene	12	13	1800	1900	270 J	5300	890	890	SD-07-10-ME	56000	0	320000	0	510	10
Benzo(k)fluoranthene	13	13	5300	5300	480 J	14000 J	0	0	SD-07-05-FW	6200	3	1340000	0	1400	12
bis(2-Ethylhexyl)phthalate	9	10	4900	5400	390 J	13000 J	790	790	SD-07-05-FW	35000	0			370	9
Butylbenzylphthalate	6	10	340	380	160 J	620 J	420	870	SD-07-05-FW	12000000	0			310	4
Carbazole	10	10	340	340	83 J	680 J	0	0	SD-07-09-FW	24000	0			330	3
Chrysene	13	13	5000	5000	670 J	10000	0	0	SD-07-10-ME	62000	0	460000	0	1400	10

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 3 (cont.)															
Semivolatile Organic Compounds (cont.)															
Dibenzo(a,h)anthracene	11	13	570	620	82 J	2000	430	890	SD-07-10-ME	62	11	130000	0	290	7
Dibenzofuran	4	9	410	140	96 J	190 J	430	2700	SD-07-06-FW	150000	0			310	0
Diethylphthalate	1	9	540	240	240 J	240 J	420	2700	SD-07-04-FW	49000000	0			270	0
Di-n-octylphthalate	3	10	460	290	140 J	430 J	420	2700	SD-07-05-FW	2400000	0			320	1
Fluoranthene	13	13	9100	9100	1000	23000	0	0	SD-07-10-ME	2300000	0	1020000	0	2500	10
Fluorene	12	13	390	410	100 J	640	430	430	SD-07-02-ME	2700000	0	160000	0	380	7
Indeno(1,2,3-cd)pyrene	12	13	2000	2200	220 J	6900	890	890	SD-07-10-ME	620	9	320000	0	680	9
Naphthalene	6	12	370	76	52 J	130 J	430	2700	SD-07-10-FW	56000	0			270	0
Phenanthrene	13	13	4100	4100	400 J	12000	0	0	SD-07-10-ME	56000	0	950000	0	1500	10
Pyrene	13	13	7100	7100	840 J	15000	0	0	SD-07-10-ME	2300000	0	850000	0	2100	10
Volatile Organic Compounds															
2-Butanone	3	10	23	49	10 J	89	13	28	SD-07-04-FW	22000000	0			52	1
cis-1,2-Dichloroethene	3	3	21	21	18 J	24 J	0	0	SD-07-10-ME	43000	0				
Ethylbenzene	1	12	10	5	5 J	5 J	11	28	SD-07-02-ME	400000	0				
Trichloroethene	3	12	15	25	16 J	35 J	13	28	SD-07-10-ME	53	0				
Pesticide/PCB															
4,4'-DDD	12	13	39	41	18	76	21	21	SD-07-10-FW	2400	0	6000	0	48	2
4,4'-DDE	12	13	32	34	12 J	69	21	21	SD-07-10-FW	1700	0	19000	0	30	8
4,4'-DDT	12	13	22	23	3.8 J	47	21	21	SD-07-10-FW	1700	0	71000	0	22	5
Aldrin	6	12	2.6	3.2	0.24 J	5.7	1.6	11	SD-07-09-FW	29	0	8000	0	2.7	4
alpha-BHC	6	13	1.6	1.3	0.31 J	2.7 J	1.6	11	SD-07-02-FW	90	0	10000	0	6.2	0
alpha-Chlordane	13	13	35	35	9.2 J	80	0	0	SD-07-10-ME					3.1	13
Aroclor-1248	3	12	46	44	29 J	67 J	42	210	SD-07-10-ME			150000	0	65	1
Aroclor-1260	3	12	53	73	50	95	42	210	SD-07-02-ME			24000	0	61	2
beta-BHC	7	13	3.2	4.2	1.5 J	6.6	1.6	11	SD-07-07-FW	320	0	21000	0	2.7	5
delta-BHC	7	13	4.5	6.4	0.33 J	24 J	1.6	11	SD-07-05-ME						
Dieldrin	9	13	3.6	3.2	0.59 J	7 J	3.2	21	SD-07-06-FW	30	0	91000	0	4.9	2
Endosulfan II	7	13	4.1	4.1	1.3 J	8.4 J	3.2	21	SD-07-09-FW					5.1	3
Endosulfan Sulfate	2	13	3.7	3	2.1 J	3.9 J	3.2	21	SD-07-04-FW					5.2	0

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 3 (cont.)															
Pesticide/PCB (cont.)															
Endrin	7	12	6.5	7.4	0.6 J	17 J	5.4	21	SD-07-05-ME	18000	0	130000	0	5.4	3
Endrin Aldehyde	7	12	5.5	6.3	0.94 J	27 J	3.2	21	SD-07-02-ME					6.8	1
Endrin Ketone	3	12	3.5	2.3	1.8 J	2.7 J	3.2	21	SD-07-08-FW					5	0
gamma-BHC	2	12	1.9	1.4	1.4 J	1.4 J	1.6	11	SD-07-02-FW, SD-07-06-FW	440	0	1000	0	2.8	0
gamma-Chlordane	12	13	26	28	8.8	53 J	11	11	SD-07-04-FW					2.9	12
Heptachlor	6	13	1.4	0.65	0.18 J	1.6 J	1.6	11	SD-07-06-FW	110	0			2.8	0
Heptachlor Epoxide	8	13	2.1	2.1	0.45 J	3.7 J	1.6	11	SD-07-05-FW	53	0	5000	0	2.8	2
Methoxychlor	3	12	17	9	6.3 J	12 J	16	110	SD-07-10-FW	310000	0				
REACH 4															
Semivolatile Organic Compounds															
2-Methylnaphthalene	1	5	500	40	40 J	40 J	630	2900	SD-06-03-ME					260	0
Acenaphthene	1	5	520	130	130 J	130 J	630	2900	SD-06-03-ME	3700000	0			300	0
Acenaphthylene	3	5	420	120	110 J	130 J	630	2900	SD-06-01-FW	56000	0			300	0
Anthracene	5	5	480	480	64 J	1300 J	0	0	SD-06-03-FW	22000000	0	370000	0	410	2
Benzo(a)anthracene	5	5	1800	1800	310 J	4200 J	0	0	SD-06-03-ME	620	4	1480000	0	1200	2
Benzo(a)pyrene	5	5	1900	1900	370 J	5100 J	0	0	SD-06-03-ME	62	5	1440000	0	1100	2
Benzo(b)fluoranthene	4	5	2100	2500	610 J	6100 J	730	730	SD-06-03-ME	620	3			1500	2
Benzo(g,h,i)perylene	5	5	950	950	150 J	1900 J	0	0	SD-06-03-ME	56000	0	320000	0	510	3
Benzo(k)fluoranthene	4	5	980	1100	160 J	2400 J	730	730	SD-06-03-FW	6200	0	1340000	0	1400	1
bis(2-Ethylhexyl)phthalate	2	4	1600	1700	430 J	3000	2800	3300	SD-06-02-FW	35000	0			370	2
Carbazole	1	4	550	98	98 J	98 J	630	2900	SD-06-01-FW	24000	0			330	0
Chrysene	5	5	2700	2700	450 J	6900 J	0	0	SD-06-03-ME	62000	0	460000	0	1400	2
Dibenzo(a,h)anthracene	1	5	640	720	720 J	720 J	630	2900	SD-06-03-ME	62	1	130000	0	290	1
Fluoranthene	5	5	5000	5000	780	11000	0	0	SD-06-03-FW	2300000	0	1020000	0	2500	2
Fluorene	3	5	320	310	110 J	430 J	630	650	SD-06-03-FW	2700000	0	160000	0	380	2
Indeno(1,2,3-cd)pyrene	5	5	970	970	150 J	2400 J	0	0	SD-06-03-ME	620	2	320000	0	680	2

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 4 (cont.)															
Semivolatile Organic Compounds (cont.)															
Naphthalene	1	5	500	70	70 J	70 J	630	2900	SD-06-03-ME	56000	0			270	0
Phenanthrene	5	5	2700	2700	340 J	6300	0	0	SD-06-03-FW	56000	0	950000	0	1500	2
Pyrene	5	5	3400	3400	600 J	7500	0	0	SD-06-03-ME	2300000	0	850000	0	2100	2
Volatile Organic Compounds															
2-Butanone	3	3	51	51	45	62	0	0	SD-06-01-FW	22000000	0			52	1
Benzene	1	4	13	17	17 J	17 J	20	29	SD-06-03-ME	640	0			8	1
cis-1,2-Dichloroethene	1	1	38	38	38 J	38 J	0	0	SD-06-03-ME	43000	0				
Ethylbenzene	1	4	11	9	9 J	9 J	20	29	SD-06-03-ME	400000	0				
m&p-Xylene	1	1	25	25	25 J	25 J	0	0	SD-06-03-ME						
Methyl Acetate	1	1	35	35	35 J	35 J	0	0	IPSD-TT0603-062601	22000000	0			140	0
Trichloroethene	1	4	22	52	52 J	52 J	20	29	SD-06-03-ME	53	0				
Pesticide/PCB															
4,4'-DDD	5	5	71	71	2.2	94 J	0	0	SD-06-01-FW	2400	0	6000	0	48	4
4,4'-DDE	5	5	71	71	2.6	100 J	0	0	SD-06-03-FW	1700	0	19000	0	30	4
4,4'-DDT	2	4	18	24	15 J	32 J	1.3	49	SD-06-01-FW	1700	0	71000	0	22	1
alpha-Chlordane	4	5	34	42	27 J	80	0.63	0.63	SD-06-03-ME					3.1	4
Aroclor-1248	1	4	140	120	120 J	120 J	13	490	SD-06-03-ME			150000	0	65	1
Aroclor-1260	1	4	130	82	82	82	13	490	SD-06-03-ME			24000	0	61	1
delta-BHC	1	4	12	25	25 J	25 J	0.63	25	SD-06-03-ME						
Dieldrin	1	4	12	5	5 J	5 J	1.3	49	SD-06-03-ME	30	0	91000	0	4.9	1
Endrin	1	4	15	17	17 J	17 J	1.3	49	SD-06-03-ME	18000	0	130000	0	5.4	1
gamma-Chlordane	1	4	18	48	48 J	48 J	0.63	25	SD-06-03-ME					2.9	1
REACH 5															
Semivolatile Organic Compounds															
2-Methylnaphthalene	1	4	200	55	55 J	55 J	390	650	SD-05-03-ME-AVG					260	0
Acenaphthene	2	4	150	100	100 J	100 J	390	410	SD-05-03-FW, SD 05-03-ME-AVG	3700000	0			300	0
Acenaphthylene	2	4	170	140	36 J	250 J	390	410	SD-05-03-FW	56000	0			300	0

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 5 (cont.)															
Semivolatile Organic Compounds (cont.)															
Anthracene	2	4	290	380	250	520 J	390	410	SD-05-03-FW	22000000	0	370000	0	410	1
Benzo(a)anthracene	4	4	890	890	130 J	2300 J	0	0	SD-05-03-FW	620	2	1480000	0	1200	1
Benzo(a)pyrene	4	4	880	880	130 J	2500 J	0	0	SD-05-03-FW	62	4	1440000	0	1100	1
Benzo(b)fluoranthene	3	4	1000	1300	130 J	3000 J	390	390	SD-05-03-FW	620	2			1500	1
Benzo(g,h,i)perylene	3	4	460	540	120 J	1200 J	410	410	SD-05-03-FW	56000	0	320000	0	510	1
Benzo(k)fluoranthene	3	4	670	820	120 J	1900 J	390	390	SD-05-03-FW	6200	0	1340000	0	1400	1
Carbazole	1	3	210	220	220 J	220 J	390	410	SD-05-03-FW	24000	0			330	0
Chrysene	4	4	1100	1100	160 J	2900 J	0	0	SD-05-03-FW	62000	0	460000	0	1400	1
Dibenzo(a,h)anthracene	1	4	210	110	110	110	390	650	SD-05-03-ME-AVG	62	1	130000	0	290	0
Dibenzofuran	1	3	160	87	87 J	87 J	390	410	SD-05-03-FW	150000	0			310	0
Fluoranthene	4	4	1800	1800	260 J	4400 J	0	0	SD-05-03-FW	2300000	0	1020000	0	2500	1
Fluorene	2	4	210	220	220 J	230 J	390	410	SD-05-03-FW	2700000	0	160000	0	380	0
Indeno(1,2,3-cd)pyrene	4	4	430	430	64 J	1200 J	0	0	SD-05-03-FW	620	1	320000	0	680	1
Naphthalene	2	4	130	58	34 J	83 J	390	410	SD-05-03-FW	56000	0			270	0
Phenanthrene	4	4	1100	1100	110 J	2200 J	0	0	SD-05-03-FW	56000	0	950000	0	1500	2
Pyrene	4	4	1700	1700	250 J	4100 J	0	0	SD-05-03-FW	2300000	0	850000	0	2100	1
Volatile Organic Compounds															
1,2-Dichloroethene (total)	1	3	7	9	9 J	9 J	12	12	SD-05-03-FW						
2-Butanone	1	3	17	39	39 J	39 J	12	12	SD-05-03-FW	22000000	0			52	0
Benzene	1	4	7	6	6 J	6 J	12	20	SD-05-03-ME-AVG	640	0			8	0
cis-1,2-Dichloroethene	1	1	7	7	7 J	7 J	0	0	SD-05-03-ME-AVG	43000	0				
Ethylbenzene	1	4	7	5	5 J	5 J	12	20	SD-05-03-ME-AVG	400000	0				
m&p-Xylene	1	1	10	10	10 J	10 J	0	0	SD-05-03-ME-AVG						
Trichloroethene	1	4	7	6	6 J	6 J	12	20	SD-05-03-ME-AVG	53	0				
Pesticide/PCB															
4,4'-DDD	1	2	95	180	180	180	21	21	SD-05-03-ME-AVG	2400	0	6000	0	48	1
4,4'-DDE	1	2	23	36	36	36	21	21	SD-05-03-ME-AVG	1700	0	19000	0	30	1
4,4'-DDT	1	2	9.9	9.2	9.2 J	9.2 J	21	21	SD-05-03-ME-AVG	1700	0	71000	0	22	0
alpha-Chlordane	1	2	9.2	13	13 J	13 J	11	11	SD-05-03-ME-AVG					3.1	1

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 5 (cont.)															
Pesticide/PCB (cont.)															
Aroclor-1248	1	2	110	120	120 J	120 J	210	210	SD-05-03-ME-AVG			150000	0	65	1
Aroclor-1260	1	2	89	74	74	74	210	210	SD-05-03-ME-AVG			24000	0	61	1
delta-BHC	1	2	4.5	3.6	3.6 J	3.6 J	11	11	SD-05-03-ME-AVG						
Dieldrin	1	2	6.7	2.9	2.9 J	2.9 J	21	21	SD-05-03-ME-AVG	30	0	91000	0	4.9	0
gamma-Chlordane	1	2	8.8	12	12 J	12 J	11	11	SD-05-03-ME-AVG					2.9	1
REACH 6															
Semivolatile Organic Compounds															
2-Methylnaphthalene	7	28	190	28	12 J	70	350	870	SD-04-03-ME					260	0
Acenaphthene	10	28	180	98	11 J	340 J	350	870	SD-04-03-FW	3700000	0			300	1
Acenaphthylene	8	28	200	110	22 J	350 J	350	870	SD-04-03-FW	56000	0			300	1
Anthracene	16	28	220	240	27 J	960 J	350	510	SD-04-03-FW	22000000	0	370000	0	410	4
Benzo(a)anthracene	19	28	800	1100	90 J	3900 J	380	510	SD-04-03-FW	620	9	1480000	0	1200	6
Benzo(a)pyrene	19	28	850	1100	89 J	4200 J	380	510	SD-04-03-FW	62	19	1440000	0	1100	5
Benzo(b)fluoranthene	19	28	1100	1500	90 J	6000	380	800	SD-04-03-ME	620	10			1500	6
Benzo(g,h,i)perylene	16	28	540	790	120 J	2300 J	350	510	SD-04-03-FW	56000	0	320000	0	510	7
Benzo(k)fluoranthene	17	28	690	990	94 J	3800	350	800	SD-04-03-ME	6200	0	1340000	0	1400	4
bis(2-Ethylhexyl)phthalate	1	21	250	230	230 J	230 J	370	930	IPSD-TTA003-062701-AVG	35000	0			370	0
Carbazole	3	21	230	200	74 J	400 J	350	870	SD-04-03-FW	24000	0			330	1
Chrysene	19	28	970	1300	130 J	5900 J	380	510	SD-04-03-FW	62000	0	460000	0	1400	4
Dibenzo(a,h)anthracene	10	28	290	390	69 J	1100 J	350	870	SD-04-03-FW	62	10	130000	0	290	4
Dibenzofuran	1	21	240	170	170 J	170 J	350	870	SD-04-03-FW	150000	0			310	0
Fluoranthene	21	28	1700	2200	110 J	8500	390	420	SD-04-03-ME	2300000	0	1020000	0	2500	6
Fluorene	10	28	220	200	44 J	490	350	870	SD-04-03-ME	2700000	0	160000	0	380	2
Indeno(1,2,3-cd)pyrene	16	28	570	850	120 J	2600	350	510	SD-04-02-ME	620	7	320000	0	680	6
Naphthalene	8	28	180	52	13 J	160 J	350	870	SD-04-03-FW	56000	0			270	0
Phenanthrene	20	28	800	1000	74 J	4600 J	390	510	SD-04-03-FW	56000	0	950000	0	1500	4
Pyrene	21	28	1500	1900	130 J	7000 J	390	420	SD-04-03-FW	2300000	0	850000	0	2100	6

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Detects	Count	Average Conc. [2] (µg/kg)	Average Detected Conc. [3] (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects [4] (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 [5]		OMEE Sediment SELs - 1993 [6]		Study Area Average Background Concentration [7]	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
REACH 6 (cont.)															
Volatile Organic Compounds															
1,1,1-Trichloroethane	1	28	30	80	80 J	80 J	11	228	IPSD-TTUF02-062701-AVG	1200000	0			14	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1	2	32	38	38 J	38 J	50	50	IPSD-TTUF02-062701-AVG	5600000	0			24	1
2-Butanone	6	20	20	49	9 J	99 J	11	26	IPSD-TTA003-062701-AVG	22000000	0			52	3
Acetone	2	21	79	450	340 J	570 J	12	340	IPSD-TTUF02-062701-AVG	14000000	0			190	2
Benzene	1	26	9	9	9 J	9 J	10	32	SD-03-02-ME	640	0			8	1
cis-1,2-Dichloroethene	3	7	36	49	28 J	62 J	26	74	SD-01-06-ME	43000	0				
Methyl Acetate	2	2	140	140	140 J	150 J	0	0	IPSD-TTUF02-062701-AVG	22000000	0			140	1
Toluene	1	20	8	17	17 J	17 J	11	26	IPSD-TTA003-062701-AVG	520000	0			12	1
Trichloroethene	1	26	13	37	37 J	37 J	11	76	SD-01-06-ME	53	0				
Pesticide/PCB															
4,4'-DDD	10	28	22	53	3.9 J	160	2.8	43	SD-04-02-ME	2400	0	6000	0	48	3
4,4'-DDE	13	28	15	27	2.4 J	91	3.8	43	SD-04-02-ME	1700	0	19000	0	30	2
4,4'-DDT	7	27	5.1	5.9	1.8 J	21 J	2.8	43	SD-04-02-ME	1700	0	71000	0	22	0
Aldrin	2	27	1.9	0.26	0.21 J	0.3 J	0.16	22	SD-04-03-ME	29	0	8000	0	2.7	0
alpha-BHC	1	27	1.9	0.17	0.17 J	0.17 J	0.16	22	SD-01-07-ME	90	0	10000	0	6.2	0
alpha-Chlordane	8	27	5.9	14	5.2 J	29 J	1.4	22	SD-04-03-ME					3.1	8
Aroclor-1248	7	27	68	120	44 J	200 J	28	430	SD-04-02-ME			150000	0	65	5
Aroclor-1260	7	27	65	110	47	170	28	430	SD-02-02-ME			24000	0	61	6
delta-BHC	4	27	2.1	1.3	0.19 J	2.3 J	0.16	22	SD-03-02-ME						
Dieldrin	5	27	3.8	0.55	0.45 J	0.73 J	2.8	43	SD-04-03-ME	30	0	91000	0	4.9	0
Endosulfan II	5	27	3.8	0.41	0.21 J	0.66	2.8	43	SD-01-07-ME					5.1	0
Endosulfan Sulfate	4	27	3.8	0.56	0.33 J	0.78 J	0.33	43	SD-01-07-ME					5.2	0
Endrin	6	27	4.2	2.4	1.2 J	5 J	2.8	43	SD-04-02-ME	18000	0	130000	0	5.4	0
Endrin Aldehyde	7	27	4.8	5	1.6 J	11 J	2.8	43	SD-04-02-ME					6.8	2
gamma-Chlordane	7	27	4.8	11	6.4 J	22 J	1.4	22	SD-04-03-ME					2.9	7

TABLE 4-4c (cont.)
SURFACE SEDIMENT ORGANICS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2) (µg/kg)	Average Detected Conc. (3) (µg/kg)	Detected Concentrations (µg/kg)		Detection Limits of Non-Detects (4) (µg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)		Study Area Average Background Concentration (7)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.

Qualifer	Description
#	From dilution analysis
J	Quantitation approximate
J or J	Quantitation approximate; from dilution analysis
TB	Trip blank contamination

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

(5) EPA Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil (USEPA, 2004)

(6) Ontario Minestry of the Environment and Energy (OMEE) Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario - Severe-Effects Level guidelines (SELs) (Persaud *et al.* , 1993).

(7) Study area average background concentrations calculated from surface sediment reference data set consisting of 27 local and regional reference stations that were judged to be representative of background conditions. Reference station samples were collected during MSGRP and GSIP investigations from 1995 through 2002. Reference stations are shown on Figures 2-7I and 2-7J. Average concentrations calculated as described in note 2.

TABLE 4-4d
SEDIMENT CORE METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2) (mg/kg)	Average Detected Conc. (3) (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects (4) (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)		Study Area Average Background Concentration (7)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
0 - 1 FOOT DEPTH															
Aluminum	12	12	12000	12000	3600	22000	0	0	SC1301	76000	0			8580	7
Arsenic	13	13	434	434	54	1600	0	0	SC0201	0.39	13	33	13	16.7	13
Barium	13	13	84.9	84.9	13	240	0	0	SC0201	5400	0			57	8
Beryllium	2	13	1.4	1.3	1.1	1.5	0.85	10	SC1301	150	0			0.56	2
Cadmium	11	13	10.1	11.7	2.1	25	1.5	1.6	SC0701	37	0	10	5	1.3	11
Calcium	13	13	5650	5650	1000	16000	0	0	SC0701					3450	8
Chromium	13	13	657	657	31	2700	0	0	SC0701	100000	0	110	12	88.8	12
Cobalt	13	13	26	26	3.6	68	0	0	SC0701	900	0			8.6	10
Copper	13	13	445	445	47	1410	0	0	SC0801	3100	0	110	11	62.6	11
Iron	13	13	52100	52100	9700	250000	0	0	SC0201	23000	8	40000	4	16300	9
Lead	13	13	336	336	19	810	0	0	SC1301	400	5	250	7	194	8
Magnesium	13	13	2780	2780	1000	5300	0	0	SC1301					2880	6
Manganese	13	13	819	819	110	2600	0	0	SC0701	1800	2	1100	3	368	9
Mercury	13	13	3.1	3.1	0.11 J2	14	0	0	SC0801	6.1	2	2	6	0.19	11
Nickel	10	13	22.8	24.8	7.1	49	6.6	60	SC0701	1600	0	75	0	15.1	6
Potassium	3	13	1590	1330	1100	1500	1000	10000	SC1201					927	3
Silver	1	10	1.8	1.8	1.8	1.8	1.2	15	SC1301	390	0			0.5	1
Sodium	1	13	1400	750	750	750	760	10000	SC1301					398	1
Vanadium	13	13	42.2	42.2	7.2	87	0	0	SC1301	78	1			34.6	8
Zinc	13	13	1660	1660	150	4800	0	0	SC0701	23000	0	820	9	195	12
1 - 2 FOOT DEPTH															
Aluminum	13	13	9820	9820	2300	19000	0	0	SC0612	76000	0			8580	7
Arsenic	12	13	304	329	21	1700	20	20	SC0612	0.39	12	33	8	16.7	12
Barium	13	13	54.9	54.9	7.9	155	0	0	SC0212	5400	0			57	5
Beryllium	4	13	0.95	1.1	1	1.3	0.96	5	SC1212	150	0			0.56	4
Cadmium	8	13	10	15.8	3.6	48	1.4	1.5	SC0612	37	1	10	3	1.3	8
Calcium	13	13	4740	4740	670	17000	0	0	SC0712					3450	8
Chromium	13	13	360	360	7.3	1200	0	0	SC0512	100000	0	110	7	88.8	8
Cobalt	11	13	19.2	22.4	2.9	105	2.9	3	SC0212	900	0			8.6	7
Copper	13	13	282	282	11	950	0	0	SC0612	3100	0	110	8	62.6	8
Iron	13	13	28400	28400	3200	154000	0	0	SC0212	23000	5	40000	2	16300	7

TABLE 4-4d (cont.)
SEDIMENT CORE METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2) (mg/kg)	Average Detected Conc. (3) (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects (4) (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)		Study Area Average Background Concentration (7)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
1 - 2 FOOT DEPTH (cont.)															
Lead	10	13	235	304	14	800	9.6	10	SC1212	400	2	250	5	194	6
Magnesium	13	13	2220	2220	690	5400	0	0	SC1212					2880	4
Manganese	13	13	412	412	46	1490	0	0	SC0212	1800	0	1100	1	368	5
Mercury	11	13	2	2.4	0.033	8 J2	0.025	0.061	SC0612	6.1	2	2	3	0.19	10
Nickel	7	13	17	27.9	7.8	53.2	5.8	22	SC0212	1600	0	75	0	15.1	6
Potassium	3	13	965	1400	1200	1500	780	5000	SC0912, SC1212					927	3
Silver	1	13	1.3	3.1	3.1	3.1	1.1	7.5	SC1212	390	0			0.5	1
Vanadium	13	13	30.7	30.7	4	67	0	0	SC1212	78	0			34.6	7
Zinc	13	13	1660	1660	90	6670	0	0	SC0212	23000	0	820	7	195	10
2 - 3 FOOT DEPTH															
Aluminum	13	13	8020	8020	1800	19000	0	0	SC0523	76000	0			8580	6
Antimony	1	13	5.6	13	13	13	8.2	12	SC0523	31	0			1	1
Arsenic	9	13	145	204	39	900	20	20	SC0523	0.39	9	33	9	16.7	9
Barium	13	13	43.5	43.5	7	130	0	0	SC1223	5400	0			57	4
Beryllium	4	13	0.77	1.3	1	1.6	0.94	1.2	SC0723	150	0			0.56	4
Cadmium	6	13	4	7.8	4	14	1.4	1.6	SC0523	37	0	10	1	1.3	6
Calcium	13	13	4890	4890	600	18000	0	0	SC0723					3450	6
Chromium	13	13	291	291	5.4	1500	0	0	SC0523	100000	0	110	6	88.8	6
Cobalt	11	13	9.8	11.3	3.4	22	3	3	SC1223	900	0			8.6	6
Copper	12	13	243	263	5.4	1600	3	3	SC0523	3100	0	110	6	62.6	8
Iron	13	13	15500	15500	1800	50000	0	0	SC0523	23000	3	40000	1	16300	5
Lead	8	13	216	348	25	1200	9.4	10	SC1223	400	3	250	3	194	3
Magnesium	13	13	1950	1950	560	5000	0	0	SC1223					2880	2
Manganese	13	13	240	240	35	640	0	0	SC0723	1800	0	1100	0	368	4
Mercury	9	13	2.7	3.9	0.091	26 J2	0.025	0.062	SC0523	6.1	1	2	3	0.19	8
Nickel	10	13	12.9	15.9	6.7	40	5.6	6	SC1223	1600	0	75	0	15.1	3
Potassium	3	13	672	1270	1000	1500	760	1200	SC1223					927	3
Silver	2	13	1	2.8	2	3.5	1.2	1.8	SC1223	390	0			0.5	2
Sodium	1	13	596	1800	1800	1800	820	1200	SC0523					398	1
Vanadium	12	13	25.6	27.6	5	68	3	3	SC1223	78	0			34.6	4
Zinc	13	13	691	691	35.2	1700	0	0	SC1223	23000	0	820	5	195	9

TABLE 4-4d (cont.)
SEDIMENT CORE METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2) (mg/kg)	Average Detected Conc. (3) (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects (4) (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)		Study Area Average Background Concentration (7)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.
3 - 4 FOOT DEPTH															
Aluminum	13	13	7180	7180	1700	20000	0	0	SC1234	76000	0			8580	4
Arsenic	9	13	101	141	27	770	19	20	SC0534	0.39	9	33	7	16.7	9
Barium	13	13	41.1	41.1	6.3	140	0	0	SC1234	5400	0			57	4
Beryllium	3	13	0.68	1.3	1.1	1.5	0.96	1.1	SC1234	150	0			0.56	3
Cadmium	5	13	4.2	9.8	2.7	24	1.4	1.6	SC0534	37	0	10	2	1.3	5
Calcium	13	13	4700	4700	480	18000	0	0	SC1334					3450	5
Chromium	13	13	190	190	4.8	740	0	0	SC1234	100000	0	110	5	88.8	5
Cobalt	8	13	7.3	10.9	4.1	22	2.9	3.3	SC1234	900	0			8.6	4
Copper	11	13	207	244	3.5	1400	2.9	2.9	SC0534	3100	0	110	4	62.6	5
Iron	13	13	12100	12100	2000	34000	0	0	SC1234	23000	3	40000	0	16300	3
Lead	7	13	241	443	20	1300	9.6	10	SC1234	400	2	250	3	194	4
Magnesium	13	13	1970	1970	460	5500	0	0	SC1234					2880	3
Manganese	13	13	181	181	25	470	0	0	SC1234	1800	0	1100	0	368	3
Mercury	9	13	1.2	1.7	0.028	8.3 J2	0.025	0.062	SC0534	6.1	1	2	3	0.19	7
Nickel	7	13	12.4	20.3	6.1	45	5.9	6.6	SC1134	1600	0	75	0	15.1	3
Potassium	2	13	649	1480	1400	1560	820	1100	SC1234					927	2
Selenium	1	13	6.7	10	10	10	6.8	22	SC1234	390	0			0.81	1
Silver	3	13	1.3	3.2	1.5	4.6	1.4	1.6	SC1134	390	0			0.5	3
Sodium	1	13	605	2100	2100	2100	680	1100	SC0534					398	1
Vanadium	12	13	23.8	25.6	3.8	86	2.9	2.9	SC1234	78	1			34.6	3
Zinc	13	13	586	586	26	1900	0	0	SC0534	23000	0	820	4	195	8

TABLE 4-4d (cont.)
SEDIMENT CORE METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Detects	Count	Average Conc. (2) (mg/kg)	Average Detected Conc. (3) (mg/kg)	Detected Concentrations (mg/kg)		Detection Limits of Non-Detects (4) (mg/kg)		Location of Maximum	EPA Region 9 PRGs - Residential Soil 2004 (5)		OMEE Sediment SELs - 1993 (6)		Study Area Average Background Concentration (7)	
					Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.

Qualifer	Description
J2	Quantitation approximate

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

(5) EPA Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil (USEPA, 2004)

(6) Ontario Minestry of the Environment and Energy (OMEE) Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario - Severe-Effects Level guidelines (SELs) (Persaud *et al.* , 1993).

(7) Study area average background concentrations calculated from surface sediment reference data set consisting of 27 local and regional reference stations that were judged to be representative of background conditions. Reference station samples were collected during MSGRP and GSIP investigations from 1995 through 2002. Reference stations are shown on Figures 2-7I and 2-7J. Average concentrations calculated as described in note 2.

TABLE 4-5a
SUMMARY OF GEOMETRICAL AND PHYSICO-CHEMICAL MEASUREMENTS FOR EACH TTNUS MONITORING STATION
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Measurement	Station									
	1	2	3	4	5	6	7	8	9	10
Watershed Geometry										
Drainage Area between Current Station and Previous One (mi^2)	2.56	0.45	2.67	0.17	1.51	2.03	4.48	10.34	NC[a]	NC
Total Drainage Area to Station (mi^2)	2.56	3.01	2.67	3.18	7.36	9.39	13.87	24.2	NC	NC
Distance between Current Station and Previous One (mi)	NA	0.18	NA	0.58	0.98	1.11	1.83	1.03	1.65	0.85
Physico-Chemical Parameters[b]										
Rainfall (in)[c]	52.1	53.3	55.0	55.3	54.5	55.6	59.1	53.2	47.2	47.2
Flow (cfs)	2.3	4.2	3.3	2.8	6.4	8.2	14	26	NM[a]	NM
Drainage Area Normalized Flow (cfs/mi^2)	0.89	1.40	1.22	0.88	0.86	0.88	1.01	1.05	NM	NM
Water Temperature (^oC)	12	14	14	15	14	14	14	15	17	16
Specific Conductivity (uS/cm)	572	719	701	586	700	730	682	695	620	654
Dissolved Oxygen (mg/L)	7	7	5	7	8	7	8	7	10	10
pH	6.9	6.8	6.7	7.0	6.9	7.0	7.0	7.0	8.0	8.0
ORP (mV)	284	-102	292	327	323	357	381	405	303	327

[a] NC= Not Computed, NM = Not Measured.
[b] As measured for the TtNUS period of record. Note that the times corresponding to measurements may be different between different stations. Averages were computed by first computing the monthly averages and then averaging the results for each month.
[c] Data gaps were substituted with data from the closest station

TABLE 4-5b
AVERAGE TOTAL SUSPENDED SEDIMENTS AND TOTAL METALS CONCENTRATIONS AT EACH STATION DURING BASEFLOW AND STORM FLOW CONDITIONS
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Parameter Measured		Station									
		1	2	3	4	5	6	7	8	9	10
TSS (mg/L)	Baseflow	4.4	4.8	4.7	22.5	6.0	4.6	7.4	4.5	4.1	6.1
	Storm Flow	21.6	12.6	8.1	12.7	6.8	17.1	10.3	46.1	3.8	3.8
Total As (ug/L)	Baseflow	1.8	20.2	19.2	37.1	20.1	11.1	5.7	4.4	1.8	1.4
	Storm Flow	3.5	48	15	32	15	20	9.5	11	2.3	1.6
Total Fe (ug/L)	Baseflow	868	1933	2404	5266	2448	1463	1127	1031	132	183
	Storm Flow	1830	3910	1880	2870	1630	2520	1450	2800	130	54
Total Cr (ug/L)	Baseflow	1.8	1.7	1.3	11.5	7.2	4.2	3.1	2.2	0.5	1
	Storm Flow	9.5	3.1	3	4.1	6.8	15	5.6	15	0.4	0.9
Total Cu (ug/L)	Baseflow	3.4	6	2.6	17.4	5.1	4.6	4.5	5.1	2.6	2.2
	Storm Flow	17	7.8	6.1	8.3	7	31	15	26	2.3	1.8
Total Pb (ug/L)	Baseflow	2.31	1.72	1.03	7.87	3.35	3.24	2.73	3.64	0.82	0.95
	Storm Flow	13	3.5	2.7	3.3	3.6	9.2	7.1	23.6	0.9	0.6
Total Hg (ug/L)	Baseflow	0.05	0.05	0.05	0.09	0.06	0.06	0.05	0.06	0.05	0.07
	Storm Flow	0.05	0.05	0.05	0.07	0.06	0.08	0.05	0.1	0.05	0.05

Concentrations Assumed at ½ Detection Limit for Samples Measuring Below Detection

TABLE 4-5c
ESTIMATED AVERAGE FLOW, TOTAL SUSPENDED SEDIMENT FLUX, AND TOTAL METALS FLUX AT EACH STATION DURING BASEFLOW AND STORM FLOW CONDITIONS
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

		Station							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Flow (cfs)	Baseflow	0.9	2.4	2	1.9	2.8	4.1	7.3	14
	Storm Flow	8.9	13	10	6.7	26	27	49	76
TSS (kg/hr)	Baseflow	0.5	1.1	0.6	3.2	1.6	2.1	3.9	6.7
	Storm Flow	21	16	6	8	22	51	61	468
Total As (g/hr)	Baseflow	0.2	3.8	2.7	6.7	5.3	4.1	4.4	5.5
	Storm Flow	3.2	68	15	24	45	59	60	107
Total Fe (g/hr)	Baseflow	83	440	410	970	660	580	830	1,380
	Storm Flow	1,700	4,930	2,060	2,020	4,860	7,330	8,510	29,700
Total Cr (g/hr)	Baseflow	0.2	0.4	0.2	2.1	1.9	1.6	2.1	2.8
	Storm Flow	9.4	3.2	3.7	2.8	19.1	42.5	34.9	177
Total Cu (g/hr)	Baseflow	0.4	1.6	0.7	3.3	1.5	2.1	3.8	9.4
	Storm Flow	15	9.5	7.6	5.4	19.8	94.7	91.6	282
Total Pb (g/hr)	Baseflow	0.2	0.5	0.3	1.5	0.9	1.3	1.8	4.1
	Storm Flow	12	4.9	3.2	2.1	9.5	27	43.9	262

Flux was computed for samples where both concentrations and flows were measured. Samples measured below quantification limits were set at ½ quantification limit values. The flow measurements listed for Stations 4 and 8 correspond to flow measurements for which metals samples were collected and analyzed and may not correspond to the flow measurements corresponding to when samples for when TSS were analyzed.

TABLE 4-5d
ESTIMATED AVERAGE FLOW, TOTAL SUSPENDED SEDIMENT FLUX, AND TOTAL METALS FLUX NORMALIZED BY DRAINAGE AREA FOR EACH STATION DURING BASEFLOW AND STORM FLOW CONDITIONS
DRAFT FINAL MSRGP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

		Station							
		1	2	3	4	5	6	7	8
Flow, cfs/mi^2	Baseflow	0.4	0.8	0.7	0.6	0.4	0.4	0.5	0.6
	Storm Flow	3.5	4.3	3.7	2.1	3.5	2.9	3.5	3.1
TSS, kg/(hr·mi^2)	Baseflow	0.2	0.4	0.2	1.0	0.2	0.2	0.3	0.3
	Storm Flow	8.2	5.3	2.2	2.5	3.0	5.4	4.4	19.3
Total As, g/(hr·mi^2)	Baseflow	0.1	1.3	1.0	2.1	0.7	0.4	0.3	0.2
	Storm Flow	1.3	22.6	5.6	7.5	6.1	6.3	4.3	4.4
Total Fe, g/(hr·mi^2)	Baseflow	32	146	154	305	90	62	60	57
	Storm Flow	664	1638	772	635	660	781	614	1230
Total Cr g/(hr·mi^2)	Baseflow	0.1	0.1	0.1	0.7	0.3	0.2	0.2	0.1
	Storm Flow	3.7	1.1	1.4	0.9	2.6	4.5	2.5	7.3
Total Cu g/(hr·mi^2)	Baseflow	0.2	0.5	0.3	1.0	0.2	0.2	0.3	0.4
	Storm Flow	5.9	3.2	2.8	1.7	2.7	10.1	6.6	11.7
Total Pb g/(hr·mi^2)	Baseflow	0.1	0.2	0.1	0.5	0.1	0.1	0.1	0.2
	Storm Flow	4.7	1.6	1.2	0.7	1.3	2.9	3.2	10.8

Flux was computed for samples where both concentrations and flows were measured. Samples measured below quantification limits were set at ½ quantification limit values. The flow measurements listed correspond to flow measurements for which metals samples were collected and analyzed and may not correspond to the flow measurements corresponding to when samples for when TSS were analyzed.

TABLE 4-5e
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-01-TT Filtered																
Arsenic	UG/L	150	340	2	16	13%	0		0		1.3	1.4 J	3.4 J	1.2	5.2	12/17/01
Barium	UG/L			15	16	94%					34.7	26.7 J	45.6 J	33.3	33.3	01/04/02
Calcium	UG/L			16	16	100%					35400	29700	44800	0	0	01/04/02
Chromium	UG/L	110	830	5	16	31%	0		0		0.68	0.61 J	1.7 J	0.6	3	08/23/01
Cobalt	UG/L			3	16	19%					0.95	0.72 J	5.4	0.4	2.7	02/15/02
Copper	UG/L	13	21	5	16	31%	0		0		1.8	0.83 J	3.4 J	0.6	7.6	10/22/01
Iron	UG/L	1000		11	16	69%	0				266	105 J	868	74.2	220	06/20/02
Lead	UG/L	4.1	110	2	16	13%	0		0		0.93	1.5 J	1.9 J	0.7	3.1	04/17/02
Magnesium	UG/L			16	16	100%					6460	5590	8750	0	0	01/04/02
Manganese	UG/L			16	16	100%					207	73.8 J	337	0	0	06/20/02
Nickel	UG/L	77	690	10	16	63%	0		0		1.5	0.97 J	3.8	0.9	2.7	08/23/01
Potassium	UG/L			16	16	100%					6630	4150	8910	0	0	02/15/02
Sodium	UG/L			16	16	100%					62400	49600	112000 J	0	0	02/15/02
Thallium	UG/L			1	16	6%					2.1	6.3 J	6.3 J	2.2	6	09/18/01
Vanadium	UG/L			1	16	6%					0.4	0.41 J	0.41 J	0.4	1.7	05/08/02
Zinc	UG/L	170	170	14	16	88%	0		0		16	1 J	30.2 J	12.4	17.7	02/15/02
SW-01-TT Unfiltered																
Aluminum	UG/L	87	750	3	16	19%	2	13%	0		74.3	64.1 J	124	54.2	455	01/04/02
Arsenic	UG/L	150	340	3	16	19%	0		0		1.8	2.2 J	3.8	1.7	9	07/16/02
Barium	UG/L			16	16	100%					37.5	26 J	48.4	0	0	02/15/02
Calcium	UG/L			16	16	100%					35100	29000	43000	0	0	01/04/02
Chromium	UG/L	110	830	11	16	69%	0		0		1.8	1 J	3.2	0.9	3.9	08/23/01
Cobalt	UG/L			5	16	31%					1.8	1.2 J	11.8	0.4	2.9	02/15/02
Copper	UG/L	13	21	8	16	50%	0		0		3.4	2 J	8.1 J	2	7.5	02/15/02
Iron	UG/L	1000		16	16	100%	7	44%			868	285 J	1650	0	0	06/20/02
Lead	UG/L	4.1	110	8	16	50%	0		0		2.3	2.4 J	4.1	1.2	5.1	07/16/02

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-01-TT Unfiltered (cont.)																
Magnesium	UG/L			16	16	100%					6410	5380	8450	0	0	01/04/02
Manganese	UG/L			16	16	100%					218	81 J	356	0	0	06/20/02
Nickel	UG/L	77	690	11	16	69%	0		0		1.5	0.75 J	3.3	1	2.9	08/23/01
Potassium	UG/L			16	16	100%					6600	4360 J	8960	0	0	02/15/02
Sodium	UG/L			16	16	100%					61800	47800	112000 J	0	0	02/15/02
Vanadium	UG/L			2	16	13%					0.55	0.98 J	1.8 J	0.4	1.7	08/23/01
Zinc	UG/L	170	170	14	16	88%	0		0		18.7	4.9 J	34.3 J	18.1	20.8	03/12/02
Total Suspended Solids	MG/L			14	16	88%					4.6	1 J	11 J	2	4	02/15/02
SW-02-TT Filtered																
Aluminum	UG/L	87	750	1	16	6%	0		0		28.3	82.1 J	82.1 J	19.6	70.6	01/04/02
Antimony	UG/L			4	16	25%					1.9	2 J	4.4 J	1.5	4.3	11/19/01
Arsenic	UG/L	150	340	13	16	81%	0		0		4.9	3.1	9.6 J	2.4	6.5	07/14/01
Barium	UG/L			15	16	94%					36.5	32	44.2 J	35.9	35.9	11/19/01
Cadmium	UG/L	0.34	3.1	1	16	6%	1	6%	0		0.28	0.84	0.84	0.2	1.4	06/20/02
Calcium	UG/L			16	16	100%					48600	37000	75300	0	0	11/19/01
Chromium	UG/L	110	830	10	16	63%	0		0		1.2	0.8 J	2.6	0.6	3.2	09/18/01
Cobalt	UG/L			10	16	63%					1.9	0.86 J	4.5	1	3.8	11/19/01
Copper	UG/L	13	21	11	16	69%	0		0		4.9	2.8 J	7.4	3.7	11.2	11/19/01
Iron	UG/L	1000		11	16	69%	1	6%			346	47.2	1120	40.7	193	07/14/01
Magnesium	UG/L			16	16	100%					7320	5630	10500	0	0	11/19/01
Manganese	UG/L			16	16	100%					437	277	697 J	0	0	11/19/01
Nickel	UG/L	77	690	13	16	81%	0		0		2.5	1.4 J	6.6	2	4.2	09/18/01
Potassium	UG/L			16	16	100%					7530	5740 J	10400 J	0	0	11/19/01
Sodium	UG/L			16	16	100%					62600	47800	104000 J	0	0	02/15/02
Vanadium	UG/L			3	16	19%					0.73	1.6 J	2.3	0.4	2.1	11/19/01
Zinc	UG/L	170	170	16	16	100%	8	50%	8	50%	174	85.5	353	0	0	11/19/01

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-02-TT Unfiltered																
Aluminum	UG/L	87	750	2	16	13%	1	6%	0		48.9	78 J	123	43.6	150	01/04/02
Antimony	UG/L			3	16	19%					2.4	2.9 J	13.7 J	1.6	4	10/22/01
Arsenic	UG/L	150	340	15	16	94%	0		0		20.2	11.3	43.1	13.6	13.6	11/19/01
Barium	UG/L			16	16	100%					39.2	34	47.2 J	0	0	01/04/02
Cadmium	UG/L	0.34	3.1	1	16	6%	1	6%	0		0.26	0.43	0.43	0.2	1.4	10/22/01
Calcium	UG/L			16	16	100%					48100	36100	73000	0	0	11/19/01
Chromium	UG/L	110	830	12	16	75%	0		0		1.7	1.2	2.9 J	1.8	3.7	11/19/01
Cobalt	UG/L			10	16	63%					2.2	1.1 J	5	0.7	4.2	02/15/02
Copper	UG/L	13	21	9	16	56%	0		0		6	5	9.8	5.5	12.9	11/19/01
Iron	UG/L	1000		16	16	100%	16	100%			1930	1100	3510 J	0	0	11/19/01
Lead	UG/L	4.1	110	8	16	50%	0		0		1.7	1.9 J	3.1 , J	0.7	3.4	04/17/02, 07/14/01
Magnesium	UG/L			16	16	100%					7240	5720	10000	0	0	11/19/01
Manganese	UG/L			16	16	100%					440	270	724	0	0	07/16/02
Nickel	UG/L	77	690	12	16	75%	0		0		2.4	1.6 J	4.4	1.4	4	11/19/01
Potassium	UG/L			16	16	100%					7440	5390 J	9680 J	0	0	11/19/01
Sodium	UG/L			16	16	100%					61700	47900	102000 J	0	0	02/15/02
Thallium	UG/L			1	16	6%					2.1	5.4 J	5.4 J	2.2	6	09/18/01
Vanadium	UG/L			4	16	25%					0.9	0.78 J	3	0.55	2.5	11/19/01
Zinc	UG/L	170	170	16	16	100%	9	56%	9	56%	189	97.2 J	381	0	0	11/19/01
Total Suspended Solids	MG/L			15	16	94%					5	1.6	12.8 J	4	4	11/19/01
SW-03-TT Filtered																
Arsenic	UG/L	150	340	13	16	81%	0		0		12.1	6	24.2	5.7	10.4	11/19/01
Barium	UG/L			15	16	94%					33.4	29.2	43.5 J	35.1	35.1	01/04/02
Calcium	UG/L			16	16	100%					40500	35300	47800	0	0	01/04/02
Chromium	UG/L	110	830	9	16	56%	0		0		0.92	0.53 J	2.1	0.6	2.8	09/18/01
Cobalt	UG/L			3	16	19%					0.56	0.81 J	0.92 J	0.4	2.2	02/15/02

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-03-TT Filtered (cont.)																
Copper	UG/L	13	21	5	16	31%	0		0		1.5	1.6 J	3.4 J	0.6	5	10/22/01
Iron	UG/L	1000		16	16	100%	8	50%			1180	568	2430	0	0	11/19/01
Magnesium	UG/L			16	16	100%					7940	6530	9590	0	0	09/10/02
Manganese	UG/L			16	16	100%					455	264	776 J	0	0	01/04/02
Nickel	UG/L	77	690	10	16	63%	0		0		1.2	0.92 J	1.8 , J	0.7	3	07/14/01, 09/18/01, 10/22/01
Potassium	UG/L			16	16	100%					5290	4080 J	6720	0	0	02/15/02
Sodium	UG/L			16	16	100%					82300	62600	139000	0	0	03/12/02
Zinc	UG/L	170	170	15	16	94%	0		0		29	9.9 J	58	25.8	25.8	11/19/01
SW-03-TT Unfiltered																
Aluminum	UG/L	87	750	1	16	6%	1	6%	0		47.3	158	158	43.6	192	01/04/02
Arsenic	UG/L	150	340	14	16	88%	0		0		19.2	6.6	34.8	7.1	11.1	09/10/02
Barium	UG/L			16	16	100%					34.4	23	46.7 J	0	0	01/04/02
Calcium	UG/L			16	16	100%					40400	34800	48600	0	0	01/04/02
Chromium	UG/L	110	830	10	16	63%	0		0		1.3	0.57 J	2.8	0.9	4.5	09/18/01
Cobalt	UG/L			5	16	31%					0.65	0.74 J	1.2 J	0.4	2.7	02/15/02
Copper	UG/L	13	21	8	16	50%	0		0		2.6	0.79 J	6.2 J	2	8.1	05/08/02
Iron	UG/L	1000		16	16	100%	16	100%			2400	1040	3570	0	0	09/10/02
Lead	UG/L	4.1	110	3	16	19%	0		0		1	1.3 J	2.2 J	0.7	3.8	02/15/02
Magnesium	UG/L			16	16	100%					7850	6530	9740	0	0	01/04/02
Manganese	UG/L			16	16	100%					469	257	797 J	0	0	01/04/02
Nickel	UG/L	77	690	10	16	63%	0		0		1.3	1.2 J	1.8 , J	0.7	3.1	09/18/01, 10/22/01, 10/25/02, 12/17/01
Potassium	UG/L			16	16	100%					5310	3850 J	7150	0	0	05/08/02
Sodium	UG/L			16	16	100%					79700	59600	144000 J	0	0	02/15/02
Vanadium	UG/L			2	16	13%					0.43	0.53 J	0.64 J	0.4	1.7	07/14/01
Zinc	UG/L	170	170	15	16	94%	0		0		31.1	9.7 J	91.8 J	23.3	23.3	05/08/02
Total Suspended Solids	MG/L			15	16	94%					4.7	1.4 J	10.6	4	4	01/04/02

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-04-TT Filtered (cont.)																
Arsenic	UG/L	150	340	13	16	81%	0		0		6	3.1 J	14	5.2	9.3	08/23/01
Barium	UG/L			16	16	100%					33.2	19.6	43.5	0	0	07/16/02
Calcium	UG/L			16	16	100%					47800	38400	70300	0	0	11/19/01
Chromium	UG/L	110	830	10	16	63%	0		0		1.1	0.73 J	1.7 J	0.8	2.5	09/18/01
Cobalt	UG/L			8	16	50%					1.3	0.95 J	3	0.7	3	02/15/02
Copper	UG/L	13	21	8	16	50%	0		0		2.4	1.8 J	4.4 J	0.6	6.5	02/15/02
Iron	UG/L	1000		12	16	75%	3	19%			487	66.6	1600	35.6	140	07/14/01
Lead	UG/L	4.1	110	1	16	6%	0		0		0.81	1.4 J	1.4 J	0.7	2.2	04/17/02
Magnesium	UG/L			16	16	100%					7350	5870	10200	0	0	11/19/01
Manganese	UG/L			16	16	100%					552	364	776	0	0	07/16/02
Nickel	UG/L	77	690	13	16	81%	0		0		2	1.2 J	2.9	1.7	2.8	07/14/01
Potassium	UG/L			16	16	100%					7340	5710 J	9430 J	0	0	11/19/01
Sodium	UG/L			16	16	100%					64000	49400	108000 J	0	0	02/15/02
Vanadium	UG/L			1	16	6%					0.37	0.65 J	0.65 J	0.4	1.7	07/14/01
Zinc	UG/L	170	170	15	16	94%	1	6%	1	6%	81	2.4 J	229	20.4	20.4	12/17/01
SW-04-TT Unfiltered																
Aluminum	UG/L	87	750	5	16	31%	4	25%	2	13%	329	84.2 J	2830	46.6	351	12/17/01
Arsenic	UG/L	150	340	16	16	100%	1	6%	0		37.1	8.6	171	0	0	12/17/01
Barium	UG/L			16	16	100%					40.4	28.3	74.1	0	0	12/17/01
Cadmium	UG/L	0.34	3.1	2	16	13%	2	13%	1	6%	0.53	0.43	4.8 J	0.2	1.1	12/17/01
Calcium	UG/L			16	16	100%					48500	39100	69700	0	0	11/19/01
Chromium	UG/L	110	830	13	16	81%	0		0		11.5	2.2	85.3	1.1	8.8	12/17/01
Cobalt	UG/L			9	16	56%					2	0.9 J	8.4 J	0.7	3.6	12/17/01
Copper	UG/L	13	21	11	16	69%	4	25%	2	13%	17.4	2.7 J	130	5.8	18.2	12/17/01
Iron	UG/L	1000		16	16	100%	16	100%			5270	1280	27900 J	0	0	12/17/01
Lead	UG/L	4.1	110	11	16	69%	5	31%	0		7.9	2.1 J	59.5	1.1	7.3	12/17/01

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-04-TT Unfiltered (cont.)																
Magnesium	UG/L			16	16	100%					7540	5970	10200	0	0	11/19/01
Manganese	UG/L			16	16	100%					665	313	1470	0	0	12/17/01
Mercury	UG/L	0.77	1.4	1	16	6%	0		0		0.087	0.46	0.46	0.1	0.42	12/17/01
Nickel	UG/L	77	690	12	16	75%	0		0		2.4	1.2 J	8.9	1.2	3.3	12/17/01
Potassium	UG/L			16	16	100%					7320	5630	9300 J	0	0	11/19/01
Sodium	UG/L			16	16	100%					66600	48900	108000 J	0	0	02/15/02
Vanadium	UG/L			5	16	31%					1	1 J	5.7 J	0.4	1.7	12/17/01
Zinc	UG/L	170	170	16	16	100%	5	31%	5	31%	229	27.1 J	1460	0	0	12/17/01
Total Suspended Solids	MG/L			16	16	100%					22.5	4 J	109 J	0	0	11/19/01
SW-05-TT Filtered																
Arsenic	UG/L	150	340	12	16	75%	0		0		5.6	3.8	11.4 J	5.2	13	07/14/01
Barium	UG/L			16	16	100%					35.3	27.7	44.4	0	0	09/10/02
Calcium	UG/L			16	16	100%					47400	38000	58100	0	0	11/19/01
Chromium	UG/L	110	830	10	16	63%	0		0		1.4	0.93 J	2.2	0.6	3.6	09/18/01
Cobalt	UG/L			8	16	50%					0.99	0.8 J	2.1	0.7	2.6	10/25/02
Copper	UG/L	13	21	4	16	25%	0		0		1.8	2.4 , J	4	0.6	6	10/22/01
Iron	UG/L	1000		13	16	81%	1	6%			524	134	1480	8.7	23.8	07/14/01
Lead	UG/L	4.1	110	1	16	6%	0		0		0.84	1.6 J	1.6 J	0.7	2.7	04/17/02
Magnesium	UG/L			16	16	100%					7810	6250	9280	0	0	11/19/01
Manganese	UG/L			16	16	100%					540	308	750	0	0	07/16/02
Nickel	UG/L	77	690	11	16	69%	0		0		1.6	1.3 J	2.3 J	0.9	3.5	10/22/01
Potassium	UG/L			16	16	100%					6370	4840 J	7690 , J	0	0	02/15/02, 12/17/01
Selenium	UG/L	5		1	16	6%	0				1.7	2.7 J	2.7 J	1.9	4.8	06/20/02
Sodium	UG/L			16	16	100%					77100	55000	123000 J	0	0	02/15/02
Zinc	UG/L	170	170	15	16	94%	0		0		42.7	3.9 J	121	25.1	25.1	12/17/01

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-05-TT Unfiltered																
Aluminum	UG/L	87	750	3	16	19%	2	13%	0		70.5	66 J	99.7	54.4	203	07/14/01
Arsenic	UG/L	150	340	16	16	100%	0		0		20.1	9.1	28	0	0	07/16/02
Barium	UG/L			16	16	100%					37.8	29.9	46.7	0	0	07/16/02
Calcium	UG/L			16	16	100%					47600	39600	58400	0	0	11/19/01
Chromium	UG/L	110	830	14	16	88%	0		0		7.2	2.4	14.2	5.7	8.8	07/16/02
Cobalt	UG/L			8	16	50%					1.1	0.94 J	2.2	0.7	3.3	10/25/02
Copper	UG/L	13	21	10	16	63%	0		0		5.1	3.9 J	8.7 J	4.5	10.7	06/20/02
Iron	UG/L	1000		16	16	100%	16	100%			2450	1460	3460	0	0	06/20/02
Lead	UG/L	4.1	110	11	16	69%	5	31%	0		3.4	1.8 J	6.2	2.3	6.2	07/16/02
Magnesium	UG/L			16	16	100%					7840	6550	9240	0	0	11/19/01
Manganese	UG/L			16	16	100%					550	325	764	0	0	07/16/02
Mercury	UG/L	0.77	1.4	1	16	6%	0		0		0.057	0.1 J	0.1 J	0.1	0.16	07/14/01
Nickel	UG/L	77	690	11	16	69%	0		0		1.6	1.2 J	2.4 J	1.3	3.5	12/17/01
Potassium	UG/L			16	16	100%					6370	4860 J	7810	0	0	02/15/02
Sodium	UG/L			16	16	100%					77600	55800	128000 J	0	0	02/15/02
Vanadium	UG/L			5	16	31%					0.68	0.7 J	1.1 J	0.6	1.7	07/14/01
Zinc	UG/L	170	170	16	16	100%	0		0		64.9	23.6 J	153	0	0	12/17/01
Total Suspended Solids	MG/L			16	16	100%					6	2	10 J	0	0	11/19/01
SW-06-TT Filtered																
Arsenic	UG/L	150	340	8	16	50%	0		0		2.7	2.1 J	7.1 J	1.3	8	07/14/01
Barium	UG/L			16	16	100%					36.1	29 J	42.2 J	0	0	01/04/02
Calcium	UG/L			16	16	100%					46000	37000	52200	0	0	07/16/02
Chromium	UG/L	110	830	10	16	63%	0		0		1.2	1 , J	2	0.6	3.3	07/14/01, 09/18/01
Cobalt	UG/L			6	16	38%					0.77	0.75 J	1.3 J	0.7	2.5	02/15/02
Copper	UG/L	13	21	7	16	44%	0		0		2.1	0.68 J	3.5 J	2	5.6	05/08/02, 10/22/01
Iron	UG/L	1000		11	16	69%	0				293	110	961	8.7	254	07/14/01

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-06-TT Filtered (cont.)																
Magnesium	UG/L			16	16	100%					7860	6210	8980	0	0	07/16/02, 09/10/02
Manganese	UG/L			16	16	100%					454	277	749	0	0	07/16/02
Mercury	UG/L	0.77	1.4	3	16	19%	0		0		0.072	0.13 J	0.17 J	0.1	0.14	08/06/02
Nickel	UG/L	77	690	10	16	63%	0		0		1.4	1 J	2.2 J	0.9	3.4	07/14/01
Potassium	UG/L			16	16	100%					5930	4430 J	7660	0	0	02/15/02
Selenium	UG/L	5		1	16	6%	0				1.7	1.9 J	1.9 J	2.1	4.8	03/12/02
Sodium	UG/L			16	16	100%					81900	58800	144000 J	0	0	02/15/02
Thallium	UG/L			1	16	6%					2	3.6	3.6	2.2	6	10/25/02
Vanadium	UG/L			1	16	6%					0.38	0.64 J	0.64 J	0.4	1.7	07/14/01
Zinc	UG/L	170	170	16	16	100%	0		0		45.1	19.7 J	102	0	0	12/17/01
SW-06-TT Unfiltered																
Aluminum	UG/L	87	750	2	16	13%	1	6%	0		64.9	65.8 J	363	19.6	362	10/22/01
Arsenic	UG/L	150	340	16	16	100%	0		0		11.1	3.8	18.9	0	0	10/22/01
Barium	UG/L			16	16	100%					37.7	31.7	43 J	0	0	01/04/02
Calcium	UG/L			16	16	100%					46000	38900	52100	0	0	11/19/01
Chromium	UG/L	110	830	12	16	75%	0		0		4.2	0.51 J	17.3	2.7	5.4	11/19/01
Cobalt	UG/L			6	16	38%					0.84	1 J	1.7 J	0.7	2.5	10/22/01
Copper	UG/L	13	21	8	16	50%	2	13%	0		4.6	1.9 J	14.7	3.5	9.6	10/22/01
Iron	UG/L	1000		16	16	100%	14	88%			1460	359 J	2600	0	0	10/22/01
Lead	UG/L	4.1	110	5	16	31%	2	13%	0		3.2	1.8 J	17.4 J	1.4	4.5	11/19/01
Magnesium	UG/L			16	16	100%					7840	6650	9240	0	0	01/04/02
Manganese	UG/L			16	16	100%					476	271	757	0	0	07/16/02
Nickel	UG/L	77	690	13	16	81%	0		0		1.4	0.8 J	2.2 J	1.5	2.5	11/19/01
Potassium	UG/L			16	16	100%					5870	4660 J	7350	0	0	02/15/02
Sodium	UG/L			16	16	100%					81800	57600	139000 J	0	0	02/15/02
Vanadium	UG/L			5	16	31%					0.63	0.67 J	1.7 J	0.4	1.7	11/19/01

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-06-TT Unfiltered (cont.)																
Zinc	UG/L	170	170	16	16	100%	0		0		58.5	26.3 J	105	0	0	12/17/01
Total Suspended Solids	MG/L			15	16	94%					4.6	2.2 J	15.6	2	2	10/22/01
SW-07-TT Filtered																
Arsenic	UG/L	150	340	6	16	38%	0		0		2	1.5 J	4.5 J	1.3	4.7	07/14/01
Barium	UG/L			16	16	100%					36.8	31.5 J	41.8 J	0	0	01/04/02
Calcium	UG/L			16	16	100%					43300	36100	49600	0	0	01/04/02
Chromium	UG/L	110	830	9	16	56%	0		0		0.9	0.66 J	2	0.6	2.5	09/18/01
Cobalt	UG/L			2	16	13%					0.49	0.7 J	0.82 J	0.44	2	02/15/02
Copper	UG/L	13	21	8	16	50%	0		0		2.5	0.93 J	4.9	2.6	6.4	10/22/01
Iron	UG/L	1000		11	16	69%	0				247	143	699	15.6	163	07/14/01
Magnesium	UG/L			16	16	100%					7220	6030	8720	0	0	01/04/02
Manganese	UG/L			16	16	100%					313	188	531	0	0	07/16/02
Nickel	UG/L	77	690	12	16	75%	0		0		1.4	1.2 J	2.2 J	1	3	10/22/01
Potassium	UG/L			16	16	100%					5710	4420 J	7150	0	0	02/15/02
Sodium	UG/L			16	16	100%					82700	58400	142000 J	0	0	02/15/02
Vanadium	UG/L			1	16	6%					0.39	0.57 J	0.57 J	0.4	1.7	05/08/02
Zinc	UG/L	170	170	16	16	100%	0		0		42.6	14.7 J	76.8	0	0	12/17/01
SW-07-TT Unfiltered																
Aluminum	UG/L	87	750	2	16	13%	2	13%	0		61.1	87.9	111	43.6	216	05/08/02
Arsenic	UG/L	150	340	12	16	75%	0		0		5.7	4.1	8.3	7.9	10.9	08/06/02
Barium	UG/L			16	16	100%					38.9	31.5	42.8	0	0	04/17/02
Calcium	UG/L			16	16	100%					43700	34500	49900	0	0	11/19/01
Chromium	UG/L	110	830	11	16	69%	0		0		3.1	1.9	5.7	2.2	4.3	09/10/02
Cobalt	UG/L			3	16	19%					0.64	0.85 J	1.9	0.7	2	02/15/02
Copper	UG/L	13	21	9	16	56%	0		0		4.5	3.5 J	7.6 J	4.3	8.7	06/20/02
Iron	UG/L	1000		16	16	100%	12	75%			1130	779 J	1800	0	0	06/20/02

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-07-TT Unfiltered (cont.)																
Lead	UG/L	4.1	110	8	16	50%	3	19%	0		2.7	1.6 J	5.6	2.2	5.8	06/20/02
Magnesium	UG/L			16	16	100%					7280	5790	8510	0	0	01/04/02
Manganese	UG/L			16	16	100%					348	227 J	591	0	0	07/16/02
Nickel	UG/L	77	690	12	16	75%	0		0		1.4	1.1 J	2.4 J	1.4	2.8	10/22/01
Potassium	UG/L			16	16	100%					5740	4180 J	6950	0	0	02/15/02
Sodium	UG/L			16	16	100%					83200	56000	138000 J	0	0	02/15/02
Vanadium	UG/L			3	16	19%					0.61	0.71 J	1.2	0.6	1.7	05/08/02
Zinc	UG/L	170	170	16	16	100%	0		0		50.9	26	83.9	0	0	12/17/01
Total Suspended Solids	MG/L			15	16	94%					7.4	1.2 J	50	4	4	07/14/01
SW-08-TT Filtered																
Arsenic	UG/L	150	340	6	16	38%	0		0		1.7	1.6 J	3.2	1.3	5	04/17/02
Barium	UG/L			16	16	100%					46.8	36.8	63	0	0	09/10/02
Calcium	UG/L			16	16	100%					39700	30200	48000	0	0	11/19/01
Chromium	UG/L	110	830	7	16	44%	0		0		0.69	0.46 J	1.6 J	0.5	2.1	09/18/01, 10/22/01
Cobalt	UG/L			3	16	19%					0.53	0.64 J	1.5 J	0.4	2	02/15/02
Copper	UG/L	13	21	7	16	44%	0		0		3	2.2 J	12.4	0.6	7.1	06/20/02
Iron	UG/L	1000		12	16	75%	0				219	186	558	8.7	104	07/14/01
Magnesium	UG/L			16	16	100%					6730	5050	8260	0	0	11/19/01
Manganese	UG/L			16	16	100%					230	114 J	406	0	0	07/16/02
Mercury	UG/L	0.77	1.4	1	16	6%	0		0		0.056	0.1 J	0.1 J	0.1	0.15	10/22/01
Nickel	UG/L	77	690	9	16	56%	0		0		1.1	0.54 J	2 J	0.9	2.6	10/22/01
Potassium	UG/L			16	16	100%					5260	3830 J	7160	0	0	02/15/02
Sodium	UG/L			16	16	100%					79500	59600	140000 J	0	0	02/15/02
Vanadium	UG/L			1	16	6%					0.37	0.46 J	0.46 J	0.4	1.7	09/18/01
Zinc	UG/L	170	170	15	16	94%	0		0		26.7	4.9 J	58.4 J	13	13	02/15/02

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-08-TT Unfiltered																
Aluminum	UG/L	87	750	3	16	19%	3	19%	0		65.7	119	259 J	43.6	129	11/19/01
Arsenic	UG/L	150	340	11	16	69%	0		0		4	2.5 J	6.6 J	3	6	12/17/01
Barium	UG/L			16	16	100%					48.6	38.6	62.9	0	0	09/10/02
Calcium	UG/L			16	16	100%					40200	31400	48700	0	0	11/19/01
Chromium	UG/L	110	830	12	16	75%	0		0		2	1.4 , J	4.6 J	1.9	4.6	11/19/01
Cobalt	UG/L			3	16	19%					0.54	0.54 J	1.8 J	0.4	2	02/15/02
Copper	UG/L	13	21	8	16	50%	1	6%	1	6%	4.7	2.2 J	21.1 J	2.3	10.2	06/20/02
Iron	UG/L	1000		16	16	100%	7	44%			982	596	1570 J	0	0	11/19/01
Lead	UG/L	4.1	110	8	16	50%	2	13%	0		2.9	1.8 J	10.3 J	1.5	8	11/19/01
Magnesium	UG/L			16	16	100%					6800	5360	8390	0	0	11/19/01
Manganese	UG/L			16	16	100%					257	147	425	0	0	07/16/02
Nickel	UG/L	77	690	10	16	63%	0		0		1.1	0.59 J	1.7 J	1	2.6	04/17/02
Potassium	UG/L			16	16	100%					5310	3980 J	7200	0	0	02/15/02
Sodium	UG/L			16	16	100%					80100	59000	141000 J	0	0	02/15/02
Thallium	UG/L			1	16	6%					2	5.2	5.2	2.2	6	01/04/02
Vanadium	UG/L			6	16	38%					0.66	0.52 J	1.3	0.65	1.7	05/08/02
Zinc	UG/L	170	170	16	16	100%	0		0		35.2	8 J	64.2 J	0	0	02/15/02
Total Suspended Solids	MG/L			15	16	94%					4.3	2 J	9	4	4	01/04/02
SW-09-TT Filtered																
Antimony	UG/L			1	16	6%					1.3	1.8 J	1.8 J	1.5	4	07/16/02
Arsenic	UG/L	150	340	4	16	25%	0		0		1.7	1.8 J	4.9	1.7	5.2	08/06/02
Barium	UG/L			15	16	94%					32.7	28.5	39.7	35.6	35.6	12/17/01
Calcium	UG/L			16	16	100%					29000	23000	35200	0	0	04/17/02
Chromium	UG/L	110	830	2	16	13%	0		0		0.49	0.98 J	1.2 J	0.5	1.5	07/14/01
Cobalt	UG/L			2	16	13%					0.54	1.3 J	1.6	0.4	2	02/15/02
Copper	UG/L	13	21	7	16	44%	0		0		2.5	2 J	5.9	2	5.2	06/20/02

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-09-TT Filtered (cont.)																
Magnesium	UG/L			16	16	100%					4950	3810	5790	0	0	04/17/02
Manganese	UG/L			10	16	63%					19.2	1.3	78.8	1.2	4.7	03/12/02
Nickel	UG/L	77	690	3	16	19%	0		0		0.83	0.94 J	2.7 J	0.7	1.9	07/14/01
Potassium	UG/L			16	16	100%					4250	3290 J	6300	0	0	02/15/02
Sodium	UG/L			16	16	100%					74900	49800	122000 J	0	0	02/15/02
Vanadium	UG/L			2	16	13%					0.5	0.48 J	2	0.4	1.7	07/14/01
Zinc	UG/L	170	170	11	16	69%	0		0		8.5	1.6 J	29.8 J	0.7	10.3	02/15/02
SW-09-TT Unfiltered																
Arsenic	UG/L	150	340	5	16	31%	0		0		1.8	1.5 J	3.8	1.7	6.3	08/06/02
Barium	UG/L			16	16	100%					35.4	31.6 , J	42.3 J	0	0	01/04/02
Calcium	UG/L			16	16	100%					29500	23000	35400	0	0	04/17/02
Chromium	UG/L	110	830	4	16	25%	0		0		0.54	0.5 J	1.1 J	0.6	2	09/18/01
Cobalt	UG/L			1	16	6%					0.46	1.2 J	1.2 J	0.4	2	07/14/01
Copper	UG/L	13	21	6	16	38%	0		0		2.6	1.8 J	6.2 J	2	7.6	06/20/02
Iron	UG/L	1000		11	16	69%	0				132	75.5 J	315	48.1	234	07/14/01
Magnesium	UG/L			16	16	100%					5020	3890	5820	0	0	04/17/02
Manganese	UG/L			16	16	100%					58.5	15.7	162	0	0	03/12/02
Nickel	UG/L	77	690	4	16	25%	0		0		0.8	0.72 J	1.6 J	0.7	2.4	10/22/01
Potassium	UG/L			16	16	100%					4310	3250 J	5990	0	0	02/15/02
Sodium	UG/L			16	16	100%					75800	49900	122000	0	0	03/12/02
Vanadium	UG/L			1	16	6%					0.49	1.6	1.6	0.4	1.7	07/14/01
Zinc	UG/L	170	170	11	16	69%	0		0		10.8	2.5 J	33.3 J	0.7	8.6	03/12/02
Total Suspended Solids	MG/L			15	16	94%					4.1	1.2 J	8.8	4	4	10/22/01

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-10-TT Filtered																
Arsenic	UG/L	150	340	3	16	19%	0		0		1.4	1.5 J	3.9 J	1.2	4.2	12/17/01
Barium	UG/L			16	16	100%					38.3	30.6	43.6 J	0	0	01/04/02
Calcium	UG/L			16	16	100%					29400	24100	33400	0	0	05/08/02
Chromium	UG/L	110	830	6	16	38%	0		0		0.66	0.5 J	1.4 J	0.5	2	07/14/01, 09/18/01
Copper	UG/L	13	21	6	16	38%	0		0		2.4	1.1 J	8.6	1.5	5	10/22/01
Iron	UG/L	1000		1	16	6%	0				15.5	20.1 J	20.1 J	8.7	143	08/23/01
Magnesium	UG/L			16	16	100%					5930	4490	7130	0	0	12/17/01
Manganese	UG/L			14	16	88%					39.6	1.5	164	1.1	2.3	02/15/02
Nickel	UG/L	77	690	3	16	19%	0		0		0.75	0.93 J	1.7 J	0.7	2.2	07/14/01
Potassium	UG/L			16	16	100%					4370	3280 J	6020	0	0	02/15/02
Sodium	UG/L			16	16	100%					79000	51000	118000 J	0	0	02/15/02
Zinc	UG/L	170	170	7	16	44%	0		0		7.9	1.2 J	71.4	0.7	10.5	09/18/01
SW-10-TT Unfiltered																
Aluminum	UG/L	87	750	1	16	6%	0		0		42.9	60.6 J	60.6 J	37.2	200	07/14/01
Arsenic	UG/L	150	340	2	16	13%	0		0		1.4	2.4 J	3.2	1.2	5.8	04/17/02
Barium	UG/L			16	16	100%					41.8	34.5	52.7 J	0	0	01/04/02
Calcium	UG/L			16	16	100%					30600	24200	35500	0	0	04/17/02
Chromium	UG/L	110	830	9	16	56%	0		0		1	0.66 J	1.6	0.6	3.2	04/17/02
Cobalt	UG/L			1	16	6%					0.44	0.74 J	0.74 J	0.4	2	02/15/02
Copper	UG/L	13	21	6	16	38%	0		0		2.2	1.7 J	3.4 J	1.8	6.5	06/20/02
Iron	UG/L	1000		11	16	69%	0				183	107 J	521 J	60	228	04/17/02
Magnesium	UG/L			16	16	100%					6180	4610	7590	0	0	01/04/02
Manganese	UG/L			16	16	100%					95.2	12.9	244 J	0	0	01/04/02
Mercury	UG/L	0.77	1.4	1	16	6%	0		0		0.072	0.36	0.36	0.1	0.15	10/25/02
Nickel	UG/L	77	690	4	16	25%	0		0		0.82	0.85 J	1.8	0.9	2.4	04/17/02
Potassium	UG/L			16	16	100%					4580	3540 J	6130	0	0	02/15/02

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-10-TT Unfiltered (cont.)																
Sodium	UG/L			16	16	100%					82200	54400	125000	0	0	03/12/02
Zinc	UG/L	170	170	12	16	75%	1	6%	1	6%	17.1	0.73 J	172	0.7	8.3	03/12/02
Total Suspended Solids	MG/L			16	16	100%					6.1	1.6 J	14.9	0	0	04/17/02
SW-ARB-TT Filtered																
Arsenic	UG/L	150	340	2	4	50%	0		0		1.9	1.6 J	4.2	1.6	2.3	08/06/02
Barium	UG/L			3	4	75%					27.6	29.7	30.9	38.7	38.7	08/06/02
Calcium	UG/L			4	4	100%					43500	36100	47900	0	0	09/10/02
Chromium	UG/L	110	830	3	4	75%	0		0		1.4	0.81 J	2	1.9	1.9	07/16/02
Copper	UG/L	13	21	3	4	75%	0		0		1.4	0.6 J	2.9	1.3	1.3	06/20/02
Iron	UG/L	1000		2	4	50%	0				184	123	567	23.6	65	06/20/02
Magnesium	UG/L			4	4	100%					9260	6520	10600	0	0	07/16/02, 09/10/02
Manganese	UG/L			4	4	100%					463	144	683	0	0	07/16/02
Nickel	UG/L	77	690	3	4	75%	0		0		1.6	1.4 J	2.2	2.8	2.8	08/06/02
Potassium	UG/L			4	4	100%					5420	5110	5920 J	0	0	07/16/02
Sodium	UG/L			4	4	100%					82800	78900	91300	0	0	07/16/02
Zinc	UG/L	170	170	3	4	75%	0		0		9.1	5.4 J	21 J	8.9	8.9	06/20/02
SW-ARB-TT Unfiltered																
Arsenic	UG/L	150	340	2	4	50%	0		0		2.9	2.6 J	5.4	2.7	4.8	08/06/02
Barium	UG/L			4	4	100%					34.1	31.2	40.5	0	0	09/10/02
Calcium	UG/L			4	4	100%					44600	37300	49000	0	0	09/10/02
Chromium	UG/L	110	830	4	4	100%	0		0		2.3	0.94 J	3	0	0	08/06/02
Copper	UG/L	13	21	2	4	50%	0		0		1.5	1.6 J	3 J	0.6	1.8	06/20/02
Iron	UG/L	1000		4	4	100%	3	75%			1030	957	1130	0	0	08/06/02
Lead	UG/L	4.1	110	1	4	25%	0		0		0.54	1.1 J	1.1 J	0.7	0.7	06/20/02
Magnesium	UG/L			4	4	100%					9490	6760	10800	0	0	07/16/02, 09/10/02
Manganese	UG/L			4	4	100%					484	154	706	0	0	07/16/02

TABLE 4-5e (cont.)
STUDY AREA SURFACE WATER BASE FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-ARB-TT Unfiltered (cont.)																
Nickel	UG/L	77	690	3	4	75%	0		0		1.5	1.1 J	2	2.7	2.7	08/06/02
Potassium	UG/L			4	4	100%					5570	5230 J	6090 J	0	0	07/16/02
Sodium	UG/L			4	4	100%					84700	81100	92700	0	0	07/16/02
Zinc	UG/L	170	170	3	4	75%	0		0		8	5.9 J	14.8 J	9.9	9.9	06/20/02
Total Suspended Solids	MG/L			3	4	75%					3.4	2.6 J	5.4 J	4	4	09/10/02

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Zero values are shown when there are no non-detects for the parameter in that group.

(4) Ambient Water Quality Criteria (AWQC) Criteria Maximum Concentration (CMC) -acute exposure criteria (EPA, 2002a)

(5) AWQC Criteria Continuous Concentration (CCC) - chronic exposure criteria (EPA, 2002a)

TABLE 4-5f
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-01-TT Filtered																
Barium	UG/L			6	6	100%					25.4	19.3	30.7	0	0	09/25/02
Calcium	UG/L			6	6	100%					21300	19400	24200	0	0	05/15/02
Chromium	UG/L	110	830	5	6	83%	0		0		1.5	0.43 J	2.8	1.9	1.9	05/15/02
Copper	UG/L	13	21	3	6	50%	0		0		4.2	5.5	5.9	5	6.6	09/25/02
Iron	UG/L	1000		4	6	67%	0				212	203	447	57.3	81.8	05/15/02
Lead	UG/L	4.1	110	1	6	17%	0		0		1.1	2.5	2.5	1.2	2.3	05/15/02
Magnesium	UG/L			6	6	100%					3330	2880	3730	0	0	05/15/02
Manganese	UG/L			6	6	100%					85	30.3	159	0	0	04/26/02
Nickel	UG/L	77	690	4	6	67%	0		0		1.4	1.2 J	2.1	0.97	1.5	10/18/02
Potassium	UG/L			6	6	100%					4410	3760	6080	0	0	09/25/02
Sodium	UG/L			6	6	100%					31400	26000	35600	0	0	07/25/02
Vanadium	UG/L			2	6	33%					0.4	0.3 J	0.45 J	0.7	1.1	04/26/02
Zinc	UG/L	170	170	6	6	100%	0		0		30.6	12.1 J	47.3	0	0	05/15/02
SW-01-TT Unfiltered																
Aluminum	UG/L	87	750	6	6	100%	6	100%	1	17%	623	407	884	0	0	10/18/02
Arsenic	UG/L	150	340	5	6	83%	0		0		3.3	1.8 J	5.1	5.7	5.7	04/26/02
Barium	UG/L			6	6	100%					32.4	27.4	36.6	0	0	09/25/02
Calcium	UG/L			6	6	100%					21600	19600	23900	0	0	05/15/02
Chromium	UG/L	110	830	6	6	100%	0		0		9.6	6	16.9	0	0	04/26/02
Cobalt	UG/L			2	6	33%					1.9	1.8	4.1	1.5	3.3	09/25/02
Copper	UG/L	13	21	6	6	100%	5	83%	2	33%	16.9	10.9 J	23.1	0	0	04/26/02
Iron	UG/L	1000		6	6	100%	6	100%			1890	1230	2760	0	0	04/26/02
Lead	UG/L	4.1	110	6	6	100%	6	100%	0		13.6	7.2	19.9	0	0	04/26/02
Magnesium	UG/L			6	6	100%					3490	3090	3840	0	0	09/25/02
Manganese	UG/L			6	6	100%					204	104	438	0	0	04/26/02
Nickel	UG/L	77	690	4	6	67%	0		0		2.4	2.2	4	2.5	3.3	10/18/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-01-TT Unfiltered (cont.)																
Potassium	UG/L			6	6	100%					4530	4100	6090	0	0	09/25/02
Sodium	UG/L			6	6	100%					31700	26300	36600	0	0	04/26/02
Vanadium	UG/L			3	6	50%					1.6	1.8	2.5 , J	1.8	2.4	04/26/02, 08/31/02
Zinc	UG/L	170	170	6	6	100%	0		0		61.7	35.5 J	87.6 J	0	0	10/18/02
Total Suspended Solids	MG/L			6	6	100%					22.8	15.8 J	31.2 J	0	0	04/26/02
SW-02-TT Filtered																
Antimony	UG/L			1	5	20%					1.5	2.2 J	2.2 J	2.2	3.7	07/25/02
Arsenic	UG/L	150	340	5	5	100%	0		0		10.2	3.7	27.4	0	0	05/15/02
Barium	UG/L			5	5	100%					29	22.7	35.2	0	0	07/25/02
Calcium	UG/L			5	5	100%					44200	39000	50000	0	0	10/18/02
Chromium	UG/L	110	830	4	5	80%	0		0		1.6	1.2	2.2	2	2	10/18/02
Cobalt	UG/L			1	5	20%					1.2	2.4	2.4	1.2	3.1	10/18/02
Copper	UG/L	13	21	1	5	20%	0		0		3	5.6	5.6	4	5.7	07/25/02
Iron	UG/L	1000		4	5	80%	1	20%			449	39.1	1280	138	138	05/15/02
Lead	UG/L	4.1	110	1	5	20%	0		0		0.84	1.2 J	1.2 J	0.76	2.3	05/15/02
Magnesium	UG/L			5	5	100%					6210	5380	7240	0	0	10/18/02
Manganese	UG/L			5	5	100%					373	315	429	0	0	07/25/02
Nickel	UG/L	77	690	4	5	80%	0		0		2.1	1.8	2.8	2.1	2.1	07/25/02
Potassium	UG/L			5	5	100%					6150	5040	6820	0	0	04/26/02
Sodium	UG/L			5	5	100%					43900	36300	54200	0	0	04/26/02
Thallium	UG/L			1	5	20%					2	2.7 J	2.7 J	2.2	5.1	07/25/02
Vanadium	UG/L			2	5	40%					0.74	0.36 J	1.6	0.7	2	10/18/02
Zinc	UG/L	170	170	5	5	100%	1	20%	1	20%	103	58.9 J	218	0	0	04/26/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-02-TT Unfiltered																
Aluminum	UG/L	87	750	1	5	20%	1	20%	0		134	321	321	90.6	271	05/15/02
Arsenic	UG/L	150	340	5	5	100%	0		0		47.6	20.5	81.5	0	0	05/15/02
Barium	UG/L			5	5	100%					32.7	27.4	38	0	0	07/25/02
Calcium	UG/L			5	5	100%					44700	38500	52200	0	0	10/18/02
Chromium	UG/L	110	830	4	5	80%	0		0		3.1	2	5.3	3.4	3.4	05/15/02
Cobalt	UG/L			2	5	40%					1.8	2	3.9	1.6	3.3	07/25/02
Copper	UG/L	13	21	4	5	80%	0		0		7.8	7	10.5	6.4	6.4	07/25/02
Iron	UG/L	1000		5	5	100%	5	100%			3910	2060	6520	0	0	10/18/02
Lead	UG/L	4.1	110	4	5	80%	3	60%	0		3.8	2.6	5.2	3.7	3.7	05/15/02
Magnesium	UG/L			5	5	100%					6190	5360	7300	0	0	10/18/02
Manganese	UG/L			5	5	100%					385	337	487	0	0	07/25/02
Nickel	UG/L	77	690	4	5	80%	0		0		2.6	1.7 J	4	2.3	2.3	10/18/02
Potassium	UG/L			5	5	100%					6310	4990	7070	0	0	09/25/02
Silver	UG/L		7.1	1	5	20%			0		0.49	1.2 J	1.2 J	0.5	0.8	07/25/02
Sodium	UG/L			5	5	100%					45000	35300	53100	0	0	04/26/02
Vanadium	UG/L			3	5	60%					1.3	0.66 J	2.1	2.2	3.4	07/25/02
Zinc	UG/L	170	170	5	5	100%	1	20%	1	20%	144	96.9 J	267	0	0	04/26/02
Total Suspended Solids	MG/L			5	5	100%					12.3	6 J	23.6	0	0	10/18/02
SW-03-TT Filtered																
Arsenic	UG/L	150	340	2	6	33%	0		0		2.2	4 J	4.1	2	3.7	07/25/02
Barium	UG/L			6	6	100%					19.5	11.3	26	0	0	09/25/02
Calcium	UG/L			6	6	100%					17800	8870	23400	0	0	09/25/02
Chromium	UG/L	110	830	4	6	67%	0		0		1	1.1 J	1.6	0.6	0.61	04/26/02
Copper	UG/L	13	21	1	6	17%	0		0		2.2	4	4	2	4.7	08/31/02
Iron	UG/L	1000		4	6	67%	0				216	143	404	72.1	140	05/15/02
Lead	UG/L	4.1	110	2	6	33%	0		0		0.78	0.53 J	1.2 J	1.1	2.3	05/15/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-03-TT Filtered (cont.)																
Magnesium	UG/L			6	6	100%					3080	1350	3970	0	0	09/25/02
Manganese	UG/L			6	6	100%					85	16.3	163	0	0	09/25/02
Mercury	UG/L	0.77	1.4	1	6	17%	0		0		0.058	0.1 J	0.1 J	0.1	0.1	09/25/02
Nickel	UG/L	77	690	4	6	67%	0		0		1.1	1.4 J	1.4 J	0.6	1.4	05/15/02, 07/25/02, 09/25/02, 10/18/02
Potassium	UG/L			6	6	100%					2690	1270	3780	0	0	09/25/02
Sodium	UG/L			6	6	100%					36100	11000	55900	0	0	04/26/02
Zinc	UG/L	170	170	6	6	100%	0		0		35.5	18.3 J	47.9	0	0	04/26/02
SW-03-TT Unfiltered																
Aluminum	UG/L	87	750	1	6	17%	1	17%	0		114	285	285	78.7	254	05/15/02
Arsenic	UG/L	150	340	6	6	100%	0		0		15.2	7.5	28.4	0	0	10/18/02
Barium	UG/L			6	6	100%					22.1	13.6	27.6	0	0	09/25/02
Calcium	UG/L			6	6	100%					18000	9370	24200	0	0	09/25/02
Chromium	UG/L	110	830	5	6	83%	0		0		2.9	1.4	6.3	1.7	1.7	10/18/02
Copper	UG/L	13	21	3	6	50%	0		0		5.8	6.7	11.8	4	7.2	10/18/02
Iron	UG/L	1000		6	6	100%	6	100%			1830	1320	3140	0	0	10/18/02
Lead	UG/L	4.1	110	3	6	50%	0		0		2.7	2.9 J	3.8	2.3	5.5	05/15/02
Magnesium	UG/L			6	6	100%					3140	1440	4100	0	0	09/25/02
Manganese	UG/L			6	6	100%					138	52.4	246	0	0	09/25/02
Mercury	UG/L	0.77	1.4	1	6	17%	0		0		0.055	0.08 J	0.08 J	0.1	0.1	09/25/02
Nickel	UG/L	77	690	4	6	67%	0		0		0.97	0.9 J	1.6 J	0.6	1.6	10/18/02
Potassium	UG/L			6	6	100%					2710	1340	3720	0	0	09/25/02
Sodium	UG/L			6	6	100%					36000	11600	53400	0	0	04/26/02
Vanadium	UG/L			2	6	33%					0.59	0.36 J	0.8	0.7	1.6	04/26/02
Zinc	UG/L	170	170	6	6	100%	0		0		50.3	39.6 J	57.1	0	0	08/31/02
Total Suspended Solids	MG/L			4	5	80%					8.1	5.2 J	17.2	5	5	10/18/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-04-TT Filtered																
Antimony	UG/L			11	105	10%					1.6	2.1 J	3.8	1.2	5.6	07/25/02
Arsenic	UG/L	150	340	89	105	85%	0		0		10.3	2.1 J	63.4	1.3	7.9	05/16/02
Barium	UG/L			105	105	100%					26.4	13.4	37.8	0	0	09/25/02
Calcium	UG/L			105	105	100%					38400	15400	59200	0	0	08/31/02
Chromium	UG/L	110	830	75	105	71%	0		0		1.3	0.43 J	5	0.4	2.4	05/16/02
Cobalt	UG/L			36	105	34%					0.86	0.61 J	2.8	0.4	2.6	10/18/02
Copper	UG/L	13	21	46	105	44%	0		0		2.8	2 J	5.8	1.3	10.4	08/31/02
Iron	UG/L	1000		78	105	74%	27	26%			653	97.9	3780	11.7	122	05/16/02
Lead	UG/L	4.1	110	11	105	10%	2	2%	0		1.1	1.1 J	10.7	0.7	4.4	08/31/02
Magnesium	UG/L			105	105	100%					5350	1890	8030	0	0	08/31/02, 09/25/02
Manganese	UG/L			105	105	100%					341	81.9	573	0	0	10/18/02
Mercury	UG/L	0.77	1.4	2	97	2%	0		0		0.053	0.11 J	0.19	0.1	0.13	07/25/02
Nickel	UG/L	77	690	83	105	79%	0		0		1.7	0.7 J	7.7	0.6	1.9	07/25/02
Potassium	UG/L			105	105	100%					5530	2570	9700	0	0	09/25/02
Sodium	UG/L			105	105	100%					37900	14200	61200	0	0	10/18/02
Vanadium	UG/L			2	105	2%					0.32	0.74 J	0.98 J	0.3	1.8	05/16/02
Zinc	UG/L	170	170	105	105	100%	1	1%	1	1%	85.7	10.7 J	505	0	0	09/25/02
SW-04-TT Unfiltered																
Aluminum	UG/L	87	750	10	134	7%	10	7%	0		110	154 J	292	52.9	461	05/16/02
Antimony	UG/L			3	134	2%					1.2	1.9 J	2.2 J	1.2	5.3	05/16/02, 05/16/02
Arsenic	UG/L	150	340	134	134	100%	0		0		33.2	5.8 J	116	0	0	05/16/02
Barium	UG/L			134	134	100%					34.6	14.4	654	0	0	05/16/02
Beryllium	UG/L			7	134	5%					0.15	0.1 J	0.32 J	0.1	1.2	10/18/02
Cadmium	UG/L	0.34	3.1	7	134	5%	3	2%	0		0.19	0.32 J	0.42 J	0.2	0.54	10/18/02
Calcium	UG/L			134	134	100%					38600	13900	58600	0	0	08/31/02
Chromium	UG/L	110	830	125	134	93%	0		0		4.3	1.4	11.7	2.5	5	09/25/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-04-TT Unfiltered (cont.)																
Cobalt	UG/L			70	134	52%					1.2	0.67 J	3.1	0.6	3	07/25/02, 10/18/02
Copper	UG/L	13	21	108	134	81%	10	7%	1	1%	8.7	3	129	4.4	8.5	08/31/02
Iron	UG/L	1000		134	134	100%	132	99%			2970	713	6420	0	0	10/18/02
Lead	UG/L	4.1	110	69	134	51%	29	22%	0		3.8	1.1 J	72.4	1.1	6.9	10/18/02
Magnesium	UG/L			134	134	100%					5490	1930	8420	0	0	10/18/02
Manganese	UG/L			134	134	100%					383	170	615	0	0	10/18/02
Mercury	UG/L	0.77	1.4	17	107	16%	1	1%	1	1%	0.079	0.1 J	2	0.1	0.12	05/16/02
Nickel	UG/L	77	690	106	134	79%	0		0		2	0.98	19.4	0.9	3.2	10/18/02
Potassium	UG/L			134	134	100%					5500	2030 J	9280	0	0	09/25/02
Selenium	UG/L	5		3	134	2%	0				1.4	1.6 J	3.7 J	1.7	4.7	05/16/02
Silver	UG/L		7.1	2	134	1%			0		0.34	0.64 J	1.3 J	0.5	0.8	10/18/02
Sodium	UG/L			134	134	100%					38500	11800 J	61800	0	0	10/18/02
Vanadium	UG/L			69	134	51%					0.88	0.41 J	2.3	0.4	2.5	05/16/02
Zinc	UG/L	170	170	134	134	100%	18	13%	18	13%	144	39.9	2250 J	0	0	10/18/02
Total Suspended Solids	MG/L			99	105	94%					12	5.5 J	26.4 J	5	5	07/25/02
SW-05-TT Filtered																
Antimony	UG/L			1	6	17%					1.6	2.8 J	2.8 J	1.9	3.7	05/15/02
Arsenic	UG/L	150	340	3	6	50%	0		0		3.5	2.2 J	12.6	2.5	3	05/15/02
Barium	UG/L			6	6	100%					25	18.2	31.4	0	0	09/25/02
Calcium	UG/L			6	6	100%					26100	18600	34700	0	0	09/25/02
Chromium	UG/L	110	830	3	6	50%	0		0		1.2	1.4	1.9	1.3	1.8	10/18/02
Cobalt	UG/L			1	6	17%					0.56	1.8	1.8	0.44	0.7	10/18/02
Copper	UG/L	13	21	1	6	17%	0		0		2.2	4.5	4.5	2.3	4.3	09/25/02
Iron	UG/L	1000		5	6	83%	0				300	60.7	968	88.4	88.4	05/15/02
Magnesium	UG/L			6	6	100%					3960	2820	5240	0	0	10/18/02
Manganese	UG/L			6	6	100%					192	70.3	498	0	0	10/18/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-05-TT Filtered (cont.)																
Nickel	UG/L	77	690	4	6	67%	0		0		1.4	1.4 J	2.2	1.3	1.4	10/18/02
Potassium	UG/L			6	6	100%					4020	2740	5660	0	0	09/25/02
Sodium	UG/L			6	6	100%					34700	23600	43600	0	0	04/26/02
Vanadium	UG/L			1	6	17%					0.41	1.1 J	1.1 J	0.3	0.89	10/18/02
Zinc	UG/L	170	170	5	6	83%	0		0		50.7	42.6 J	78.8	42.3	42.3	08/31/02
SW-05-TT Unfiltered																
Antimony	UG/L			1	6	17%					1.8	3.9	3.9	1.7	3.9	09/25/02
Arsenic	UG/L	150	340	6	6	100%	0		0		15.3	11.5	23.3	0	0	05/15/02
Barium	UG/L			6	6	100%					30.4	23.2	40.7	0	0	09/25/02
Calcium	UG/L			6	6	100%					26300	19700	34600	0	0	09/25/02
Chromium	UG/L	110	830	5	6	83%	0		0		7	4.2	12.1	2.6	2.6	04/26/02
Cobalt	UG/L			1	6	17%					0.97	2.2	2.2	0.75	2.4	10/18/02
Copper	UG/L	13	21	3	6	50%	0		0		7.1	8.4	12.8 J	6.3	10.5	04/26/02
Iron	UG/L	1000		6	6	100%	6	100%			1650	1150	2210	0	0	05/15/02
Lead	UG/L	4.1	110	3	6	50%	3	50%	0		3.6	4.4	6 J	2.5	6.4	07/25/02
Magnesium	UG/L			6	6	100%					4000	3020	5230	0	0	09/25/02
Manganese	UG/L			6	6	100%					238	124	529	0	0	10/18/02
Mercury	UG/L	0.77	1.4	1	6	17%	0		0		0.063	0.13 J	0.13 J	0.1	0.1	05/15/02
Nickel	UG/L	77	690	3	6	50%	0		0		1.7	1.5	3	0.9	3.3	10/18/02
Potassium	UG/L			6	6	100%					3910	2930	5060 J	0	0	09/25/02
Sodium	UG/L			6	6	100%					36400	24400	44800	0	0	04/26/02
Vanadium	UG/L			2	6	33%					1.2	1.1	2.6	0.67	2.3	07/25/02
Zinc	UG/L	170	170	6	6	100%	0		0		78.8	53.9 J	108	0	0	08/31/02
Total Suspended Solids	MG/L			6	6	100%					6.9	3 J	15.7	0	0	04/26/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-06-TT Filtered																
Antimony	UG/L			1	6	17%					1.6	1.7 J	1.7 J	1.2	4.9	07/25/02
Arsenic	UG/L	150	340	5	6	83%	0		0		4.2	2.5 J	11.8	2.5	2.5	05/15/02
Barium	UG/L			6	6	100%					27.4	22	34.3	0	0	09/25/02
Calcium	UG/L			6	6	100%					27600	21200	36100	0	0	09/25/02
Chromium	UG/L	110	830	4	6	67%	0		0		1.7	1.9	2.9	1.2	1.7	04/26/02
Copper	UG/L	13	21	4	6	67%	1	17%	1	17%	12	4.2	51.7	4.7	6.1	04/26/02
Iron	UG/L	1000		4	6	67%	0				346	211	790	91.9	116	05/15/02
Magnesium	UG/L			6	6	100%					4330	3090	5330	0	0	09/25/02
Manganese	UG/L			6	6	100%					153	97.9	255	0	0	10/18/02
Nickel	UG/L	77	690	3	6	50%	0		0		1.2	1.2 J	2.1	0.9	2.1	09/25/02
Potassium	UG/L			6	6	100%					4270	3280	6190	0	0	09/25/02
Sodium	UG/L			6	6	100%					43400	30100	60200	0	0	04/26/02
Zinc	UG/L	170	170	6	6	100%	0		0		47.2	33 J	60.5	0	0	08/31/02
SW-06-TT Unfiltered																
Aluminum	UG/L	87	750	4	6	67%	4	67%	0		317	281	513	224	230	04/26/02
Antimony	UG/L			1	6	17%					1.5	3.9	3.9	1.5	2.6	09/25/02
Arsenic	UG/L	150	340	6	6	100%	0		0		19.9	15.2	25.5	0	0	09/25/02, 10/18/02
Barium	UG/L			6	6	100%					34.2	24.4	47.9	0	0	09/25/02
Calcium	UG/L			6	6	100%					27500	19400	35000	0	0	09/25/02
Chromium	UG/L	110	830	5	6	83%	0		0		14.3	8	24.2	11.2	11.2	10/18/02
Cobalt	UG/L			2	6	33%					1.1	1.3 J	2.1	0.57	3.3	10/18/02
Copper	UG/L	13	21	5	6	83%	3	50%	2	33%	30.6	10.9	112 J	11.9	11.9	04/26/02
Iron	UG/L	1000		6	6	100%	6	100%			2460	1540	3400	0	0	10/18/02
Lead	UG/L	4.1	110	3	6	50%	3	50%	0		8.9	11.9	16.2	7.1	7.9	10/18/02
Magnesium	UG/L			6	6	100%					4440	2870	5590	0	0	09/25/02
Manganese	UG/L			6	6	100%					307	177	490	0	0	10/18/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-06-TT Unfiltered (cont.)																
Mercury	UG/L	0.77	1.4	2	6	33%	0		0		0.08	0.12 J	0.16 J	0.1	0.1	10/18/02
Nickel	UG/L	77	690	3	6	50%	0		0		1.9	1.4 J	3.3	1.7	4.4	10/18/02
Potassium	UG/L			6	6	100%					4140	3010	5290 J	0	0	09/25/02
Sodium	UG/L			6	6	100%					44300	27300	64300	0	0	04/26/02
Vanadium	UG/L			2	6	33%					1.3	2.1	2.1	1.1	3.5	04/26/02, 10/18/02
Zinc	UG/L	170	170	6	6	100%	0		0		88.6	63.4	118	0	0	10/18/02
Total Suspended Solids	MG/L			6	6	100%					17.6	8 J	30.4	0	0	04/26/02
SW-07-TT Filtered																
Arsenic	UG/L	150	340	4	6	67%	0		0		3	1.4 J	7.7	2	2.5	05/15/02
Barium	UG/L			6	6	100%					24.1	17.9	28.8	0	0	07/25/02
Calcium	UG/L			6	6	100%					22900	19300	25500	0	0	07/25/02
Chromium	UG/L	110	830	3	6	50%	0		0		1.2	1.5 J	2.2	0.82	1.7	04/26/02
Cobalt	UG/L			1	6	17%					0.34	0.74 J	0.74 J	0.4	0.7	10/18/02
Copper	UG/L	13	21	3	6	50%	1	17%	0		6.4	4.6	20.3	4.5	5.5	04/26/02
Iron	UG/L	1000		5	6	83%	0				236	74.2 J	722	49.5	49.5	05/15/02
Lead	UG/L	4.1	110	1	6	17%	0		0		0.92	2.5	2.5	0.7	2	05/15/02
Magnesium	UG/L			6	6	100%					3620	3150	4230	0	0	10/18/02
Manganese	UG/L			6	6	100%					98.3	27.5	164	0	0	04/26/02
Nickel	UG/L	77	690	3	6	50%	0		0		0.88	1 J	1.3 J	1	1.6	05/15/02
Potassium	UG/L			6	6	100%					3520	3140	3880	0	0	09/25/02, 10/18/02
Sodium	UG/L			6	6	100%					38000	29000	44300	0	0	04/26/02
Vanadium	UG/L			1	6	17%					0.36	0.88 J	0.88 J	0.4	0.84	10/18/02
Zinc	UG/L	170	170	6	6	100%	0		0		35.8	20.8 J	43.6	0	0	08/31/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-07-TT Unfiltered																
Aluminum	UG/L	87	750	2	6	33%	2	33%	0		227	386	651	115	288	04/26/02
Antimony	UG/L			1	6	17%					1.2	1.2 J	1.2 J	1.6	3	09/25/02
Arsenic	UG/L	150	340	6	6	100%	0		0		9.7	4.8 J	18.1	0	0	05/15/02
Barium	UG/L			6	6	100%					28.6	25.2	31.4	0	0	10/18/02
Calcium	UG/L			6	6	100%					23000	19300	25600	0	0	07/25/02
Chromium	UG/L	110	830	4	6	67%	0		0		5.8	3 J	13.2	3.3	4	04/26/02
Cobalt	UG/L			1	6	17%					0.56	1.5	1.5	0.4	1.8	10/18/02
Copper	UG/L	13	21	5	6	83%	1	17%	1	17%	15.8	6.5	51.7 J	8.4	8.4	04/26/02
Iron	UG/L	1000		6	6	100%	3	50%			1450	777	2520	0	0	04/26/02
Lead	UG/L	4.1	110	4	6	67%	3	50%	0		7	3.5	17	3.7	5.7	04/26/02
Magnesium	UG/L			6	6	100%					3680	3050	4250	0	0	10/18/02
Manganese	UG/L			6	6	100%					181	114	308	0	0	04/26/02
Mercury	UG/L	0.77	1.4	1	6	17%	0		0		0.06	0.11 J	0.11 J	0.1	0.1	10/18/02
Nickel	UG/L	77	690	3	6	50%	0		0		1.4	1.2 J	2.4	0.92	2.7	10/18/02
Potassium	UG/L			6	6	100%					3550	2980	3910 J	0	0	09/25/02
Sodium	UG/L			6	6	100%					38000	29200	46700	0	0	04/26/02
Vanadium	UG/L			3	6	50%					1.3	0.56 J	2.9	0.64	2.3	04/26/02
Zinc	UG/L	170	170	6	6	100%	0		0		65	36.2 J	111	0	0	04/26/02
Total Suspended Solids	MG/L			6	6	100%					10.6	4 J	33.2	0	0	04/26/02
SW-08-TT Filtered																
Antimony	UG/L			3	87	3%					1.2	1.7 J	2.6 J	1.2	7.2	05/16/02
Arsenic	UG/L	150	340	42	87	48%	0		0		2.2	1.6 J	9.9	1.3	3	05/16/02
Barium	UG/L			87	87	100%					26.3	11.8	69.8	0	0	05/16/02
Calcium	UG/L			87	87	100%					21800	8970	42400	0	0	07/25/02
Chromium	UG/L	110	830	47	87	54%	0		0		0.94	0.51	2.8	0.4	1.7	04/26/02, 10/18/02
Cobalt	UG/L			1	87	1%					0.32	2.4	2.4	0.4	0.95	05/16/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-08-TT Filtered (cont.)																
Copper	UG/L	13	21	24	87	28%	5	6%	2	2%	3.8	1.7 J	27.3	2.8	11.8	04/26/02
Iron	UG/L	1000		58	87	67%	0				187	56.2	726	8.6	168	05/16/02
Lead	UG/L	4.1	110	29	87	33%	1	1%	0		1.4	0.73 J	31.7	0.7	5.1	08/31/02
Magnesium	UG/L			87	87	100%					3500	1430	7220	0	0	07/25/02
Manganese	UG/L			84	87	97%					97.5	2	1920	1.4	1.8	05/16/02
Mercury	UG/L	0.77	1.4	2	83	2%	0		0		0.052	0.1 J	0.1 J	0.1	0.17	09/25/02, 09/25/02
Nickel	UG/L	77	690	27	87	31%	0		0		0.73	0.65 J	1.6	0.6	2.3	07/25/02
Potassium	UG/L			87	87	100%					3390	1340	5310	0	0	04/26/02
Selenium	UG/L	5		3	87	3%	0				1.4	2.3 J	2.6 J	1.7	3.3	05/16/02
Silver	UG/L		7.1	2	87	2%			0		0.33	0.61 J	1 J	0.5	0.91	07/25/02
Sodium	UG/L			87	87	100%					38400	17500 J	77600	0	0	04/26/02
Vanadium	UG/L			5	87	6%					0.33	0.46 J	0.85 J	0.3	1.3	10/18/02
Zinc	UG/L	170	170	79	87	91%	0		0		21.8	6.6 J	45.9	9.1	22.4	04/26/02
SW-08-TT Unfiltered																
Aluminum	UG/L	87	750	51	88	58%	50	57%	18	20%	1490	85.7 J	58300	57.7	357	05/16/02
Antimony	UG/L			2	87	2%					1.2	2.6 J	2.7 J	1.2	9.7	05/16/02
Arsenic	UG/L	150	340	85	88	97%	2	2%	1	1%	15.6	3	427 J	3	3	05/16/02
Barium	UG/L			88	88	100%					59	14.5	1490	0	0	05/16/02
Beryllium	UG/L			1	88	1%					0.17	1.7	1.7	0.1	3.7	05/16/02
Cadmium	UG/L	0.34	3.1	4	88	5%	4	5%	2	2%	0.63	0.4 J	25.5 J	0.2	1.2	05/16/02
Calcium	UG/L			88	88	100%					22600	9140	54700	0	0	05/16/02
Chromium	UG/L	110	830	70	88	80%	2	2%	1	1%	26.7	1.5 J	1070	1.4	14.4	05/16/02
Cobalt	UG/L			20	88	23%					1.9	0.73 J	71.4 J	0.4	3.1	05/16/02
Copper	UG/L	13	21	72	88	82%	37	42%	20	23%	39.6	3.7	1320	2.6	19.8	05/16/02
Iron	UG/L	1000		88	88	100%	69	78%			4330	493	145000	0	0	05/16/02
Lead	UG/L	4.1	110	65	88	74%	62	70%	2	2%	38.5	3	1420	1.8	6.9	05/16/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-08-TT Unfiltered (cont.)																
Magnesium	UG/L			88	88	100%					3990	1620	23300	0	0	05/16/02
Manganese	UG/L			88	88	100%					478	78.2	14600	0	0	05/16/02
Mercury	UG/L	0.77	1.4	25	83	30%	1	1%	1	1%	0.12	0.1 J	3.7	0.1	0.1	05/16/02
Nickel	UG/L	77	690	52	88	59%	1	1%	0		3.2	0.72 J	105 J	0.6	7.3	05/16/02
Potassium	UG/L			88	88	100%					3590	1610 J	12000	0	0	05/16/02
Selenium	UG/L	5		3	88	3%	1	1%			1.5	3.4 J	10.2 J	1.7	9.5	05/16/02
Silver	UG/L		7.1	3	88	3%			0		0.36	0.69 J	2.6	0.5	0.8	05/16/02
Sodium	UG/L			88	88	100%					38400	15300 J	80000	0	0	04/26/02
Vanadium	UG/L			42	88	48%					4.9	0.8 J	170	0.7	3	05/16/02
Zinc	UG/L	170	170	88	88	100%	5	6%	5	6%	153	9.2 J	5070	0	0	05/16/02
Total Suspended Solids	MG/L			81	82	99%					60.7	5.6 J	1980 J	4	4	05/16/02
SW-09-TT Filtered																
Antimony	UG/L			1	6	17%					1.6	4 J	4 J	1.2	4.8	05/15/02
Arsenic	UG/L	150	340	4	6	67%	0		0		2	1 J	3.6	2	3	09/25/02
Barium	UG/L			6	6	100%					32.5	29.9	34.1	0	0	04/26/02, 09/25/02
Cadmium	UG/L	0.34	3.1	1	6	17%	0		0		0.18	0.3 J	0.3 J	0.2	0.4	04/26/02
Calcium	UG/L			6	6	100%					31000	30000	34300	0	0	04/26/02
Copper	UG/L	13	21	1	6	17%	0		0		1.8	2.6	2.6	2.6	3.8	08/31/02
Magnesium	UG/L			6	6	100%					5220	4950	5640	0	0	04/26/02
Manganese	UG/L			3	6	50%					7.5	1.1	34.5	0.47	0.5	05/15/02
Nickel	UG/L	77	690	1	6	17%	0		0		0.53	0.66 J	0.66 J	0.6	1.7	07/25/02
Potassium	UG/L			6	6	100%					4360	3580	5600	0	0	04/26/02
Sodium	UG/L			6	6	100%					74600	60100	108000	0	0	04/26/02
Vanadium	UG/L			1	6	17%					0.32	0.38 J	0.38 J	0.4	1.1	07/25/02
Zinc	UG/L	170	170	1	6	17%	0		0		3.2	3 J	3 J	0.7	16.4	07/25/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-09-TT Unfiltered																
Antimony	UG/L			1	6	17%					1.2	2.5 J	2.5 J	1.2	2.8	05/15/02
Arsenic	UG/L	150	340	3	6	50%	0		0		2.6	2 J	4.2	2	9.3	09/25/02
Barium	UG/L			6	6	100%					34.7	32.2	36	0	0	09/25/02
Cadmium	UG/L	0.34	3.1	1	6	17%	1	17%	0		0.2	0.38 J	0.38 J	0.2	0.4	04/26/02
Calcium	UG/L			6	6	100%					31400	30200	34600	0	0	04/26/02
Chromium	UG/L	110	830	1	6	17%	0		0		0.4	0.6 J	0.6 J	0.4	1.2	04/26/02
Copper	UG/L	13	21	1	6	17%	0		0		2.2	3.5	3.5	3.2	4.6	08/31/02
Iron	UG/L	1000		4	6	67%	0				138	77.8 J	234	99.1	136	05/15/02
Lead	UG/L	4.1	110	2	6	33%	0		0		0.84	1 J	1.3 J	0.7	2.3	08/31/02
Magnesium	UG/L			6	6	100%					5300	4970	5740	0	0	10/18/02
Manganese	UG/L			6	6	100%					47.7	22.7	72.4	0	0	05/15/02
Nickel	UG/L	77	690	2	6	33%	0		0		0.68	0.55 J	1.4 J	0.77	1.6	05/15/02
Potassium	UG/L			6	6	100%					4450	3690 J	5640	0	0	04/26/02
Sodium	UG/L			6	6	100%					76000	63600	109000	0	0	04/26/02
Vanadium	UG/L			2	6	33%					0.52	0.62 J	0.93 J	0.4	1.3	08/31/02
Zinc	UG/L	170	170	3	6	50%	0		0		23.3	2.4 J	115 J	3.2	16.5	05/15/02
Total Suspended Solids	MG/L			5	6	83%					3.7	2.6 J	4.9 J	5	5	07/25/02
SW-10-TT Filtered																
Arsenic	UG/L	150	340	1	6	17%	0		0		1.3	2.2 J	2.2 J	1.3	3	08/31/02
Barium	UG/L			6	6	100%					37.8	35.6	42.8	0	0	10/18/02
Calcium	UG/L			6	6	100%					31300	28900	34200	0	0	04/26/02
Chromium	UG/L	110	830	3	6	50%	0		0		0.6	0.56 J	1	0.4	1.2	05/15/02
Copper	UG/L	13	21	2	6	33%	0		0		1.4	1.1 J	1.7 J	1.8	3.7	09/25/02
Magnesium	UG/L			6	6	100%					6080	5730	7000	0	0	10/18/02
Manganese	UG/L			2	6	33%					1.6	0.32 J	7.8	0.33	1.7	04/26/02
Nickel	UG/L	77	690	2	6	33%	0		0		0.6	0.52 J	0.81 J	0.9	1.6	07/25/02

TABLE 4-5f (cont,)
STUDY AREA SURFACE WATER STORM FLOW METALS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-10-TT Filtered (cont.)																
Potassium	UG/L			6	6	100%					4650	4090	5810	0	0	04/26/02
Silver	UG/L		7.1	1	6	17%			0		0.36	0.55 J	0.55 J	0.5	0.8	05/15/02
Sodium	UG/L			6	6	100%					77900	55500 J	116000	0	0	04/26/02
SW-10-TT Unfiltered																
Arsenic	UG/L	150	340	1	6	17%	0		0		1.4	2.8 J	2.8 J	1.3	3	08/31/02
Barium	UG/L			6	6	100%					39.9	35.3	46	0	0	10/18/02
Calcium	UG/L			6	6	100%					31200	29400	33100	0	0	10/18/02
Chromium	UG/L	110	830	4	6	67%	0		0		0.88	0.78 J	2	0.4	0.99	04/26/02
Copper	UG/L	13	21	1	6	17%	0		0		1.7	2.1 J	2.1 J	2.5	5.1	08/31/02
Iron	UG/L	1000		1	6	17%	0				52.7	123	123	49.8	124	10/18/02
Lead	UG/L	4.1	110	1	6	17%	0		0		0.72	1.1 J	1.1 J	0.7	2.3	08/31/02
Magnesium	UG/L			6	6	100%					6040	5550	7230	0	0	10/18/02
Manganese	UG/L			6	6	100%					24.6	10.9	55.4	0	0	10/18/02
Mercury	UG/L	0.77	1.4	1	6	17%	0		0		0.058	0.1 J	0.1 J	0.1	0.1	09/25/02
Nickel	UG/L	77	690	2	6	33%	0		0		1.2	1.4 J	3.2 J	0.9	1.9	08/31/02
Potassium	UG/L			6	6	100%					4650	4120 J	5580	0	0	04/26/02
Sodium	UG/L			6	6	100%					78000	59200	111000	0	0	04/26/02
Vanadium	UG/L			1	6	17%					0.46	1 J	1 J	0.4	1.6	09/25/02
Total Suspended Solids	MG/L			5	6	83%					3.8	2.2 J	6.8	2	2	04/26/02

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Zero values are shown when there are no non-detects for the parameter in that group.

(4) Ambient Water Quality Criteria (AWQC) Criteria Maximum Concentration (CMC) -acute exposure criteria (EPA, 2002a)

(5) AWQC Criteria Continuous Concentration (CCC) - chronic exposure criteria (EPA, 2002a)

TABLE 4-5g
HALLS BROOK HOLDING AREA SURFACE WATER BASE FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-1-IP Unfiltered																
Metals																
Arsenic	UG/L	150	340	2	4	50%	0		0		3.2	3.6 J	6.3 B	2.5	3.5	12/18/00
Chromium	UG/L	110	830	4	4	100%	0		0		8.2	1.7 B	17.1	0	0	12/18/00
Lead	UG/L	4.1	110	3	4	75%	1	25%	0		7.1	2.5 B	21.6	2	2	12/18/00
Mercury	UG/L	0.77	1.4	1	4	25%	0		0		0.062	0.1	0.1	0.1	0.1	04/05/01
Total Suspended Solids	MG/L			2	4	50%					6.6	8	13.6	5	5	12/18/00
Semi-Volatile Organic Compounds																
Acenaphthylene	UG/L			1	3	33%					4	0.5 J	0.5 J	12	12	12/18/00
bis(2-Ethylhexyl)phthalate	UG/L			2	3	67%					3	1 JB	2 JB	12	12	10/05/00
Cyclohexanone	UG/L			1	2	50%					4	1 J	1 J	12	12	12/18/00
Fluoranthene	UG/L			1	3	33%					4	0.6 J	0.6 J	12	12	12/18/00
Phenanthrene	UG/L			1	3	33%					4	0.4 J	0.4 J	12	12	12/18/00
Pyrene	UG/L			1	3	33%					4	0.4 J	0.4 J	12	12	12/18/00
SW-4-IP/HBHA-1 Unfiltered																
Metals																
Aluminum	UG/L	87	750	1	3	33%	1	33%	0		51.5	107	107	37.3	57.7	04/05/01
Arsenic	UG/L	150	340	15	15	100%	0		0		15.7	6.9 J	23	0	0	09/18/00
Arsenic (dissolved)	UG/L	150	340	13	15	87%	0		0		8.4	5	14	2.5	3.1	04/17/01
Barium	UG/L			3	3	100%					30.2	27	36.6	0	0	04/05/01
Cadmium	UG/L	0.34	3.1	2	3	67%	2	67%	0		1.2	0.64	1.2	3.4	3.4	10/05/00
Calcium	UG/L			1	3	33%					13900	41800	41800	32	45	10/05/00
Chromium	UG/L	110	830	14	15	93%	0		0		1.8	1.2	2.5	1.8	1.8	03/29/01, 06/26/01
Chromium (dissolved)	UG/L	110	830	10	12	83%	0		0		1.3	1	2.2	1	1	06/26/01
Cobalt	UG/L			1	3	33%					0.87	1.2 J	1.2 J	1.4	1.4	10/05/00
Copper	UG/L	13	21	3	3	100%	2	67%	2	67%	18.9	11.8	23.1	0	0	10/05/00

TABLE 4-5g (cont.)
HALLS BROOK HOLDING AREA SURFACE WATER BASE FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-4-IP/HBHA-1 Unfiltered (cont.)																
Iron	UG/L	1000		15	15	100%	14	93%			1570	966	2500	0	0	09/18/00
Lead	UG/L	4.1	110	7	15	47%	0		0		1.8	2.2	3.8	1.3	2	06/26/01
Lead (dissolved)	UG/L	4.1	110	3	12	25%	0		0		1.3	2	2.8	2	2	06/26/01
Magnesium	UG/L			1	3	33%					2090	6280	6280	4	6	10/05/00
Manganese	UG/L			3	3	100%					318	235	408	0	0	08/29/00
Mercury	UG/L	0.77	1.4	1	15	7%	0		0		0.053	0.1	0.1	0.1	0.1	08/21/01
Nickel	UG/L	77	690	3	3	100%	0		0		2.1	1.6 J	2.4 , J	0	0	04/05/01, 10/05/00
Potassium	UG/L			3	3	100%					2720	6 J	8150	0	0	10/05/00
Sodium	UG/L			3	3	100%					47900	42700	56100	0	0	04/05/01
Vanadium	UG/L			1	3	33%					0.4	0.55 J	0.55 J	0.3	1	04/05/01
Zinc	UG/L	170	170	3	3	100%	3	100%	3	100%	276	231	334	0	0	04/05/01
Total Suspended Solids	MG/L			1	15	7%					2.7	5.5	5.5	5	5	09/18/00
Dissolved Oxygen	UG/L			11	11	100%					150	50	300	0	0	09/18/00, 10/16/00
Semi-Volatile Organic Compounds																
Benzoic acid	UG/L			1	1	100%					69	69 J	69 J	0	0	10/05/00
Cyclohexanone	UG/L			1	2	50%					150	290 J	290 J	12	12	08/29/00
Phenol	UG/L			1	2	50%					6	7 J	7 J	12	12	08/29/00
Volatile Organic Compounds																
Toluene	UG/L			2	12	17%					0.6	1	1	1	1	02/13/01, 03/29/01

TABLE 4-5g (cont.)
HALLS BROOK HOLDING AREA SURFACE WATER BASE FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-9-IP/HBHA-2 Unfiltered																
Metals																
Aluminum	UG/L	87	750	2	4	50%	1	25%	0		94.4	62.2	204	50.7	172	12/18/00
Arsenic	UG/L	150	340	15	16	94%	0		0		15	6.4	25	3.5	3.5	08/21/01
Arsenic (dissolved)	UG/L	150	340	15	16	94%	0		0		8.1	3.8 J	17	3.1	3.1	06/26/01
Barium	UG/L			4	4	100%					30.1	26	34.9	0	0	04/05/01
Cadmium	UG/L	0.34	3.1	1	4	25%	1	25%	0		0.33	0.47 J	0.47 J	0.2	1	04/05/01
Calcium	UG/L			1	4	25%					10700	42600	42600	32	43	10/05/00
Chromium	UG/L	110	830	14	16	88%	0		0		6.7	1.7	42	1.6	2	08/21/01
Chromium (dissolved)	UG/L	110	830	10	12	83%	0		0		1.3	1.1	2.5	1	1	06/26/01
Cobalt	UG/L			1	4	25%					2	6.5	6.5	0.98	1.2	12/18/00
Copper	UG/L	13	21	2	4	50%	1	25%	0		9.1	13	16.2	6.6	7.9	04/05/01
Iron	UG/L	1000		16	16	100%	14	88%			2130	883	3600	0	0	06/26/01
Lead	UG/L	4.1	110	14	16	88%	1	6%	0		2.6	2	5	1.8	2	08/21/01
Lead (dissolved)	UG/L	4.1	110	1	12	8%	0		0		2.6	2.7	2.7	2	20	06/26/01
Magnesium	UG/L			2	4	50%					2820	4710	6580	5	6	10/05/00
Manganese	UG/L			4	4	100%					353	183	488	0	0	08/29/00
Nickel	UG/L	77	690	3	4	75%	0		0		1.9	1.9 J	2.9 J	1.5	1.5	12/18/00
Potassium	UG/L			4	4	100%					4190	6 J	8750	0	0	12/18/00
Sodium	UG/L			4	4	100%					57000	44300	81200	0	0	12/18/00
Vanadium	UG/L			2	4	50%					0.67	0.56 J	0.63	1	2	08/29/00
Zinc	UG/L	170	170	3	4	75%	2	50%	2	50%	172	160	284	115	115	04/05/01
Total Suspended Solids	MG/L			4	16	25%					3.8	6.4	9.8 J	5	5	07/31/01
Dissolved Oxygen	UG/L			12	12	100%					125	100	200	0	0	03/29/01, 09/18/00, 10/16/00

TABLE 4-5g (cont.)
HALLS BROOK HOLDING AREA SURFACE WATER BASE FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-9-IP/HBHA-2 Unfiltered (cont.)																
Semi-Volatile Organic Compounds																
Cyclohexanone	UG/L			1	3	33%					37	100 J	100 J	10	14	08/29/00
Di-n-octylphthalate	UG/L			1	3	33%					4	0.3 J	0.3 J	11	14	12/18/00
Fluoranthene	UG/L			1	3	33%					4	0.6 J	0.6 J	11	14	12/18/00
Phenol	UG/L			1	3	33%					6	6 J	6 J	10	14	08/29/00
Pyrene	UG/L			1	3	33%					4	0.4 J	0.4 J	11	14	12/18/00

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Zero values are shown when there are no non-detects for the parameter in that group.

(4) Ambient Water Quality Criteria (AWQC) Criteria Maximum Concentration (CMC) -acute exposure criteria (EPA, 2002a)

(5) AWQC Criteria Continuous Concentration (CCC) - chronic exposure criteria (EPA, 2002a)

TABLE 4-5h
HALLS BROOK HOLDING AREA SURFACE WATER STORM FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	AWQC CCC (Chronic) Criteria [4]	AWQC CMC (Acute) Criteria [5]	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances [4]		AWQC CMC (Acute) Exceedances [5]		Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-1-IP Unfiltered																
Metals																
Arsenic	UG/L	150	340	4	5	80%	0		0		3.6	2.8 B	6.2 B	2.5	2.5	10/19/00
Chromium	UG/L	110	830	5	5	100%	0		0		10.6	1.5 B	33.3	0	0	03/22/01
Lead	UG/L	4.1	110	3	5	60%	2	40%	0		10.9	1.3 B	34.9	2	2	03/22/01
Total Suspended Solids	MG/L			2	5	40%					19.2	25.5	62.8	5	5	03/22/01
Semi-Volatile Organic Compounds																
Anthracene	UG/L			2	6	33%					4	0.06 J	0.3 J	10	11	03/22/01
Benzo(a)pyrene	UG/L			1	6	17%					4	0.1 J	0.1 J	10	11	05/24/01
Benzo(b)fluoranthene	UG/L			1	6	17%					4	0.1 J	0.1 J	10	11	05/24/01
Benzo(k)fluoranthene	UG/L			1	6	17%					4	0.1 J	0.1 J	10	11	05/24/01
bis(2-Ethylhexyl)phthalate	UG/L			3	5	60%					3	1 JB	3 JB	10	11	09/15/00
Diethylphthalate	UG/L			2	6	33%					4	0.2 J	0.9 J	10	11	05/24/01
Fluoranthene	UG/L			2	6	33%					4	0.2 J	0.3 J	10	11	09/15/00
Fluorene	UG/L			1	6	17%					4	0.2 J	0.2 J	10	11	03/22/01
Naphthalene	UG/L			1	6	17%					4	0.1 J	0.1 J	10	11	05/24/01
Phenanthrene	UG/L			1	6	17%					4	0.2 J	0.2 J	10	11	05/24/01
Pyrene	UG/L			2	6	33%					4	0.2 J	0.3 J	10	11	09/15/00
SW-2-IP Unfiltered																
Metals																
Arsenic	UG/L	150	340	1	5	20%	0		0		1.8	3.6 B	3.6 B	2	3.5	10/19/00
Chromium	UG/L	110	830	2	5	40%	0		0		1.5	1.2	5 B	1	1	10/19/00
Lead	UG/L	4.1	110	2	5	40%	2	40%	0		4	4.8	12.5	1.8	2	09/02/00
Total Suspended Solids	MG/L			2	5	40%					8.2	12	21.6	5	5	03/22/01

TABLE 4-5h (cont.)
HALLS BROOK HOLDING AREA SURFACE WATER STORM FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-2-IP Unfiltered (cont.)																
Semi-Volatile Organic Compounds																
bis(2-Ethylhexyl)phthalate	UG/L			3	5	60%					3	1 JB	2 JB	10	13	05/24/01, 09/15/00
Cyclohexanone	UG/L			1	5	20%					11	31	31	10	13	05/24/01
Diethylphthalate	UG/L			3	6	50%					3	0.5 JB	1 J	10	13	03/22/01, 05/24/01
Naphthalene	UG/L			1	6	17%					5	0.1 J	0.1 J	10	13	05/24/01
Phenanthrene	UG/L			1	6	17%					5	0.1 J	0.1 J	10	13	05/24/01
Pyrene	UG/L			1	6	17%					5	0.1 J	0.1 J	10	13	05/24/01
SW-3-IP Unfiltered																
Metals																
Arsenic	UG/L	150	340	5	5	100%	0		0		11.7	5.8 B	22	0	0	03/22/01
Arsenic (dissolved)	UG/L	150	340	4	5	80%	0		0		6.1	3.7 B	10.6	2.5	2.5	03/22/01
Chromium	UG/L	110	830	4	5	80%	0		0		1.7	1.2 B	3.6	1	1	03/22/01
Lead	UG/L	4.1	110	3	5	60%	0		0		2.5	3 J	3.9	1.3	2	10/06/00
Total Suspended Solids	MG/L			2	5	40%					9.6	5	35.6	5	5	03/22/01
Semi-Volatile Organic Compounds																
Acenaphthylene	UG/L			1	6	17%					6	10	10	10	13	10/06/00
bis(2-Ethylhexyl)phthalate	UG/L			3	5	60%					3	1 JB	2 JB	10	10	09/15/00
Fluoranthene	UG/L			1	6	17%					4	0.2 J	0.2 J	10	11	05/24/01
Pyrene	UG/L			1	6	17%					4	0.1 J	0.1 J	10	11	05/24/01
SW-4-IP Unfiltered																
Metals																
Aluminum	UG/L	87	750	1	2	50%	1	50%	0		75.8	116	116	71	71	09/15/00
Arsenic	UG/L	150	340	2	2	100%	0		0		40.3	30.5	50.1	0	0	09/15/00
Arsenic (dissolved)	UG/L	150	340	2	2	100%	0		0		6.6	2.3 J	10.8	0	0	10/19/00

TABLE 4-5h (cont.)
HALLS BROOK HOLDING AREA SURFACE WATER STORM FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-4-IP Unfiltered (cont.)																
Metals (cont.)																
Barium	UG/L			1	2	50%					20.7	27.6	27.6	27.5	27.5	09/15/00
Cadmium	UG/L	0.34	3.1	2	2	100%	2	100%	0		1.2	0.7 J	1.8	0	0	09/15/00
Chromium	UG/L	110	830	1	2	50%	0		0		2.3	3.8	3.8	1.7	1.7	09/15/00
Cobalt	UG/L			2	2	100%					1.8	1.5 J	2 J	0	0	09/15/00
Iron	UG/L	1000		2	2	100%	2	100%			3930	2520	5340	0	0	09/15/00
Lead	UG/L	4.1	110	1	2	50%	0		0		1.8	1.8 J	1.8 J	3.4	3.4	09/15/00
Manganese	UG/L			2	2	100%					426	359	492	0	0	09/15/00
Nickel	UG/L	77	690	1	2	50%	0		0		2.1	3.1 J	3.1 J	2.1	2.1	09/15/00
Potassium	UG/L			2	2	100%					7360	6760	7960	0	0	09/15/00
Sodium	UG/L			2	2	100%					39800	39600	40100	0	0	09/15/00
Vanadium	UG/L			1	2	50%					0.85	1.2 J	1.2 J	1	1	09/15/00
Zinc	UG/L	170	170	2	2	100%	1	50%	1	50%	191	157	225	0	0	10/19/00
Total Suspended Solids	MG/L			2	2	100%					13.4	7.5	19.2	0	0	09/15/00
Semi-Volatile Organic Compounds																
Benzoic acid	UG/L			1	3	33%					19	1 J	1 J	57	57	05/24/01
Cyclohexanone	UG/L			1	4	25%					11	26	26	10	11	09/15/00
Diethylphthalate	UG/L			2	4	50%					3	0.1 J	0.2 J	11	11	09/15/00
Di-n-butylphthalate	UG/L			1	4	25%					4	0.2 J	0.2 J	10	11	05/24/01
SW-5-IP Unfiltered																
Metals																
Arsenic	UG/L	150	340	1	5	20%	0		0		5.1	19.8	19.8	2.5	3.5	09/02/00
Arsenic (dissolved)	UG/L	150	340	1	5	20%	0		0		5.3	20.8	20.8	2.5	3.5	09/02/00
Chromium	UG/L	110	830	4	5	80%	0		0		5.5	1.4 B	14	1	1	03/22/01

TABLE 4-5h (cont.)
HALLS BROOK HOLDING AREA SURFACE WATER STORM FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-5-IP Unfiltered (cont.)																
Metals (cont.)																
Lead	UG/L	4.1	110	5	5	100%	4	80%	0		16.8	3.2	34.1	0	0	10/06/00
Mercury	UG/L	0.77	1.4	1	5	20%	0		0		0.062	0.11 B	0.11 B	0.1	0.1	03/22/01
Total Suspended Solids	MG/L			4	5	80%					25.9	9.3	87.2	5	5	03/22/01
Semi-Volatile Organic Compounds																
bis(2-Ethylhexyl)phthalate	UG/L			3	5	60%					4	2 JB	2 JB	12	12	05/24/01, 09/02/00, 09/15/00
Cyclohexanone	UG/L			1	5	20%					5	0.6 J	0.6 J	10	13	03/22/01
Di-n-octylphthalate	UG/L			1	1	100%					2	2 J	2 J	0	0	10/19/00
SW-6-IP Unfiltered																
Metals																
Arsenic	UG/L	150	340	2	5	40%	0		0		3.8	6.8 B	8.4	2.5	2.5	03/22/01
Arsenic (dissolved)	UG/L	150	340	2	4	50%	0		0		3.1	3 B	7 B	2.5	2.5	09/02/00
Chromium	UG/L	110	830	1	5	20%	0		0		5.2	23.8	23.8	1	1	03/22/01
Lead	UG/L	4.1	110	4	5	80%	2	40%	0		15.1	1.9 B	63.1	2	2	03/22/01
Total Suspended Solids	MG/L			3	5	60%					74.6	8	351	5	5	03/22/01
Semi-Volatile Organic Compounds																
Benzo(a)anthracene	UG/L			2	4	50%					4	0.4 J	0.7 J	14	16	09/15/00
Benzo(a)pyrene	UG/L			2	4	50%					4	0.6 J	1 J	14	16	09/15/00
Benzo(b)fluoranthene	UG/L			2	4	50%					4	1 J	2 J	14	16	09/15/00
Benzo(g,h,i)perylene	UG/L			2	4	50%					4	0.6 J	0.9 J	14	16	09/15/00
Benzo(k)fluoranthene	UG/L			2	4	50%					4	1 J	2 J	14	16	09/15/00
bis(2-Ethylhexyl)phthalate	UG/L			2	4	50%					4	1 JB	2 JB	11	14	09/15/00
Chrysene	UG/L			3	4	75%					3	0.6 J	2 J	14	14	09/15/00

TABLE 4-5h (cont.)
HALLS BROOK HOLDING AREA SURFACE WATER STORM FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-6-IP Unfiltered (cont.)																
Metals (cont.)																
Fluoranthene	UG/L			4	4	100%					2	1 J	3 J	0	0	09/15/00
Indeno(1,2,3-cd)pyrene	UG/L			2	4	50%					4	0.6 J	0.9 J	14	16	09/15/00
Phenanthrene	UG/L			3	4	75%					2	0.3 J	1 J	14	14	09/15/00
Pyrene	UG/L			4	4	100%					1	0.7 J	3 J	0	0	09/15/00
SW-7-IP Unfiltered																
Metals																
Arsenic	UG/L	150	340	1	5	20%	0		0		2.5	7.7	7.7	2	2.5	03/22/01
Arsenic (dissolved)	UG/L	150	340	1	5	20%	0		0		1.7	3.7 B	3.7 B	2	2.5	03/22/01
Chromium	UG/L	110	830	3	5	60%	0		0		2.7	1.7 B	7	1	1	03/22/01
Lead	UG/L	4.1	110	4	5	80%	3	60%	0		7	2.6 B	12.6	1.3	1.3	03/22/01
Total Suspended Solids	MG/L			4	5	80%					22.7	6	65.8	5	5	03/22/01
Semi-Volatile Organic Compounds																
Acenaphthylene	UG/L			1	6	17%					5	2 J	2 J	10	12	09/15/00
Benzo(a)anthracene	UG/L			2	6	33%					4	0.5 J	0.8 J	10	12	09/15/00
Benzo(a)pyrene	UG/L			2	6	33%					4	1 J	1 J	10	12	05/24/01, 09/15/00
Benzo(b)fluoranthene	UG/L			3	6	50%					4	0.6 J	2 J	10	12	05/24/01, 09/15/00
Benzo(g,h,i)perylene	UG/L			2	6	33%					4	1 J	2 J	10	12	09/15/00
Benzo(k)fluoranthene	UG/L			3	6	50%					4	0.5 J	2 J	10	12	05/24/01, 09/15/00
bis(2-Ethylhexyl)phthalate	UG/L			3	6	50%					4	1 JB	5 JB	10	12	09/15/00
Chrysene	UG/L			3	6	50%					4	0.7 J	3 J	10	12	09/15/00
Cyclohexanone	UG/L			1	5	20%					8	16	16	10	12	03/22/01
Dibenzo(a,h)anthracene	UG/L			1	6	17%					5	0.4 J	0.4 J	10	12	03/22/01
Diethylphthalate	UG/L			1	6	17%					5	0.3 J	0.3 J	10	12	03/22/01
Fluoranthene	UG/L			4	6	67%					3	0.7 J	4 J	10	12	05/24/01, 09/15/00

TABLE 4-5h (cont.)
HALLS BROOK HOLDING AREA SURFACE WATER STORM FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-7-IP Unfiltered (cont.)																
Semi-Volatile Organic Compounds (cont.)																
Indeno(1,2,3-cd)pyrene	UG/L			2	6	33%					4	1 J	2 J	10	12	09/15/00
Phenanthrene	UG/L			2	6	33%					4	0.4 J	2 J	10	12	09/15/00
Pyrene	UG/L			4	6	67%					3	0.5 J	4 J	10	12	09/15/00
SW-8-IP Unfiltered																
Metals																
Chromium	UG/L	110	830	4	4	100%	0		0		4.7	3.2 B	6.6 B	0	0	10/06/00
Lead	UG/L	4.1	110	4	4	100%	3	75%	0		8.5	3.6	17.2	0	0	10/06/00
Total Suspended Solids	MG/L			3	4	75%					17.6	6	46	5	5	10/06/00
Semi-Volatile Organic Compounds																
Acenaphthylene	UG/L			1	5	20%					5	0.1 J	0.1 J	10	14	05/24/01
Anthracene	UG/L			1	5	20%					5	0.2 J	0.2 J	10	14	05/24/01
Benzo(a)anthracene	UG/L			1	5	20%					5	0.6 J	0.6 J	10	14	05/24/01
Benzo(a)pyrene	UG/L			1	5	20%					5	1 J	1 J	10	14	05/24/01
Benzo(b)fluoranthene	UG/L			1	5	20%					5	1 J	1 J	10	14	05/24/01
Benzo(g,h,i)perylene	UG/L			1	5	20%					5	1 J	1 J	10	14	05/24/01
Benzo(k)fluoranthene	UG/L			1	5	20%					5	1 J	1 J	10	14	05/24/01
bis(2-Ethylhexyl)phthalate	UG/L			5	5	100%					5	2 JB	8 J	0	0	10/06/00
Chrysene	UG/L			1	5	20%					5	1 J	1 J	10	14	05/24/01
Cyclohexanone	UG/L			1	4	25%					4	1 J	1 J	10	12	05/24/01
Dibenzo(a,h)anthracene	UG/L			1	5	20%					5	0.4 J	0.4 J	10	14	05/24/01
Diethylphthalate	UG/L			1	5	20%					5	0.3 J	0.3 J	10	14	05/24/01
Fluoranthene	UG/L			4	5	80%					2	0.3 J	2 JB	14	14	05/24/01
Indeno(1,2,3-cd)pyrene	UG/L			1	5	20%					5	1 J	1 J	10	14	05/24/01

TABLE 4-5h (cont.)
HALLS BROOK HOLDING AREA SURFACE WATER STORM FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-8-IP Unfiltered (cont.)																
Semi-Volatile Organic Compounds (cont.)																
Phenanthrene	UG/L			1	5	20%					5	1 J	1 J	10	14	05/24/01
Pyrene	UG/L			4	5	80%					2	0.3 J	2 JB	14	14	05/24/01
SW-9-IP Unfiltered																
Metals																
Aluminum	UG/L	87	750	3	5	60%	2	40%	0		85.1	42.2	163	55.9	181	03/22/01
Arsenic	UG/L	150	340	5	6	83%	0		0		14.7	9.3	22	3.5	3.5	09/02/00
Arsenic (dissolved)	UG/L	150	340	4	5	80%	0		0		5.1	2 J	10.8	2.5	2.5	10/19/00
Barium	UG/L			3	5	60%					22	26.7	30.4	25.5	25.7	09/02/00
Calcium	UG/L			1	5	20%					4970	24800	24800	33	42	03/22/01
Chromium	UG/L	110	830	5	6	83%	0		0		2.4	1.7 J	4.2	4.2	4.2	09/02/00
Cobalt	UG/L			2	5	40%					0.81	1 J	1.4	1	1.3	09/02/00
Iron	UG/L	1000		5	5	100%	5	100%			1730	1140	2400	0	0	09/02/00
Lead	UG/L	4.1	110	3	6	50%	0		0		2	2.5 J	3.3 J	2	3.1	03/22/01
Magnesium	UG/L			1	5	20%					1220	3560	3560	5	5090	03/22/01
Manganese	UG/L			5	5	100%					300	219	426	0	0	09/02/00
Nickel	UG/L	77	690	2	5	40%	0		0		1.5	1.4 J	2.4 J	1.5	3	09/15/00
Potassium	UG/L			4	5	80%					5660	6200	6880	4780	4780	09/15/00
Silver	UG/L		7.1	1	5	20%			0		0.6	1 B	1 B	1	1	03/22/01
Sodium	UG/L			5	5	100%					37700	31800	46300 J	0	0	03/22/01
Zinc	UG/L	170	170	5	5	100%	2	40%	2	40%	151	82.2 J	198	0	0	10/19/00
Total Suspended Solids	MG/L			5	6	83%					5.9	5	8.5	5	5	09/02/00

TABLE 4-5h (cont.)
HALLS BROOK HOLDING AREA SURFACE WATER STORM FLOW DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Date of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
SW-9-IP Unfiltered (cont.)																
Semi-Volatile Organic Compounds (cont.)																
Anthracene	UG/L			1	6	17%					5	0.1 J	0.1 J	10	12	03/22/01
Benzoic acid	UG/L			1	3	33%					18	0.9 J	0.9 J	50	57	05/24/01
bis(2-Ethylhexyl)phthalate	UG/L			1	6	17%					24	120	120	10	12	09/02/00
Cyclohexanone	UG/L			2	6	33%					13	21	35	10	11	05/24/01
Diethylphthalate	UG/L			3	6	50%					3	0.2 J	0.3 J	10	11	05/24/01, 09/02/00
Di-n-butylphthalate	UG/L			1	6	17%					4	0.2 J	0.2 J	10	12	05/24/01
Fluoranthene	UG/L			1	6	17%					4	0.2 J	0.2 J	10	12	05/24/01
Pyrene	UG/L			1	6	17%					4	0.2 J	0.2 J	10	12	05/24/01

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Zero values are shown when there are no non-detects for the parameter in that group.

(4) Ambient Water Quality Criteria (AWQC) Criteria Maximum Concentration (CMC) -acute exposure criteria (EPA, 2002a)

(5) AWQC Criteria Continuous Concentration (CCC) - chronic exposure criteria (EPA, 2002a)

TABLE 4-5i
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	AWQC CCC (Chronic) Criteria [4]	AWQC CMC (Acute) Criteria [5]	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances [4]		AWQC CMC (Acute) Exceedances [5]		Average Conc. [2]	Detected Concentrations		Detection Limits of Non-Detects [3]		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Reference Stations																
Unfiltered Metals																
Aluminum	UG/L	87	750	10	12	83%	7	58%	1	8%	292	21.3	2500	23.5	29.2	SW-MC-01-0
Arsenic	UG/L	150	340	8	12	67%	0		0		2.9	1.1 J	15.7 J	1	1.7	SW-MC-01-0
Barium	UG/L			12	12	100%					30.5	15.4	64	0	0	SW-MC-01-0
Calcium	UG/L			12	12	100%					25700	17700	37000	0	0	SW-24-01
Chromium	UG/L	110	830	4	12	33%	0		0		2.8	0.34	9 J	0.25	9	SW-MC-03-7.7-D
Cobalt	UG/L			2	12	17%					1.5	3 J	7.1 J	0.5	3	SW-MC-01-0
Copper	UG/L	13	21	9	12	75%	1	8%	0		2.5	0.45	13.8	0.35	1.4	SW-MC-01-0
Iron	UG/L	1000		12	12	100%	8	67%			2460	116	15800	0	0	SW-MC-01-0
Lead	UG/L	4.1	110	8	12	67%	3	25%	0		6.4	0.96	51.4	0.74	0.75	SW-MC-01-0
Magnesium	UG/L			12	12	100%					4430	2050	5950	0	0	SW-24-01
Manganese	UG/L			12	12	100%					417	46.3	1960	0	0	SW-MC-01-0
Mercury	UG/L	0.77	1.4	5	12	42%	0		0		0.063	0.097	0.13	0.04	0.087	SW-24-01
Nickel	UG/L	77	690	10	12	83%	0		0		1.5	0.66	6.5	0.5	1.2	SW-MC-01-0
Potassium	UG/L			6	6	100%					4140	1080	6260	0	0	SW-24-01
Selenium	UG/L	5		1	12	8%	0				0.82	1.6 J	1.6 J	1.1	1.9	SW-MC-04-0
Sodium	UG/L			6	6	100%					57100	42200	88300	0	0	SW-26-01-091195
Vanadium	UG/L			7	12	58%					2.3	0.81	12	0.55	2.6	SW-MC-01-0
Zinc	UG/L	170	170	7	12	58%	0		0		11.9	2 J	71.7	1.5	9	SW-MC-01-0
Filtered Metals																
Arsenic	UG/L	150	340	1	6	17%	0		0		1.3	3 J	3 J	2	2	SW-MC-03-0-S
Barium	UG/L			6	6	100%					22.1	18	26	0	0	SW-MC-03-7.7-D
Calcium	UG/L			6	6	100%					26600	22000	33500	0	0	SW-MC-02-0-AVG
Iron	UG/L	1000		6	6	100%	1	17%			642	240	1060 J	0	0	SW-MC-02-0-AVG
Lead	UG/L	4.1	110	3	6	50%	0		0		0.75	1 J	1 J	1	1	SW-MC-03-0-S, SW-MC-03-7.7-D, SW-MC-12-0
Magnesium	UG/L			6	6	100%					4630	4200	5000	0	0	SW-MC-01-0
Manganese	UG/L			6	6	100%					286	140	490	0	0	SW-MC-01-0
Zinc	UG/L	170	170	1	6	17%	0		0		6.5	14 J	14 J	10	10	SW-MC-03-7.7-D
Metals Speciation																
Arsenic	UG/L	150	340	6	6	100%	0		0		3.5	1	12.8	0	0	SW-MC-01-0
Arsenic (III)	UG/L			2	2	100%					0.75	0.509	0.986	0	0	SW-MC-03-0-S
Arsenic (V)	UG/L			2	2	100%					0.58	0.264	0.901	0	0	SW-MC-03-7.7-D
Total Inorganic As	UG/L			2	2	100%					1.3	1.25	1.41	0	0	SW-MC-03-7.7-D
Total Organic As	UG/L			2	2	100%					1.1	0.66	1.62	0	0	SW-MC-03-0-S

TABLE 4-5i (cont.)
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Reference Stations (cont.)																
Semi-Volatile Organic Compounds																
bis(2-Ethylhexyl)phthalate	UG/L			1	12	8%					2	3 J	3 J	4	5	SW-MC-03-7.7-D
Pesticide/PCBs																
4,4'-DDD	UG/L			1	12	8%					0.028	0.0092	0.0092	0.008	0.1	SW-MC-02-0-AVG
4,4'-DDE	UG/L			1	12	8%					0.028	0.0092	0.0092	0.008	0.1	SW-MC-02-0-AVG
4,4'-DDT	UG/L	0.001	1.1	1	12	8%	1	8%	0		0.028	0.0092	0.0092	0.008	0.1	SW-MC-02-0-AVG
Aldrin	UG/L		3	1	12	8%			0		0.015	0.0092	0.0092	0.008	0.05	SW-MC-02-0-AVG
alpha-BHC	UG/L			1	12	8%					0.015	0.0092	0.0092	0.008	0.05	SW-MC-02-0-AVG
alpha-Chlordane	UG/L	0.0043		1	12	8%	1	8%			0.015	0.0092	0.0092	0.008	0.05	SW-MC-02-0-AVG
beta-BHC	UG/L			1	12	8%					0.015	0.0092	0.0092	0.008	0.05	SW-MC-02-0-AVG
delta-BHC	UG/L			1	12	8%					0.015	0.0092	0.0092	0.008	0.05	SW-MC-02-0-AVG
Dieldrin	UG/L	0.056	0.24	1	12	8%	0		0		0.028	0.0092	0.0092	0.008	0.1	SW-MC-02-0-AVG
Endosulfan I	UG/L	0.056	0.22	1	12	8%	0		0		0.015	0.0092	0.0092	0.008	0.05	SW-MC-02-0-AVG
Endosulfan II	UG/L	0.056	0.22	1	12	8%	0		0		0.028	0.0092	0.0092	0.008	0.1	SW-MC-02-0-AVG
Endosulfan Sulfate	UG/L			1	12	8%					0.028	0.0092	0.0092	0.008	0.1	SW-MC-02-0-AVG
Endrin	UG/L	0.036	0.086	1	12	8%	0		0		0.028	0.0092	0.0092	0.008	0.1	SW-MC-02-0-AVG
Endrin Aldehyde	UG/L			1	12	8%					0.028	0.0092	0.0092	0.008	0.1	SW-MC-02-0-AVG
Endrin Ketone	UG/L			1	12	8%					0.028	0.0092	0.0092	0.008	0.1	SW-MC-02-0-AVG
gamma-BHC	UG/L		0.95	1	12	8%			0		0.015	0.0092	0.0092	0.008	0.05	SW-MC-02-0-AVG
gamma-Chlordane	UG/L	0.0043		2	12	17%	1	8%			0.013	0.0017 J	0.0092	0.008	0.05	SW-MC-02-0-AVG
Heptachlor	UG/L	0.0038	0.52	1	12	8%	1	8%	0		0.015	0.0092	0.0092	0.008	0.05	SW-MC-02-0-AVG
Heptachlor Epoxide	UG/L	0.0038	0.52	1	12	8%	1	8%	0		0.015	0.0092	0.0092	0.008	0.05	SW-MC-02-0-AVG
Methoxychlor	UG/L			1	12	8%					0.14	0.046	0.046	0.042	0.5	SW-MC-02-0-AVG
Toxaphene	UG/L	0.0002	0.73	1	12	8%	1	8%	0		1.3	0.092	0.092	0.083	5	SW-MC-02-0-AVG
Wet Analysis																
Alkalinity	MG/L			6	6	100%					41.8	21	53	0	0	SW-24-01
Chloride	MG/L			6	6	100%					101	75.4	166	0	0	SW-26-01-091195
Dissolved Organic Carbon	MG/L			6	6	100%					6	4.6	8.2	0	0	SW-23-01
Hardness	MG/L			6	6	100%					87.1	70.3	105	0	0	SW-MC-01-0
Nitrate-Nitrite (as N)	MG/L			6	6	100%					0.1	0.01	0.38	0	0	SW-27-01-091295
Sulfate	MG/L			6	6	100%					28	10	73	0	0	SW-24-01
Total Dissolved Solids	MG/L			6	6	100%					268	202	398	0	0	SW-24-01
Total Organic Carbon	MG/L			6	6	100%					7.7	3.89	10.3	0	0	SW-MC-01-0
Total Suspended Solids	MG/L			10	12	83%					10.3	1	64	2	2	SW-MC-01-0

TABLE 4-5i (cont.)
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Entire Study Area																
Unfiltered Metals																
Aluminum	UG/L	87	750	21	29	72%	12	41%	1	3%	185	27.3	2180	15.9	49.4	SW-10-01
Antimony	UG/L			2	29	7%					3.3	1.3	1.5	1.1	18.3	SW-10-01
Arsenic	UG/L	150	340	25	29	86%	1	3%	1	3%	53.1	2.8	936 J	3.4	13.9	SW-MC-05-10.8-D
Barium	UG/L			29	29	100%					37.4	29.2	58.9	0	0	SW-MC-05-10.8-D
Beryllium	UG/L			4	29	14%					0.071	0.043	0.18	0.035	0.22	SW-10-01
Cadmium	UG/L	0.34	3.1	6	29	21%	3	10%	0		0.35	0.12	2.5	0.099	1.5	SW-10-01
Calcium	UG/L			29	29	100%					71900	28100	302000	0	0	SW-MC-05-10.8-D
Chromium	UG/L	110	830	25	29	86%	1	3%	0		11.1	0.72	146	9	9	SW-10-01
Cobalt	UG/L			12	29	41%					1.4	0.43	5.9 J	0.4	3	SW-MC-07-9.8-D
Copper	UG/L	13	21	29	29	100%	3	10%	1	3%	9.6	1.7	111	0	0	SW-10-01
Iron	UG/L	1000		29	29	100%	22	76%			5980	304	63800	0	0	SW-MC-05-10.8-D
Lead	UG/L	4.1	110	19	29	66%	8	28%	0		5.2	0.93999	75.9 J	0.74	1	SW-10-01
Magnesium	UG/L			29	29	100%					10100	5030	31800	0	0	SW-MC-05-10.8-D
Manganese	UG/L			29	29	100%					592	70.9	1800	0	0	SW-MC-07-9.8-D
Mercury	UG/L	0.77	1.4	8	29	28%	1	3%	0		0.099	0.04 J	0.88	0.04	0.2	SW-10-01
Nickel	UG/L	77	690	29	29	100%	0		0		2.7	0.89	9.3	0	0	SW-MC-05-10.8-D
Potassium	UG/L			19	19	100%					5830	3850	8040	0	0	SW-12-01-083195
Sodium	UG/L			19	19	100%					63300	49000	74100	0	0	SW-14-01-090595
Vanadium	UG/L			25	29	86%					4	0.58	34.2	0.55	1.2	SW-MC-05-10.8-D
Zinc	UG/L	170	170	28	29	97%	8	28%	8	28%	129	10.8	626 J	4	4	SW-10-01
Filtered Metals																
Arsenic	UG/L	150	340	10	10	100%	0		0		18	3 J	120	0	0	SW-MC-05-10.8-D
Barium	UG/L			10	10	100%					30.6	27	38	0	0	SW-MC-13-0
Calcium	UG/L			10	10	100%					114000	54000	340000	0	0	SW-MC-05-10.8-D
Chromium	UG/L	110	830	1	10	10%	0		0		5.5	10 J	10 J	10	10	SW-MC-05-10.8-D
Cobalt	UG/L			1	10	10%					1.8	5 J	5 J	3	3	SW-MC-07-9.8-D
Copper	UG/L	13	21	7	10	70%	0		0		2.8	2 J	4 J	2	2	SW-MC-05-0-S, SW-MC-06-0, SW-MC-07-0-S, SW-MC-08-0, SW-MC-09-0
Iron	UG/L	1000		8	10	80%	2	20%			3580	53	27000	50	50	SW-MC-05-10.8-D
Magnesium	UG/L			10	10	100%					11800	8400	30000	0	0	SW-MC-05-10.8-D
Manganese	UG/L			10	10	100%					785	530	1500	0	0	SW-MC-05-10.8-D
Nickel	UG/L	77	690	3	10	30%	0		0		2	2 J	7	2	2	SW-MC-05-10.8-D
Vanadium	UG/L			1	10	10%					6.4	19	19	10	10	SW-MC-05-10.8-D
Zinc	UG/L	170	170	10	10	100%	6	60%	6	60%	198	21	380	0	0	SW-MC-05-0-S

TABLE 4-5i (cont.)
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Entire Study Area (cont.)																
Metals Speciation																
Arsenic	UG/L	150	340	10	10	100%	1	10%	1	10%	91.6	18.3	614	0	0	SW-MC-05-10.8-D
Arsenic (III)	UG/L			4	4	100%					14.2	1.22	51.9	0	0	SW-MC-05-10.8-D
Arsenic (V)	UG/L			4	4	100%					160	10.4	511	0	0	SW-MC-05-10.8-D
Total Inorganic As	UG/L			4	4	100%					174	11.7	563	0	0	SW-MC-05-10.8-D
Total Organic As	UG/L			3	3	100%					21	4.81	51.5	0	0	SW-MC-05-10.8-D
Semi-Volatile Organic Compounds																
Phenol	UG/L			1	29	3%					2	5	5	4	5	SW-MC-05-10.8-D
Volatile Organic Compounds																
Benzene	UG/L			2	28	7%					10	63	190	1	2	SW-MC-05-10.8-D
Chlorobenzene	UG/L			2	28	7%					0.8	1 J	4	1	2	SW-MC-05-10.8-D
Chloroform	UG/L			1	28	4%					0.7	1 J	1 J	1	2	SW-05-01
cis-1,2-Dichloroethene	UG/L			11	28	39%					2	1 , J	13	1	2	SW-MC-05-10.8-D
m&p-Xylene	UG/L			1	10	10%					2	2 J	2 J	4	4	SW-MC-05-10.8-D
Tetrachloroethene	UG/L			1	28	4%					0.7	2	2	1	2	SW-05-01
Toluene	UG/L			1	28	4%					0.8	4	4	1	2	SW-MC-06-0
Trichloroethene	UG/L			9	28	32%					1	2 , J	4	1	2	SW-MC-05-10.8-D
Vinyl Chloride	UG/L			2	28	7%					0.8	1 J	3	1	2	SW-MC-05-10.8-D
Pesticide/PCBs																
alpha-Chlordane	UG/L	0.0043		1	29	3%	0				0.017	0.0021 J	0.0021 J	0.008	0.05	SW-12-01-083195
Endosulfan II	UG/L	0.056	0.22	1	29	3%	0		0		0.033	0.0015 J	0.0015 J	0.008	0.1	SW-13-01-090595
gamma-Chlordane	UG/L	0.0043		1	29	3%	0				0.017	0.0014 J	0.0014 J	0.008	0.05	SW-11-01
Heptachlor Epoxide	UG/L	0.0038	0.52	3	29	10%	0		0		0.015	0.0011 J	0.0019 J	0.008	0.05	SW-12-01-083195
Methoxychlor	UG/L			1	29	3%					0.16	0.015 J	0.015 J	0.041	0.5	SW-11-01
Wet Analysis																
Alkalinity	MG/L			19	19	100%					83.4	49	138	0	0	SW-14-01-02-090595, SW-14-01-090595
Chloride	MG/L			19	19	100%					103	78.9	114	0	0	SW-14-01-02-090595, SW-14-01-090595, SW-18-01-090795
Dissolved Organic Carbon	MG/L			19	19	100%					7.2	4.9	9.3	0	0	SW-12-01-083095
Hardness	MG/L			10	10	100%					299	166	886	0	0	SW-MC-05-10.8-D
Nitrate-Nitrite (as N)	MG/L			19	19	100%					2	0.62	5.1	0	0	SW-08-01
Sulfate	MG/L			19	19	100%					131	35	252	0	0	SW-14-01-02-090595

TABLE 4-5i (cont.)
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Entire Study Area (cont.)																
Wet Analysis (cont.)																
Total Dissolved Solids	MG/L			19	19	100%					460	219	935	0	0	SW-01-01
Total Organic Carbon	MG/L			10	10	100%					8.9	4	20	0	0	SW-MC-07-9.8-D
Total Suspended Solids	MG/L			25	29	86%					16.6	2	130	2	3	SW-MC-07-9.8-D
Reach 0																
Unfiltered Metals																
Aluminum	UG/L	87	750	4	9	44%	3	33%	0		72	84.8 B	200	15.9	49.4	SW-MC-09-0
Arsenic	UG/L	150	340	9	9	100%	1	11%	1	11%	138	23.3 J	936 J	0	0	SW-MC-05-10.8-D
Barium	UG/L			9	9	100%					38.3	29.5	58.9	0	0	SW-MC-05-10.8-D
Cadmium	UG/L	0.34	3.1	2	9	22%	2	22%	0		0.5	0.87 J	0.92 J	0.78	0.78	SW-MC-05-0-S
Calcium	UG/L			9	9	100%					104000	60700	302000	0	0	SW-MC-05-10.8-D
Chromium	UG/L	110	830	5	9	56%	0		0		9.3	9 J	19.6 J	9	9	SW-MC-05-10.8-D
Cobalt	UG/L			2	9	22%					2.2	3 J	5.9 J	3	3	SW-MC-07-9.8-D
Copper	UG/L	13	21	9	9	100%	0		0		6.3	2.4 J	11.9	0	0	SW-MC-09-0
Iron	UG/L	1000		9	9	100%	9	100%			15600	1020	63800	0	0	SW-MC-05-10.8-D
Lead	UG/L	4.1	110	6	9	67%	1	11%	0		1.7	1.1 J	4.6 J	1	1	SW-MC-09-0
Magnesium	UG/L			9	9	100%					13000	8400	31800	0	0	SW-MC-05-10.8-D
Manganese	UG/L			9	9	100%					872	578	1800	0	0	SW-MC-07-9.8-D
Nickel	UG/L	77	690	9	9	100%	0		0		4.1	2.5 J	9.3	0	0	SW-MC-05-10.8-D
Vanadium	UG/L			9	9	100%					9.6	3.4 J	34.2	0	0	SW-MC-05-10.8-D
Zinc	UG/L	170	170	9	9	100%	7	78%	7	78%	260	76.3	392	0	0	SW-MC-05-0-S
Filtered Metals																
Arsenic	UG/L	150	340	9	9	100%	0		0		19.4	3 J	120	0	0	SW-MC-05-10.8-D
Barium	UG/L			9	9	100%					29.8	27	37	0	0	SW-MC-05-10.8-D
Calcium	UG/L			9	9	100%					121000	79000	340000	0	0	SW-MC-05-10.8-D
Chromium	UG/L	110	830	1	9	11%	0		0		5.6	10 J	10 J	10	10	SW-MC-05-10.8-D
Cobalt	UG/L			1	9	11%					1.9	5 J	5 J	3	3	SW-MC-07-9.8-D
Copper	UG/L	13	21	7	9	78%	0		0		3	2 J	4 J	2	2	SW-MC-05-0-S, SW-MC-06-0, SW-MC-07-0-S, SW-MC-08-0, SW-MC-09-0
Iron	UG/L	1000		7	9	78%	2	22%			3950	53	27000	50	50	SW-MC-05-10.8-D
Magnesium	UG/L			9	9	100%					12200	8400	30000	0	0	SW-MC-05-10.8-D
Manganese	UG/L			9	9	100%					787	530	1500	0	0	SW-MC-05-10.8-D
Nickel	UG/L	77	690	3	9	33%	0		0		2.1	2 J	7	2	2	SW-MC-05-10.8-D
Vanadium	UG/L			1	9	11%					6.6	19	19	10	10	SW-MC-05-10.8-D
Zinc	UG/L	170	170	9	9	100%	6	67%	6	67%	218	42	380	0	0	SW-MC-05-0-S

TABLE 4-5i (cont.)
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Reach 0 (cont.)																
Metals Speciation																
Arsenic	UG/L	150	340	9	9	100%	1	11%	1	11%	99.6	18.3	614	0	0	SW-MC-05-10.8-D
Arsenic (III)	UG/L			4	4	100%					14.2	1.22	51.9	0	0	SW-MC-05-10.8-D
Arsenic (V)	UG/L			4	4	100%					160	10.4	511	0	0	SW-MC-05-10.8-D
Total Inorganic As	UG/L			4	4	100%					174	11.7	563	0	0	SW-MC-05-10.8-D
Total Organic As	UG/L			3	3	100%					21	4.81	51.5	0	0	SW-MC-05-10.8-D
Semi-Volatile Organic Compounds																
Phenol	UG/L			1	9	11%					2	5	5	4	5	SW-MC-05-10.8-D
Volatile Organic Compounds																
Benzene	UG/L			2	9	22%					29	63	190	2	2	SW-MC-05-10.8-D
Chlorobenzene	UG/L			2	9	22%					1	1 J	4	2	2	SW-MC-05-10.8-D
cis-1,2-Dichloroethene	UG/L			7	9	78%					3	1 J	13	2	2	SW-MC-05-10.8-D
m&p-Xylene	UG/L			1	9	11%					2	2 J	2 J	4	4	SW-MC-05-10.8-D
Toluene	UG/L			1	9	11%					1	4	4	2	2	SW-MC-06-0
Trichloroethene	UG/L			6	9	67%					2	2 J	4	2	2	SW-MC-05-10.8-D
Vinyl Chloride	UG/L			2	9	22%					1	1 J	3	2	2	SW-MC-05-10.8-D
Wet Analysis																
Hardness	MG/L			9	9	100%					313	187	886	0	0	SW-MC-05-10.8-D
Total Organic Carbon	MG/L			9	9	100%					9	4	20	0	0	SW-MC-07-9.8-D
Total Suspended Solids	MG/L			5	9	56%					27.4	2	130	2	3	SW-MC-07-9.8-D
Reach 1																
Unfiltered Metals																
Aluminum	UG/L	87	750	6	9	67%	3	33%	1	11%	309	37.9	2180	31.1	38.7	SW-10-01
Antimony	UG/L			1	9	11%					1.6	1.5	1.5	1.1	18.3	SW-10-01
Arsenic	UG/L	150	340	9	9	100%	0		0		23.6	11.6	77.1	0	0	SW-10-01
Barium	UG/L			9	9	100%					37.8	31.2	54.4	0	0	SW-10-01
Beryllium	UG/L			1	9	11%					0.067	0.18	0.18	0.035	0.22	SW-10-01
Cadmium	UG/L	0.34	3.1	2	9	22%	1	11%	0		0.39	0.16	2.5	0.1	0.78	SW-10-01
Calcium	UG/L			9	9	100%					76300	52400	87300	0	0	SW-14-01-090595
Chromium	UG/L	110	830	9	9	100%	1	11%	0		21.5	2.2	146	0	0	SW-10-01
Cobalt	UG/L			7	9	78%					1.4	0.68999	4.8	1.5	3	SW-10-01
Copper	UG/L	13	21	9	9	100%	2	22%	1	11%	17.5	2.8 J	111	0	0	SW-10-01
Iron	UG/L	1000		9	9	100%	8	89%			2350	972	8470	0	0	SW-10-01
Lead	UG/L	4.1	110	5	9	56%	2	22%	0		10.4	0.93999	75.9 J	0.74	0.85	SW-10-01
Magnesium	UG/L			9	9	100%					10900	8600	12100	0	0	SW-12-01-083195

TABLE 4-5i (cont.)
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Reach 1 (cont.)																
Unfiltered Metals (cont.)																
Manganese	UG/L			9	9	100%					517	316	749	0	0	SW-MC-13-0
Mercury	UG/L	0.77	1.4	3	9	33%	1	11%	0		0.17	0.12	0.88	0.04	0.095	SW-10-01
Nickel	UG/L	77	690	9	9	100%	0		0		2.8	2	6.2	0	0	SW-10-01
Potassium	UG/L			8	8	100%					7360	5970	8040	0	0	SW-12-01-083195
Sodium	UG/L			8	8	100%					69600	66000	74100	0	0	SW-14-01-090595
Vanadium	UG/L			8	9	89%					2.1	0.71	7.4	0.55	0.55	SW-10-01
Zinc	UG/L	170	170	9	9	100%	1	11%	1	11%	109	27.4 J	626 J	0	0	SW-10-01
Filtered Metals																
Arsenic	UG/L	150	340	1	1	100%	0		0		5	5	5	0	0	SW-MC-13-0
Barium	UG/L			1	1	100%					38	38	38	0	0	SW-MC-13-0
Calcium	UG/L			1	1	100%					54000	54000	54000	0	0	SW-MC-13-0
Iron	UG/L	1000		1	1	100%	0				230	230	230	0	0	SW-MC-13-0
Magnesium	UG/L			1	1	100%					8800	8800	8800	0	0	SW-MC-13-0
Manganese	UG/L			1	1	100%					770	770	770	0	0	SW-MC-13-0
Zinc	UG/L	170	170	1	1	100%	0		0		21	21	21	0	0	SW-MC-13-0
Metals Speciation																
Arsenic	UG/L	150	340	1	1	100%	0		0		20	20	20	0	0	SW-MC-13-0
Semi-Volatile Organic Compounds																
cis-1,2-Dichloroethene	UG/L			1	8	13%					0.6	1	1	1	2	SW-11-01
Pesticide/PCBs																
alpha-Chlordane	UG/L	0.0043		1	9	11%	0				0.02	0.0021 J	0.0021 J	0.009	0.05	SW-12-01-083195
Endosulfan II	UG/L	0.056	0.22	1	9	11%	0		0		0.04	0.0015 J	0.0015 J	0.009	0.1	SW-13-01-090595
gamma-Chlordane	UG/L	0.0043		1	9	11%	0				0.02	0.0014 J	0.0014 J	0.009	0.05	SW-11-01
Heptachlor Epoxide	UG/L	0.0038	0.52	3	9	33%	0		0		0.015	0.0011 J	0.0019 J	0.009	0.05	SW-12-01-083195
Methoxychlor	UG/L			1	9	11%					0.2	0.015 J	0.015 J	0.044	0.5	SW-11-01
Wet Analysis																
Alkalinity	MG/L			8	8	100%					115	81	138	0	0	SW-14-01-02-090595, SW-14-01-090595
Chloride	MG/L			8	8	100%					112	106	114	0	0	SW-14-01-02-090595, SW-14-01-090595, SW-18-01-090795
Dissolved Organic Carbon	MG/L			8	8	100%					8.3	6.9	9.3	0	0	SW-12-01-083095
Hardness	MG/L			1	1	100%					166	166	166	0	0	SW-MC-13-0
Nitrate-Nitrite (as N)	MG/L			8	8	100%					1.6	1	2.6	0	0	SW-12-01-083195

TABLE 4-5i (cont.)
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Reach 1 (cont.)																
Wet Analysis (cont.)																
Sulfate	MG/L			8	8	100%					209	132	252	0	0	SW-14-01-02-090595
Total Dissolved Solids	MG/L			8	8	100%					530	491	598	0	0	SW-12-01-083195
Total Organic Carbon	MG/L			1	1	100%					7.9	7.94	7.94	0	0	SW-MC-13-0
Total Suspended Solids	MG/L			9	9	100%					15.4	2.8	104	0	0	SW-10-01
Reach 2																
Unfiltered Metals																
Aluminum	UG/L	87	750	4	4	100%	2	50%	0		187	40.2	437	0	0	SW-16-01
Arsenic	UG/L	150	340	4	4	100%	0		0		14.5	6.8	23.6	0	0	SW-16-01
Barium	UG/L			4	4	100%					33	29.2	37.4	0	0	SW-16-01
Beryllium	UG/L			2	4	50%					0.045	0.043	0.043	0.093	0.095	SW-16-01, SW-16-01-02
Cadmium	UG/L	0.34	3.1	2	4	50%	0		0		0.48	0.12	0.34	1.4	1.5	SW-16-01
Calcium	UG/L			4	4	100%					54000	49200	57900	0	0	SW-16-01
Chromium	UG/L	110	830	4	4	100%	0		0		7.7	2.2	16.1	0	0	SW-16-01
Cobalt	UG/L			2	4	50%					1.2	1.6	2.2	0.61	1.5	SW-16-01
Copper	UG/L	13	21	4	4	100%	1	25%	0		8.8	3.3	18.1	0	0	SW-16-01
Iron	UG/L	1000		4	4	100%	2	50%			1390	693	2370	0	0	SW-16-01
Lead	UG/L	4.1	110	3	4	75%	2	50%	0		4.4	1.8	10.7 J	0.85	0.85	SW-16-01
Magnesium	UG/L			4	4	100%					8580	8040	9170	0	0	SW-16-01
Manganese	UG/L			4	4	100%					639	356 J	812	0	0	SW-16-01
Mercury	UG/L	0.77	1.4	1	4	25%	0		0		0.12	0.24	0.24	0.11	0.2	SW-16-01
Nickel	UG/L	77	690	4	4	100%	0		0		1.8	1.3	2.4	0	0	SW-16-01
Potassium	UG/L			4	4	100%					5210	4950	5330	0	0	SW-09-01
Sodium	UG/L			4	4	100%					60800	58800	63100	0	0	SW-16-01
Vanadium	UG/L			2	4	50%					1.1	1.3	2	1.1	1.2	SW-16-01
Zinc	UG/L	170	170	4	4	100%	0		0		66.8	37.7	113 J	0	0	SW-16-01
Volatile Organic Compounds																
cis-1,2-Dichloroethene	UG/L			3	4	75%					3	3	4	1	1	SW-16-01, SW-16-01-02
Trichloroethene	UG/L			3	4	75%					2	2	2	1	1	SW-09-01, SW-16-01, SW-16-01-02
Wet Analysis																
Alkalinity	MG/L			4	4	100%					64.8	49	70	0	0	SW-09-01, SW-16-01, SW-16-01-02
Chloride	MG/L			4	4	100%					102	99.5	104	0	0	SW-16-01-02
Dissolved Organic Carbon	MG/L			4	4	100%					5.3	4.9	5.6	0	0	SW-09-01, SW-16-01
Nitrate-Nitrite (as N)	MG/L			4	4	100%					3.5	2.8	5.1	0	0	SW-08-01

TABLE 4-5i (cont.)
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Reach 2 (cont.)																
Wet Analysis (cont.)																
Sulfate	MG/L			4	4	100%					107	87	123	0	0	SW-09-01
Total Dissolved Solids	MG/L			4	4	100%					384	219	450	0	0	SW-16-01
Total Suspended Solids	MG/L			4	4	100%					11.4	3.4	17.5	0	0	SW-16-01
Reach 3																
Unfiltered Metals																
Aluminum	UG/L	87	750	1	1	100%	1	100%	0		129	129	129	0	0	SW-07-01
Antimony	UG/L			1	1	100%					1.3	1.3	1.3	0	0	SW-07-01
Barium	UG/L			1	1	100%					33.9	33.9	33.9	0	0	SW-07-01
Calcium	UG/L			1	1	100%					45300	45300	45300	0	0	SW-07-01
Chromium	UG/L	110	830	1	1	100%	0		0		3.1	3.1	3.1	0	0	SW-07-01
Copper	UG/L	13	21	1	1	100%	0		0		3.6	3.6	3.6	0	0	SW-07-01
Iron	UG/L	1000		1	1	100%	1	100%			1920	1920	1920	0	0	SW-07-01
Lead	UG/L	4.1	110	1	1	100%	1	100%	0		4.3	4.3	4.3	0	0	SW-07-01
Magnesium	UG/L			1	1	100%					7400	7400	7400	0	0	SW-07-01
Manganese	UG/L			1	1	100%					585	585	585	0	0	SW-07-01
Mercury	UG/L	0.77	1.4	1	1	100%	0		0		0.22	0.22 J	0.22 J	0	0	SW-07-01
Nickel	UG/L	77	690	1	1	100%	0		0		1.7	1.7	1.7	0	0	SW-07-01
Potassium	UG/L			1	1	100%					5050	5050	5050	0	0	SW-07-01
Sodium	UG/L			1	1	100%					54500	54500	54500	0	0	SW-07-01
Vanadium	UG/L			1	1	100%					1.9	1.9	1.9	0	0	SW-07-01
Zinc	UG/L	170	170	1	1	100%	0		0		18.9	18.9	18.9	0	0	SW-07-01
Wet Analysis																
Alkalinity	MG/L			1	1	100%					59	59	59	0	0	SW-07-01
Chloride	MG/L			1	1	100%					97.8	97.8	97.8	0	0	SW-07-01
Dissolved Organic Carbon	MG/L			1	1	100%					7.6	7.6	7.6	0	0	SW-07-01
Nitrate-Nitrite (as N)	MG/L			1	1	100%					2.9	2.9	2.9	0	0	SW-07-01
Sulfate	MG/L			1	1	100%					88	88	88	0	0	SW-07-01
Total Dissolved Solids	MG/L			1	1	100%					358	358	358	0	0	SW-07-01
Total Suspended Solids	MG/L			1	1	100%					11.8	11.8	11.8	0	0	SW-07-01
Reach 4																
Unfiltered Metals																
Aluminum	UG/L	87	750	1	1	100%	1	100%	0		199	199	199	0	0	SW-06-01
Barium	UG/L			1	1	100%					32	32	32	0	0	SW-06-01
Calcium	UG/L			1	1	100%					42500	42500	42500	0	0	SW-06-01
Chromium	UG/L	110	830	1	1	100%	0		0		4.3	4.3	4.3	0	0	SW-06-01

TABLE 4-5i (cont.)
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Reach 4 (cont.)																
Unfiltered Metals (cont.)																
Copper	UG/L	13	21	1	1	100%	0		0		5.2	5.2	5.2	0	0	SW-06-01
Iron	UG/L	1000		1	1	100%	1	100%			1180	1180	1180	0	0	SW-06-01
Lead	UG/L	4.1	110	1	1	100%	1	100%	0		5.7	5.7	5.7	0	0	SW-06-01
Magnesium	UG/L			1	1	100%					6830	6830	6830	0	0	SW-06-01
Manganese	UG/L			1	1	100%					504	504	504	0	0	SW-06-01
Nickel	UG/L	77	690	1	1	100%	0		0		1.9	1.9	1.9	0	0	SW-06-01
Potassium	UG/L			1	1	100%					5180	5180	5180	0	0	SW-06-01
Sodium	UG/L			1	1	100%					59800	59800	59800	0	0	SW-06-01
Vanadium	UG/L			1	1	100%					1.5	1.5	1.5	0	0	SW-06-01
Zinc	UG/L	170	170	1	1	100%	0		0		29.8	29.8	29.8	0	0	SW-06-01
Wet Analysis																
Alkalinity	MG/L			1	1	100%					67	67	67	0	0	SW-06-01
Chloride	MG/L			1	1	100%					102	102	102	0	0	SW-06-01
Dissolved Organic Carbon	MG/L			1	1	100%					6	6	6	0	0	SW-06-01
Nitrate-Nitrite (as N)	MG/L			1	1	100%					2.2	2.2	2.2	0	0	SW-06-01
Sulfate	MG/L			1	1	100%					70	70	70	0	0	SW-06-01
Total Dissolved Solids	MG/L			1	1	100%					338	338	338	0	0	SW-06-01
Total Suspended Solids	MG/L			1	1	100%					8.1	8.1	8.1	0	0	SW-06-01
Reach 5																
Unfiltered Metals																
Aluminum	UG/L	87	750	1	1	100%	0		0		27.3	27.3	27.3	0	0	SW-05-01
Barium	UG/L			1	1	100%					50.3	50.3	50.3	0	0	SW-05-01
Calcium	UG/L			1	1	100%					41800	41800	41800	0	0	SW-05-01
Chromium	UG/L	110	830	1	1	100%	0		0		0.85	0.85	0.85	0	0	SW-05-01
Copper	UG/L	13	21	1	1	100%	0		0		1.7	1.7	1.7	0	0	SW-05-01
Iron	UG/L	1000		1	1	100%	0				376	376	376	0	0	SW-05-01
Magnesium	UG/L			1	1	100%					7290	7290	7290	0	0	SW-05-01
Manganese	UG/L			1	1	100%					320	320	320	0	0	SW-05-01
Nickel	UG/L	77	690	1	1	100%	0		0		1.3	1.3	1.3	0	0	SW-05-01
Potassium	UG/L			1	1	100%					4560	4560	4560	0	0	SW-05-01
Sodium	UG/L			1	1	100%					65900	65900	65900	0	0	SW-05-01
Vanadium	UG/L			1	1	100%					0.68	0.68	0.68	0	0	SW-05-01
Zinc	UG/L	170	170	1	1	100%	0		0		10.8	10.8	10.8	0	0	SW-05-01

TABLE 4-5i (cont.)
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Reach 5 (cont.)																
Volatile Organic Compounds																
Chloroform	UG/L			1	1	100%					1	1 J	1 J	0	0	SW-05-01
Tetrachloroethene	UG/L			1	1	100%					2	2	2	0	0	SW-05-01
Wet Analysis																
Alkalinity	MG/L			1	1	100%					71	71	71	0	0	SW-05-01
Chloride	MG/L			1	1	100%					111	111	111	0	0	SW-05-01
Dissolved Organic Carbon	MG/L			1	1	100%					5.7	5.7	5.7	0	0	SW-05-01
Nitrate-Nitrite (as N)	MG/L			1	1	100%					2.1	2.1	2.1	0	0	SW-05-01
Sulfate	MG/L			1	1	100%					48	48	48	0	0	SW-05-01
Total Dissolved Solids	MG/L			1	1	100%					340	340	340	0	0	SW-05-01
Total Suspended Solids	MG/L			1	1	100%					2.6	2.6	2.6	0	0	SW-05-01
Reach 6																
Unfiltered Metals																
Aluminum	UG/L	87	750	4	4	100%	2	50%	0		206	47.7	426	0	0	SW-01-01
Arsenic	UG/L	150	340	3	4	75%	0		0		3.6	2.8	5.2	6.5	6.5	SW-03-01
Barium	UG/L			4	4	100%					37.6	29.6	44.4	0	0	SW-04-01
Beryllium	UG/L			1	4	25%					0.041	0.11	0.11	0.035	0.035	SW-04-01
Calcium	UG/L			4	4	100%					29600	28100	32600	0	0	SW-04-01
Chromium	UG/L	110	830	4	4	100%	0		0		1.7	0.72	3.7	0	0	SW-03-01
Cobalt	UG/L			1	4	25%					0.26	0.43	0.43	0.4	0.4	SW-01-01
Copper	UG/L	13	21	4	4	100%	0		0		4.4	2.2	6.8	0	0	SW-01-01
Iron	UG/L	1000		4	4	100%	1	25%			658	304	1080	0	0	SW-03-01
Lead	UG/L	4.1	110	3	4	75%	1	25%	0		3.4	1.7	7.5 J	0.85	0.85	SW-03-01
Magnesium	UG/L			4	4	100%					5230	5030	5710	0	0	SW-04-01
Manganese	UG/L			4	4	100%					177	70.9	317	0	0	SW-04-01
Mercury	UG/L	0.77	1.4	3	4	75%	0		0		0.068	0.04 J	0.069 J	0.2	0.2	SW-03-01
Nickel	UG/L	77	690	4	4	100%	0		0		1.4	0.89	2	0	0	SW-01-01
Potassium	UG/L			4	4	100%					4040	3850	4160 J	0	0	SW-01-01
Sodium	UG/L			4	4	100%					55400	49000	62600	0	0	SW-01-01
Vanadium	UG/L			3	4	75%					0.86	0.58	1.3	0.55	0.55	SW-01-01, SW-03-01
Zinc	UG/L	170	170	3	4	75%	0		0		22.3	12.4	45.5	4	4	SW-01-01
Wet Analysis																
Alkalinity	MG/L			4	4	100%					51.5	50	53	0	0	SW-04-01
Chloride	MG/L			4	4	100%					86.6	78.9	95.4	0	0	SW-01-01
Dissolved Organic Carbon	MG/L			4	4	100%					7.2	6.8	8	0	0	SW-03-01
Nitrate-Nitrite (as N)	MG/L			4	4	100%					0.88	0.62	1.1	0	0	SW-01-01

TABLE 4-5i (cont.)
STUDY AREA SURFACE WATER SNAP-SHOT DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	AWQC CCC (Chronic) Criteria (4)	AWQC CMC (Acute) Criteria (5)	Detects	Count	Freq. of Det	AWQC CCC (Chronic) Exceedances (4)		AWQC CMC (Acute) Exceedances (5)		Average Conc. (2)	Detected Concentrations		Detection Limits of Non-Detects (3)		Location of Maximum
							No.	Freq.	No.	Freq.		Min	Max	Min	Max	
Reach 6 (cont.)																
Wet Analysis (cont.)																
Sulfate	MG/L			4	4	100%					44.5	35	54	0	0	SW-03-01
Total Dissolved Solids	MG/L			4	4	100%					480	249	935	0	0	SW-01-01
Total Suspended Solids	MG/L			4	4	100%					7.2	3	12	0	0	SW-04-01

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Zero values are shown when there are no non-detects for the parameter in that group.

(4) Ambient Water Quality Criteria (AWQC) Criteria Maximum Concentration (CMC) -acute exposure criteria (EPA, 2002a)

(5) AWQC Criteria Continuous Concentration (CCC) - chronic exposure criteria (EPA, 2002a)

TABLE 4-6a
REFERENCE STATION FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum
						Min	Max	Min	Max	
Metals										
Aluminum	MG/KG	12	104	4.1	8.7	0.13 J	24.4 J	0.48	10	LF-LB-15-O
Antimony	MG/KG	2	101	0.16	0.13	0.084	0.18	0.0014	0.5	LF-LB-26
Arsenic	MG/KG	21	104	0.066	0.12	0.041 B	0.19	0.071	0.41	FI-MC-PP-PSSB-W
Barium	MG/KG	9	104	3.3	3.9	0.06 B	18.3	0.13	10.1	CF-RB-02
Cadmium	MG/KG	27	104	0.15	0.073	0.014 J	0.59	0.0014	0.5	FI-MC-PP-LMB17-L
Calcium	MG/KG	11	47	8570	25900	20500 J	43300	83.5	21100	CF-RB-02
Chromium	MG/KG	34	103	0.37	0.3	0.057 J	1.2	0.072	1	FI-MC-PP-WS8-L
Cobalt	MG/KG	22	104	2.6	0.091	0.0084 J	0.44 J	0.034	10	CF-RB-03
Copper	MG/KG	28	104	3.5	3.5	0.12	33	0.19	10	FI-MC-PP-LMB2-L
Iron	MG/KG	73	104	78.1	108	5.7 J	680	3.5	50	FI-MC-PP-BB1-L, FI-MC-PP-WS1-L
Lead	MG/KG	10	104	0.3	0.28	0.059	1.3 J	0.018	1	LF-LB-15-O
Manganese	MG/KG	14	104	7.9	32.6	0.37 J	108 J	0.13	21.6	CF-RB-02
Mercury	MG/KG	67	102	0.19	0.27	0.062 J	1	0.01	0.19	LF-LB-09-F
Nickel	MG/KG	3	103	2.6	0.2	0.016 B	0.44 J	0.034	10	FI-MC-PP-WS3-C
Potassium	MG/KG	47	47	3130	3130	2190 J	4650 J	0	0	LF-LB-14-F
Selenium	MG/KG	80	104	0.73	0.88	0.24 J	4.1	0.16	0.5	FI-MC-PP-LMB2-L
Silver	MG/KG	6	104	0.14	0.056	0.0016 J	0.21 J	0.00041	0.5	CF-RB-03
Vanadium	MG/KG	3	92	0.18	0.086	0.04 B	0.13 B	0.045	0.62	FI-MC-PP-WS3-L
Zinc	MG/KG	100	104	17.1	17.7	3.3	38.3 J	4.3	5.2	SF-LB-02
Metals Speciation										
Arsenic	MG/KG	16	16	0.041	0.041	0.0219 J	0.0806 J	0	0	FI-MC-PP-LMB17-F
Total Inorganic As	MG/KG	15	16	0.0042	0.0044	0.0024 J	0.0132	0.0022	0.0022	FI-MC-PP-LMB17-F
Total Organic As	MG/KG	16	16	0.036	0.036	0.0184	0.0674	0	0	FI-MC-PP-LMB17-F, FI-MC-PP-LMB2-F
Semi-Volatile Organic Compounds										
Benzo(g,h,i)perylene	UG/KG	1	20	1200	400	400 J	400 J	820	6600	LF-LB-08-F
Pesticides/PCB										
4,4'-DDD	UG/KG	28	47	11	17	0.63 J	150 J	0.98	15	LF-LB-25
4,4'-DDE	UG/KG	45	46	43	44	2.8	280 J	17	17	LF-LB-25
4,4'-DDT	UG/KG	15	47	3.3	5.5	0.79 J	15 J	0.98	15	LF-LB-26
alpha-BHC	UG/KG	1	47	1.2	1	1 J	1 J	0.5	7.6	LF-LB-13
alpha-Chlordane	UG/KG	23	47	3	4.9	0.29 J	29 J	0.5	7.6	LF-LB-25
Aroclor-1254	UG/KG	5	47	23	130	72 J	250 J	5	75	LF-LB-25
Aroclor-1260	UG/KG	46	47	75	76	5.1	520 J	50	50	LF-LB-25

TABLE 4-6a (cont.)
REFERENCE STATION FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Average Of Detects (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum
						Min	Max	Min	Max	
Pesticides/PCB (cont.)										
Dieldrin	UG/KG	1	47	2.4	2.8	2.8 J	2.8 J	0.98	15	LF-LB-12
Endosulfan I	UG/KG	4	47	1.3	2.4	0.26 J	5.5 J	0.5	7.6	LF-LB-25
Endosulfan II	UG/KG	7	47	3	6.2	4 J	13 J	0.98	15	LF-LB-25
Endosulfan Sulfate	UG/KG	1	47	2.4	1.2	1.2 J	1.2 J	0.98	15	LF-LB-13
Endrin Aldehyde	UG/KG	3	47	2.7	7.8	2.6 J	18 J	0.98	15	LF-LB-25
Endrin Ketone	UG/KG	3	47	2.4	3.5	1.2 J	6.4 J	0.98	15	LF-LB-25
gamma-Chlordane	UG/KG	8	47	2.1	7.2	0.62 J	16 J	0.28	7.6	LF-LB-25
Heptachlor	UG/KG	1	47	1.2	0.39	0.39 J	0.39 J	0.5	7.6	LF-LB-04-F
Heptachlor Epoxide	UG/KG	13	47	1.5	2.3	0.34 J	8.6 J	0.5	7.6	LF-LB-25
Percent Lipids	%	47	47	3	3	0.2	17.8	0	0	LF-LB-17
Percent moisture	%	47	47	74.1	74.1	56.2	82.7	0	0	LF-LB-09-F

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

TABLE 4-6b
STUDY AREA FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Fish Tissue Average Conc. [5]		Study Area Background Fish Tissue Maximum Conc. [6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Entire Study Area														
Metals														
Aluminum	MG/KG	77	205	10.7	22	0.29 J	430	0.49	21.4	FI-MC-HBHA3-WS10-L	4.1	53	24.4	15
Antimony	MG/KG	10	198	0.15	0.12	0.013 B	0.2	0.0017	0.5	LF-LK-09-O	0.16	1	0.18	1
Arsenic	MG/KG	93	205	0.45	0.89	0.096	16	0.071	0.89	FI-MC-HBHA3-WS10-L	0.066	93	0.19	64
Barium	MG/KG	16	205	3.1	4.9	0.092 B	24	0.11	38.6	FI-MC-PP-BB1-C	3.3	4	18.3	1
Cadmium	MG/KG	89	202	0.13	0.049	0.011 J	1	0.0017	0.5	FI-MC-HBHA3-WS10-L	0.15	3	0.59	1
Calcium	MG/KG	28	110	10300	28600	13700	67100 J	69.4	20000	LF-RV-10-O	8570	28	43300	2
Chromium	MG/KG	105	205	0.56	0.67	0.05 J	19	0.062	1	FI-MC-HBHA3-WS10-L	0.37	43	1.2	11
Cobalt	MG/KG	47	205	2.3	0.13	0.0057 J	0.65 J	0.032	10	CF-RV-03	2.6	0	0.44	3
Copper	MG/KG	110	205	5	5.4	0.12	65.1 J	0.13	10	CF-RV-04	3.5	16	33	7
Cyanide	MG/KG	1	110	0.25	0.47	0.47 J	0.47 J	0.36	0.68	LF-LK-36-O				
Iron	MG/KG	151	205	146	196	4 J	3400	2.8	71.3	FI-MC-HBHA3-WS10-L	78.1	59	680	6
Lead	MG/KG	42	205	0.41	0.84	0.062 J	12	0.023	1	FI-MC-HBHA3-WS10-L	0.3	22	1.3	6
Magnesium	MG/KG	1	110	207	363	363 J	363 J	184	1130	LF-RV-06-O				
Manganese	MG/KG	15	205	8.9	69.5	0.32 J	190	0.077	24.9	FI-MC-HBHA3-WS10-L	7.9	12	108	4
Mercury	MG/KG	103	202	0.08	0.12	0.0092	0.58 J	0.0099	0.34	LF-RV-01-F, LF-RV-10-F1	0.19	12	1	0
Nickel	MG/KG	4	205	2.3	0.31	0.026 B	0.83 J	0.034	10	LF-RV-05-O	2.6	0	0.44	1
Potassium	MG/KG	110	110	2970	2970	1320 J	4370	0	0	LF-RV-02-F	3130	48	4650	0
Selenium	MG/KG	181	205	0.73	0.79	0.27 J	2.9	0.5	0.5	FI-MC-HBHAP-LMB9-L	0.73	78	4.1	0
Silver	MG/KG	8	205	0.12	0.079	0.025 J	0.22 J	0.00052	0.5	LF-LK-09-O	0.14	1	0.21	1
Thallium	MG/KG	2	205	0.49	0.11	0.029 B	0.19	0.012	2	CF-RV-04				
Vanadium	MG/KG	4	175	0.17	0.44	0.14 B	1.3	0.039	0.79	FI-MC-HBHA3-WS10-L	0.18	1	0.13	4
Zinc	MG/KG	203	205	21	21.2	3.7	320	6.9	7.6	FI-MC-HBHA3-WS10-L	17.1	137	38.3	5
Metals Speciation														
Arsenic	MG/KG	28	28	0.12	0.12	0.018 J	0.38 J	0	0	FI-MC-HBHA3-BB1-F	0.066	20	0.19	4
Total Inorganic As	MG/KG	27	28	0.0058	0.006	0.0024 J	0.0153	0.0022	0.0022	FI-MC-HBHA3-LMB1-F				
Total Organic As	MG/KG	28	28	0.11	0.11	0.0144	0.376	0	0	FI-MC-HBHA3-BB1-F				
Semi-Volatile Organic Compounds														
Diethylphthalate	UG/KG	1	31	770	410	410 J	410 J	550	6600	LF-LK-14-F				

TABLE 4-6b (cont.)
STUDY AREA FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Fish Tissue Average Conc. [5]		Study Area Background Fish Tissue Maximum Conc. [6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Entire Study Area (cont.)														
Pesticide/PCB														
4,4'-DDD	UG/KG	100	107	33	35	1.9	360	0.98	9.8	LF-LK-31	11	71	150	3
4,4'-DDE	UG/KG	100	107	79	84	3.8 J	820	1.7	32	LF-LK-31	43	37	280	9
4,4'-DDT	UG/KG	86	105	8.1	9.3	0.64 J	68 J	0.98	9.9	LF-LK-31	3.3	54	15	14
Aldrin	UG/KG	44	105	1.5	1.7	0.25 J	5.3 J	0.5	7.5	LF-RV-23-O				
alpha-Chlordane	UG/KG	96	107	18	19	0.52 J	110 J	1	11	LF-LK-31	3	78	29	20
Aroclor-1248	UG/KG	9	105	13	36	7.9	73 J	4.9	74	LF-RV-03-O				
Aroclor-1254	UG/KG	100	107	120	130	9.6 J	770 , J	5	74	LF-RV-13-O, LF-RV-24-O	23	86	250	11
Aroclor-1260	UG/KG	107	107	140	140	12	1100	0	0	LF-LK-31	75	48	520	4
beta-BHC	UG/KG	13	105	1.1	1.1	0.3 J	2.3 J	0.5	7.5	LF-LK-22-O				
delta-BHC	UG/KG	9	105	1.1	0.79	0.36 J	1.4 J	0.5	7.5	SF-LK-02				
Dieldrin	UG/KG	91	107	8.1	9	0.7 J	59 J	1.1	9.8	LF-LK-31	2.4	64	2.8	62
Endosulfan I	UG/KG	17	105	1.4	2.8	0.38 J	6.4 J	0.5	7.5	LF-RV-24-O	1.3	13	5.5	2
Endosulfan II	UG/KG	16	105	4	11	2.4 J	21 J	0.98	32	LF-RV-24-O	3	14	13	6
Endosulfan Sulfate	UG/KG	27	105	2.5	3	0.54 J	8.9 J	0.98	9.9	LF-LK-22-O	2.4	12	1.2	21
Endrin	UG/KG	64	105	7.5	10	0.72 J	66 J	0.98	16	LF-RV-24-O				
Endrin Aldehyde	UG/KG	56	105	4.5	6.1	0.61 J	24	0.98	9.9	LF-RV-13-O	2.7	37	18	3
Endrin Ketone	UG/KG	13	105	2.3	2.6	0.27 J	6.6 J	0.98	15	LF-LK-34	2.4	4	6.4	1
gamma-BHC	UG/KG	2	105	1.1	0.32	0.24 J	0.39 J	0.5	7.5	CF-RV-07				
gamma-Chlordane	UG/KG	100	107	7.7	8.2	0.25 J	36 J	0.5	5.1	LF-LK-08-O	2.1	77	16	13
Heptachlor	UG/KG	1	105	1.1	0.41	0.41 J	0.41 J	0.5	7.5	LF-LK-22-F2	1.2	0	0.39	1
Heptachlor Epoxide	UG/KG	52	107	2.2	3.3	0.3 J	15 J	0.5	5.1	LF-LK-01	1.5	28	8.6	9
Miscellaneous Parameters														
Percent Lipids	%	110	110	2.1	2.1	0.2	13.8	0	0	LF-LK-31	3	24	17.8	0
Percent_moisture	%	110	110	75.3	75.3	59.5	83.8	0	0	LF-LK-06-F	74.1	74	82.7	3
Reach 0														
Metals														
Aluminum	MG/KG	13	95	10.9	47.8	0.29 J	430	10	10	FI-MC-HBHA3-WS10-L	4.1	11	24.4	4
Antimony	MG/KG	2	95	0.24	0.034	0.013 B	0.054 B	0.0017	0.5	FI-MC-HBHA3-WS5-L	0.16	0	0.18	0
Arsenic	MG/KG	77	95	0.6	0.72	0.1	16	0.1	0.1	FI-MC-HBHA3-WS10-L	0.066	77	0.19	51
Barium	MG/KG	5	95	5.1	7.1	0.092 B	24	10	10	FI-MC-PP-BB1-C	3.3	2	18.3	1
Cadmium	MG/KG	4	95	0.25	0.41	0.034 J	1	0.0017	0.5	FI-MC-HBHA3-WS10-L	0.15	2	0.59	1

TABLE 4-6b (cont.)
STUDY AREA FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Fish Tissue Average Conc. [5]		Study Area Background Fish Tissue Maximum Conc. [6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 0 (cont.)														
Metals (cont.)														
Chromium	MG/KG	9	95	0.76	3.2	0.82 J	19	1	1	FI-MC-HBHA3-WS10-L	0.37	9	1.2	6
Cobalt	MG/KG	3	95	4.8	0.06	0.0057 J	0.1 J	10	10	FI-MC-HBHA3-WS5-L	2.6	0	0.44	0
Copper	MG/KG	8	95	5.8	14	0.3 B	31	10	10	FI-MC-HBHA3-WS10-L	3.5	6	33	0
Iron	MG/KG	68	95	235	326	7.8 J	3400	10	10	FI-MC-HBHA3-WS10-L	78.1	41	680	6
Lead	MG/KG	3	95	0.61	4.1	0.097 J	12	0.023	1	FI-MC-HBHA3-WS10-L	0.3	1	1.3	1
Manganese	MG/KG	6	95	7.4	42.5	0.32 J	190	10	10	FI-MC-HBHA3-WS10-L	7.9	3	108	1
Mercury	MG/KG	29	92	0.084	0.16	0.06 J	0.36	0.1	0.1	FI-MC-HBHAP-WS7-F	0.19	4	1	0
Nickel	MG/KG	3	95	4.8	0.13	0.026 B	0.31 J	10	10	FI-MC-HBHA3-WS5-C	2.6	0	0.44	0
Selenium	MG/KG	71	95	0.82	1	0.51	2.9	0.5	0.5	FI-MC-HBHAP-LMB9-L	0.73	46	4.1	0
Silver	MG/KG	1	95	0.24	0.025	0.025 J	0.025 J	0.00052	0.5	FI-MC-HBHA3-WS5-L	0.14	0	0.21	0
Thallium	MG/KG	1	95	0.97	0.029	0.029 B	0.029 B	0.012	2	FI-MC-HBHA3-WS5-L				
Vanadium	MG/KG	4	95	0.26	0.44	0.14 B	1.3	0.5	0.5	FI-MC-HBHA3-WS10-L	0.18	1	0.13	4
Zinc	MG/KG	95	95	20.9	20.9	3.7	320	0	0	FI-MC-HBHA3-WS10-L	17.1	55	38.3	3
Metals Speciation														
Arsenic	MG/KG	28	28	0.12	0.12	0.018 J	0.38 J	0	0	FI-MC-HBHA3-BB1-F	0.066	20	0.19	4
Total Inorganic As	MG/KG	27	28	0.0058	0.006	0.0024 J	0.0153	0.0022	0.0022	FI-MC-HBHA3-LMB1-F				
Total Organic As	MG/KG	28	28	0.11	0.11	0.0144	0.376	0	0	FI-MC-HBHA3-BB1-F				
Reach 1														
Metals														
Aluminum	MG/KG	3	7	18.1	34.7	8.3 J	49.1 J	6	21.4	CF-RV-06	4.1	3	24.4	2
Arsenic	MG/KG	5	7	1.6	2.1	0.59	4.4 J	0.23	0.89	CF-RV-07	0.066	5	0.19	5
Cadmium	MG/KG	7	7	0.034	0.034	0.016 J	0.064 J	0	0	CF-RV-07	0.15	0	0.59	0
Calcium	MG/KG	1	7	10100	26300	26300 J	26300 J	7170	20000	CF-RV-07	8570	1	43300	0
Chromium	MG/KG	6	7	0.54	0.59	0.22 J	1 J	0.42	0.42	CF-RV-07	0.37	5	1.2	0
Cobalt	MG/KG	6	7	0.18	0.21	0.056 J	0.56 J	0.05	0.05	CF-RV-07	2.6	0	0.44	1
Copper	MG/KG	7	7	16.3	16.3	0.54	59.6 J	0	0	CF-RV-07	3.5	2	33	2
Iron	MG/KG	7	7	261	261	48.3 J	645 J	0	0	CF-RV-07	78.1	6	680	0
Lead	MG/KG	2	7	0.2	0.52	0.48 J	0.55 J	0.078	0.35	CF-RV-07	0.3	2	1.3	0
Manganese	MG/KG	2	7	30.4	88.7	65.4 J	112 J	6.4	23.5	CF-RV-07	7.9	2	108	1
Mercury	MG/KG	4	7	0.017	0.024	0.015	0.032	0.013	0.02	SF-RV-09	0.19	0	1	0

TABLE 4-6b (cont.)
STUDY AREA FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Fish Tissue Average Conc. [5]		Study Area Background Fish Tissue Maximum Conc. [6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 1 (cont.)														
Metals (cont.)														
Potassium	MG/KG	7	7	2900	2900	2070 J	3410 J	0	0	SF-RV-12	3130	4	4650	0
Selenium	MG/KG	7	7	0.68	0.68	0.31 J	0.96 J	0	0	SF-RV-10	0.73	3	4.1	0
Silver	MG/KG	1	7	0.024	0.056	0.056 J	0.056 J	0.029	0.04	CF-RV-07	0.14	0	0.21	0
Zinc	MG/KG	7	7	28.1	28.1	22.1 J	35.3 J	0	0	SF-RV-10	17.1	7	38.3	0
Pesticide/PCB														
4,4'-DDD	UG/KG	4	6	9.9	15	4.2	26	0.98	1.6	SF-RV-12	11	2	150	0
4,4'-DDE	UG/KG	4	6	12	18	9	29	1.7	2.2	SF-RV-12	43	0	280	0
4,4'-DDT	UG/KG	5	6	2.1	2.2	0.85 J	3.6 J	2.9	2.9	SF-RV-12	3.3	1	15	0
Aldrin	UG/KG	3	6	0.68	0.4	0.3 J	0.59 J	1.5	2.3	SF-RV-10				
alpha-Chlordane	UG/KG	3	6	7.3	14	3.9	22	1	1.4	SF-RV-12	3	3	29	0
Aroclor-1248	UG/KG	4	6	26	37	27 J	47	5	5	SF-RV-10				
Aroclor-1254	UG/KG	6	6	55	55	15	110	0	0	SF-RV-12	23	5	250	0
Aroclor-1260	UG/KG	6	6	59	59	15	100	0	0	SF-RV-12	75	2	520	0
beta-BHC	UG/KG	1	6	0.8	1.4	1.4	1.4	0.51	2.3	SF-RV-10				
Dieldrin	UG/KG	5	6	3.6	4	0.81 J	7.2	2.9	2.9	LF-RV-18	2.4	3	2.8	3
Endosulfan I	UG/KG	3	6	1.3	1.8	1.3 J	2.5 J	1.1	2	SF-RV-12	1.3	2	5.5	0
Endosulfan II	UG/KG	2	6	2.2	4.4	4 J	4.8 J	0.98	4	SF-RV-12	3	2	13	0
Endosulfan Sulfate	UG/KG	2	6	1.5	1.3	1.2 J	1.4	0.98	4.4	CF-RV-07	2.4	0	1.2	1
Endrin	UG/KG	1	6	1.4	1.6	1.6 J	1.6 J	0.98	4.4	SF-RV-10				
Endrin Aldehyde	UG/KG	2	6	1.8	2.2	1.5	2.9	2	4.4	CF-RV-07	2.7	1	18	0
Endrin Ketone	UG/KG	1	6	1.4	1.9	1.9 J	1.9 J	0.98	4.4	SF-RV-10	2.4	0	6.4	0
gamma-BHC	UG/KG	2	6	0.67	0.32	0.24 J	0.39 J	1	2.3	CF-RV-07				
gamma-Chlordane	UG/KG	4	6	5.2	7.6	2.8	15	0.51	0.51	SF-RV-12	2.1	4	16	0
Heptachlor Epoxide	UG/KG	4	6	2	2.9	1.3 J	4.6 J	0.51	0.51	SF-RV-10	1.5	3	8.6	0
Miscellaneous Parameters														
Percent Lipids	%	7	7	1.7	1.7	0.6	3.4	0	0	SF-RV-09	3	1	17.8	0
Percent_moisture	%	7	7	77.2	77.2	74.5	79.6	0	0	SF-RV-13	74.1	7	82.7	0

TABLE 4-6b (cont.)
STUDY AREA FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Fish Tissue Average Conc. [5]		Study Area Background Fish Tissue Maximum Conc. [6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 2														
Metals														
Aluminum	MG/KG	3	7	20.1	41.7	19.7 J	57.6 J	3.8	15.3	CF-RV-03	4.1	3	24.4	2
Arsenic	MG/KG	2	7	0.9	2.7	2.7 J	2.7 J	0.1	0.7	CF-RV-03, CF-RV-04	0.066	2	0.19	2
Cadmium	MG/KG	7	7	0.057	0.057	0.016 J	0.16 J	0	0	CF-RV-03	0.15	1	0.59	0
Calcium	MG/KG	2	7	11800	25600	25500 J	25600 J	8290	16800	CF-RV-04	8570	2	43300	0
Chromium	MG/KG	7	7	0.93	0.93	0.28 J	2.5 J	0	0	CF-RV-03	0.37	4	1.2	2
Cobalt	MG/KG	5	7	0.2	0.27	0.05 J	0.65 J	0.049	0.05	CF-RV-03	2.6	0	0.44	1
Copper	MG/KG	4	7	18.3	31.6	0.79 J	65.1 J	0.44	2.2	CF-RV-04	3.5	2	33	2
Iron	MG/KG	4	7	120	193	26.5	370 J	23	71.3	CF-RV-04	78.1	2	680	0
Lead	MG/KG	4	7	0.41	0.66	0.34 J	1 J	0.074	0.21	CF-RV-03	0.3	4	1.3	0
Manganese	MG/KG	2	7	38.3	120	105 J	135 J	6.6	18.8	CF-RV-03	7.9	2	108	1
Mercury	MG/KG	4	7	0.028	0.041	0.02 J	0.063	0.016	0.022	LF-RV-16	0.19	0	1	0
Potassium	MG/KG	7	7	2880	2880	2010 J	3600 J	0	0	LF-RV-17	3130	3	4650	0
Selenium	MG/KG	7	7	0.59	0.59	0.28 J	0.93 J	0	0	LF-RV-16	0.73	2	4.1	0
Thallium	MG/KG	1	7	0.089	0.19	0.19	0.19	0.12	0.15	CF-RV-04				
Zinc	MG/KG	7	7	32.5	32.5	25.9 J	43.6 J	0	0	LF-RV-16	17.1	7	38.3	2
Pesticide/PCB														
4,4'-DDD	UG/KG	5	5	15	15	2.8 J	28 J	0	0	LF-RV-16	11	3	150	0
4,4'-DDE	UG/KG	5	5	19	19	7.8 J	44 J	0	0	LF-RV-16	43	1	280	0
4,4'-DDT	UG/KG	4	5	3.2	2.7	1 J	6.9 J	9.9	9.9	LF-RV-16	3.3	1	15	0
Aldrin	UG/KG	2	5	0.97	0.27	0.25 J	0.29 J	1	5.1	CF-RV-03				
alpha-Chlordane	UG/KG	5	5	11	11	0.52 J	25 J	0	0	LF-RV-17	3	3	29	0
Aroclor-1254	UG/KG	5	5	55	55	21 J	96 J	0	0	LF-RV-16	23	3	250	0
Aroclor-1260	UG/KG	5	5	61	61	41 J	120 J	0	0	LF-RV-16	75	1	520	0
Dieldrin	UG/KG	5	5	7.3	7.3	1.9 J	15 J	0	0	LF-RV-16	2.4	3	2.8	3
Endosulfan Sulfate	UG/KG	2	5	2	0.72	0.54 J	0.89 J	2	9.9	CF-RV-04	2.4	0	1.2	0
Endrin	UG/KG	3	5	2.7	2	1.4 J	2.8 J	4.9	9.9	SF-RV-06				
Endrin Aldehyde	UG/KG	3	5	3	2.5	1.5 J	3.1 J	4.9	9.9	CF-RV-04	2.7	2	18	0
gamma-Chlordane	UG/KG	4	5	6.5	8.1	0.25 J	15 J	0.5	0.5	LF-RV-17	2.1	3	16	0
Heptachlor Epoxide	UG/KG	2	5	1.3	2.8	1.4 J	4.1 J	0.5	1	LF-RV-17	1.5	1	8.6	0

TABLE 4-6b (cont.)
STUDY AREA FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Fish Tissue Average Conc. [5]		Study Area Background Fish Tissue Maximum Conc. [6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 2 (cont.)														
Miscellaneous Parameters														
Percent Lipids	%	7	7	1.8	1.8	0.7	3.9	0	0	LF-RV-16	3	1	17.8	0
Percent_moisture	%	7	7	77.6	77.6	74.3	81.7	0	0	SF-RV-07	74.1	7	82.7	0
Reach 3														
Metals														
Aluminum	MG/KG	21	31	21.6	31.4	1.3 J	130 J	0.49	4.4	LF-LK-07-O	4.1	17	24.4	7
Antimony	MG/KG	7	26	0.074	0.14	0.092	0.2	0.082	0.11	LF-LK-09-O	0.16	1	0.18	1
Arsenic	MG/KG	6	31	0.43	1.7	1.1 J	2.5 J	0.071	0.61	LF-LK-07-O	0.066	6	0.19	6
Barium	MG/KG	11	31	2.7	3.9	0.63	18	0.11	38.6	CF-RV-02	3.3	2	18.3	0
Cadmium	MG/KG	24	29	0.034	0.039	0.012	0.12	0.0085	0.012	LF-LK-07-O, LF-LK-08-O	0.15	0	0.59	0
Calcium	MG/KG	8	31	10400	29400	21900	44300 J	69.4	18100	CF-RV-01	8570	8	43300	1
Chromium	MG/KG	28	31	0.53	0.58	0.068 J	2.6 J	0.087	0.1	LF-LK-07-O	0.37	15	1.2	3
Cobalt	MG/KG	19	31	0.09	0.13	0.041 J	0.55 J	0.032	0.049	CF-RV-02	2.6	0	0.44	1
Copper	MG/KG	30	31	5	5.2	0.16	49.5 J	0.94	0.94	CF-RV-02	3.5	5	33	2
Iron	MG/KG	25	31	95.1	117	10.4 J	458 J	2.8	8.5	LF-LK-07-O	78.1	8	680	0
Lead	MG/KG	10	31	0.42	1.2	0.062 J	3.2 J	0.051	0.39	LF-LK-07-O	0.3	8	1.3	4
Manganese	MG/KG	3	31	11.5	98.3	44.9 J	146 J	0.1	9.6	CF-RV-02	7.9	3	108	1
Mercury	MG/KG	13	31	0.051	0.078	0.018 J	0.58 J	0.01	0.34	LF-RV-01-F	0.19	1	1	0
Potassium	MG/KG	31	31	2990	2990	2030 J	4370	0	0	LF-RV-02-F	3130	13	4650	0
Selenium	MG/KG	31	31	0.59	0.59	0.27 J	0.87 J	0	0	LF-LK-01, SF-LK-01	0.73	6	4.1	0
Silver	MG/KG	2	31	0.03	0.16	0.11 J	0.22 J	0.027	0.067	LF-LK-09-O	0.14	1	0.21	1
Zinc	MG/KG	29	31	21.2	22.4	4.8	37.6 J	6.9	7.6	LF-LK-10-O	17.1	22	38.3	0
Pesticide/PCB														
4,4'-DDD	UG/KG	28	31	17	19	2.1 , J	74	2.6	9.8	LF-RV-03-O	11	15	150	0
4,4'-DDE	UG/KG	31	31	25	25	3.8 J	120 J	0	0	LF-RV-03-O	43	3	280	0
4,4'-DDT	UG/KG	21	29	4.3	4.9	0.84 J	12 J	0.98	9.8	LF-LK-04, LF-RV-03-O	3.3	11	15	0
Aldrin	UG/KG	9	29	1.2	0.95	0.31 J	2.3 J	0.5	5.1	SF-LK-02				
alpha-Chlordane	UG/KG	31	31	14	14	1.2	55 J	0	0	LF-LK-08-O	3	24	29	6
Aroclor-1248	UG/KG	3	29	15	45	27 J	73 J	4.9	50	LF-RV-03-O				
Aroclor-1254	UG/KG	26	31	62	72	9.6 J	250 J	5	50	LF-RV-03-O	23	18	250	0
Aroclor-1260	UG/KG	31	31	82	82	14 J	350	0	0	LF-RV-03-O	75	15	520	0

TABLE 4-6b (cont.)
STUDY AREA FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Fish Tissue Average Conc. [5]		Study Area Background Fish Tissue Maximum Conc. [6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 3 (cont.)														
Pesticide/PCB (cont.)														
beta-BHC	UG/KG	1	29	1.1	0.3	0.3 J	0.3 J	0.5	5.1	LF-LK-10-F				
delta-BHC	UG/KG	8	29	1.2	0.83	0.36 J	1.4 J	0.5	5.1	SF-LK-02				
Dieldrin	UG/KG	28	31	9.4	9.9	0.77 J	39 J	9.8	9.8	LF-LK-01	2.4	17	2.8	16
Endosulfan I	UG/KG	2	29	1.2	2.4	0.57 J	4.3 J	0.5	5.1	LF-RV-03-O	1.3	1	5.5	0
Endosulfan II	UG/KG	2	29	2.7	8.3	2.6 J	14 J	0.98	9.8	LF-RV-03-O	3	1	13	1
Endosulfan Sulfate	UG/KG	4	29	2.3	2.5	1.1 J	3.9 J	0.98	9.8	LF-RV-03-O	2.4	2	1.2	3
Endrin	UG/KG	17	29	3.1	3.3	0.72 J	8.2 J	0.98	9.8	SF-LK-03				
Endrin Aldehyde	UG/KG	16	29	2.9	2.8	0.61 J	8.5 J	0.98	9.8	LF-LK-08-O	2.7	7	18	0
Endrin Ketone	UG/KG	5	29	2.4	2.5	0.27 J	6.4 J	0.98	9.8	LF-RV-03-O	2.4	2	6.4	0
gamma-Chlordane	UG/KG	29	31	7.3	7.6	0.4 J	36 J	5.1	5.1	LF-LK-08-O	2.1	22	16	4
Heptachlor Epoxide	UG/KG	21	31	3.3	4.1	0.3 J	15 J	0.51	5.1	LF-LK-01	1.5	10	8.6	6
Miscellaneous Parameters														
Percent Lipids	%	31	31	1.7	1.7	0.3	5.3	0	0	LF-RV-03-O	3	6	17.8	0
Percent_moisture	%	31	31	75.5	75.5	66.6	83.8	0	0	LF-LK-06-F	74.1	20	82.7	2
Reach 4														
Metals														
Aluminum	MG/KG	10	19	3.6	6.1	2.8 J	13.1 J	1.2	3.1	LF-LK-15	4.1	7	24.4	0
Cadmium	MG/KG	15	19	0.016	0.018	0.011 J	0.026 J	0.013	0.015	LF-LK-13-O	0.15	0	0.59	0
Calcium	MG/KG	6	19	10800	27100	20100 J	34500 J	104	17100	LF-LK-13-O	8570	6	43300	0
Chromium	MG/KG	19	19	0.24	0.24	0.058 J	0.44 J	0	0	SF-LK-08	0.37	3	1.2	0
Cobalt	MG/KG	2	19	0.025	0.044	0.043 J	0.045 J	0.035	0.05	LF-LK-36-F	2.6	0	0.44	0
Copper	MG/KG	19	19	0.69	0.69	0.14	1.9	0	0	LF-LK-14-O	3.5	0	33	0
Cyanide	MG/KG	1	19	0.25	0.47	0.47 J	0.47 J	0.36	0.59	LF-LK-36-O				
Iron	MG/KG	15	19	29.6	37.1	4 J	62.6 J	2.8	4.1	LF-LK-16	78.1	0	680	0
Lead	MG/KG	6	19	0.077	0.17	0.072 J	0.3 J	0.056	0.075	LF-LK-16	0.3	0	1.3	0
Mercury	MG/KG	17	19	0.08	0.088	0.022 J	0.26 J	0.01	0.02	LF-LK-36-F	0.19	1	1	0
Potassium	MG/KG	19	19	3090	3090	2470 J	3690 J	0	0	LF-LK-13-F	3130	8	4650	0
Selenium	MG/KG	19	19	0.74	0.74	0.54 J	1.1 J	0	0	LF-LK-13-O	0.73	9	4.1	0
Zinc	MG/KG	19	19	19.7	19.7	5.4	29.9 J	0	0	SF-LK-08	17.1	14	38.3	0

TABLE 4-6b (cont.)
STUDY AREA FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Fish Tissue Average Conc. [5]		Study Area Background Fish Tissue Maximum Conc. [6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 4 (cont.)														
Semi-Volatile Organic Compounds														
Diethylphthalate	UG/KG	1	5	690	410	410 J	410 J	1100	2200	LF-LK-14-F				
Pesticide/PCB														
4,4'-DDD	UG/KG	19	19	25	25	2.3 J	60	0	0	LF-LK-11-O	11	14	150	0
4,4'-DDE	UG/KG	16	19	54	62	5.7	200	18	32	LF-LK-36-O	43	8	280	0
4,4'-DDT	UG/KG	17	19	6.4	6.8	0.64 J	21	5	9.8	LF-LK-36-O	3.3	10	15	1
Aldrin	UG/KG	10	19	1.6	1.9	0.37 J	3	0.51	5.1	LF-LK-11-O, LF-LK-17				
alpha-Chlordane	UG/KG	18	19	15	16	1.3 J	39	9.1	9.1	LF-LK-17	3	13	29	2
Aroclor-1254	UG/KG	19	19	140	140	17	370	0	0	LF-LK-36-O	23	18	250	2
Aroclor-1260	UG/KG	19	19	140	140	15	490	0	0	LF-LK-36-O	75	9	520	0
beta-BHC	UG/KG	3	19	1.1	0.57	0.54 J	0.6 J	0.51	5.1	LF-LK-11-O				
Dieldrin	UG/KG	18	19	6.3	6.6	0.7 J	12	3	3	LF-LK-11-O, LF-LK-17	2.4	14	2.8	14
Endosulfan I	UG/KG	2	19	1.2	1.9	1.8	2	0.51	5.1	LF-LK-17	1.3	2	5.5	0
Endosulfan II	UG/KG	1	19	2.7	2.4	2.4 J	2.4 J	0.98	13	SF-LK-07	3	0	13	0
Endosulfan Sulfate	UG/KG	4	19	2.3	1.6	1.4 J	1.9 J	0.98	9.8	LF-LK-11-O	2.4	0	1.2	4
Endrin	UG/KG	15	19	8.9	11	1.2	32	3.8	7.8	LF-LK-36-O				
Endrin Aldehyde	UG/KG	14	19	4.4	5	0.79 J	13	0.99	9.8	LF-LK-36-O	2.7	9	18	0
Endrin Ketone	UG/KG	2	19	2.1	1.2	1.1 J	1.2 J	0.98	9.8	LF-LK-17	2.4	0	6.4	0
gamma-Chlordane	UG/KG	18	19	7.2	7.5	0.58	21	1.5	1.5	LF-LK-17	2.1	13	16	1
Heptachlor Epoxide	UG/KG	9	19	1.4	1.5	0.87 J	2.1	0.51	5.1	LF-LK-17	1.5	4	8.6	0
Miscellaneous Parameters														
Percent Lipids	%	19	19	2	2	0.3	4.4	0	0	LF-LK-17	3	2	17.8	0
Percent_moisture	%	19	19	74.8	74.8	65.6	80.8	0	0	LF-LK-14-O	74.1	11	82.7	0
Reach 5														
Metals														
Aluminum	MG/KG	23	24	4.8	4.6	0.96 J	17.9 J	18.9	18.9	CF-RV-05	4.1	10	24.4	0
Antimony	MG/KG	1	24	0.054	0.14	0.14	0.14	0.089	0.11	LF-RV-06-F	0.16	0	0.18	0
Arsenic	MG/KG	1	24	0.078	0.11	0.11 J	0.11 J	0.085	0.48	LF-RV-06-O	0.066	1	0.19	0
Cadmium	MG/KG	15	24	0.021	0.029	0.016 J	0.059	0.012	0.015	CF-RV-05	0.15	0	0.59	0
Calcium	MG/KG	5	24	10400	34800	21700 J	67100 J	75.7	15400	LF-RV-10-O	8570	5	43300	1

TABLE 4-6b (cont.)
STUDY AREA FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Fish Tissue Average Conc. [5]		Study Area Background Fish Tissue Maximum Conc. [6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 5 (cont.)														
Metals (cont.)														
Chromium	MG/KG	19	24	0.27	0.33	0.094 J	0.8 J	0.062	0.08	LF-RV-05-O	0.37	4	1.2	0
Cobalt	MG/KG	11	24	0.048	0.078	0.043 J	0.25 J	0.04	0.05	CF-RV-05	2.6	0	0.44	0
Copper	MG/KG	22	24	2.4	2.7	0.17	40.7	0.13	0.24	CF-RV-05	3.5	1	33	1
Iron	MG/KG	16	24	28.8	41.4	17.6 J	145 J	3.5	25.6	LF-RV-05-O	78.1	1	680	0
Lead	MG/KG	4	24	0.067	0.18	0.071 J	0.35 J	0.061	0.37	CF-RV-05	0.3	1	1.3	0
Magnesium	MG/KG	1	24	220	363	363 J	363 J	184	1130	LF-RV-06-O				
Manganese	MG/KG	1	24	6	40.2	40.2	40.2	0.088	24.9	CF-RV-05	7.9	1	108	0
Mercury	MG/KG	22	24	0.13	0.14	0.023 J	0.58 J	0.02	0.023	LF-RV-10-F1	0.19	4	1	0
Nickel	MG/KG	1	24	0.058	0.83	0.83 J	0.83 J	0.04	0.11	LF-RV-05-O	2.6	0	0.44	1
Potassium	MG/KG	24	24	3060	3060	2190 J	3770 J	0	0	LF-RV-06-F	3130	12	4650	0
Selenium	MG/KG	24	24	0.63	0.63	0.39 J	0.88 J	0	0	SF-RV-01	0.73	5	4.1	0
Silver	MG/KG	3	24	0.024	0.06	0.033 J	0.11	0.033	0.07	CF-RV-05	0.14	0	0.21	0
Zinc	MG/KG	24	24	19.2	19.2	4.9 J	30.9 J	0	0	LF-RV-05-O	17.1	17	38.3	0
Pesticide/PCB														
4,4'-DDD	UG/KG	22	24	30	33	1.9	140	5.3	6.3	LF-RV-13-O	11	19	150	0
4,4'-DDE	UG/KG	22	24	100	110	5.7	540	19	24	LF-RV-15-O	43	10	280	2
4,4'-DDT	UG/KG	22	24	12	13	0.71 J	60	2	2	LF-RV-13-O	3.3	17	15	6
Aldrin	UG/KG	12	24	1.5	1.8	0.48 J	3.7	0.8	5.1	LF-RV-15-O				
alpha-Chlordane	UG/KG	18	24	17	21	0.72 J	58	2.9	8.4	LF-RV-13-O	3	15	29	4
Aroclor-1254	UG/KG	23	24	150	160	17	770	25	25	LF-RV-13-O	23	22	250	3
Aroclor-1260	UG/KG	24	24	170	170	12	720	0	0	LF-RV-10-O	75	9	520	2
beta-BHC	UG/KG	1	24	1.1	0.74	0.74 J	0.74 J	0.8	5.1	LF-RV-05-O				
Dieldrin	UG/KG	19	24	6.2	7.3	0.92 J	25	1.5	9.8	LF-RV-13-O	2.4	15	2.8	15
Endosulfan I	UG/KG	1	24	1.2	0.54	0.54 J	0.54 J	1	5.6	CF-RV-05	1.3	0	5.5	0
Endosulfan II	UG/KG	2	24	4.1	6.2	4.8 J	7.7 J	1.5	32	LF-RV-06-O	3	2	13	0
Endosulfan Sulfate	UG/KG	6	24	2.5	2.9	1.2 J	5.4	1.5	9.8	LF-RV-10-O	2.4	3	1.2	5
Endrin	UG/KG	12	24	7.2	11	1.1 J	49	2	16	LF-RV-15-O				
Endrin Aldehyde	UG/KG	13	24	5.9	8.7	1.8 J	24	2	9.8	LF-RV-13-O	2.7	11	18	2
gamma-Chlordane	UG/KG	23	24	7.7	8	0.56 J	23	0.8	0.8	LF-RV-11	2.1	17	16	4
Heptachlor Epoxide	UG/KG	8	24	1.2	1.4	0.64 J	1.9 J	0.8	5.1	LF-RV-11	1.5	3	8.6	0

TABLE 4-6b (cont.)
STUDY AREA FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Fish Tissue Average Conc. [5]		Study Area Background Fish Tissue Maximum Conc. [6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 5 (cont.)														
Miscellaneous Parameters														
Percent Lipids	%	24	24	1.7	1.7	0.2	4.4	0	0	LF-RV-11	3	5	17.8	0
Percent_moisture	%	24	24	76	76	69.2	83.7	0	0	LF-RV-10-F2	74.1	17	82.7	1
Reach 6														
Metals														
Aluminum	MG/KG	4	22	1.7	4.2	0.87 J	6 J	0.54	9.8	SF-LK-10	4.1	2	24.4	0
Arsenic	MG/KG	2	22	0.063	0.13	0.096	0.17	0.074	0.23	LF-LK-25-F	0.066	2	0.19	0
Cadmium	MG/KG	17	21	0.022	0.025	0.014 , J	0.054	0.012	0.015	LF-LK-33	0.15	0	0.59	0
Calcium	MG/KG	6	22	8970	25400	13700	35600	82.1	17300	LF-RV-21-O	8570	6	43300	0
Chromium	MG/KG	17	22	0.19	0.22	0.05 J	0.43 J	0.07	0.22	LF-RV-21-O	0.37	3	1.2	0
Cobalt	MG/KG	1	22	0.023	0.054	0.054 J	0.054 J	0.035	0.05	LF-LK-25-F	2.6	0	0.44	0
Copper	MG/KG	20	22	0.52	0.55	0.12	1.5 J	0.3	0.43	SF-LK-12	3.5	0	33	0
Iron	MG/KG	16	22	29.6	40.1	17.8	181 J	2.8	4.8	LF-LK-25-O	78.1	1	680	0
Lead	MG/KG	13	22	0.27	0.42	0.066 J	2.3 J	0.053	0.52	LF-LK-25-F	0.3	6	1.3	1
Manganese	MG/KG	1	22	4.3	35.6	35.6 J	35.6 J	0.093	23.8	SF-LK-11	7.9	1	108	0
Mercury	MG/KG	14	22	0.087	0.13	0.0092	0.2 , J	0.0099	0.093	LF-LK-21-F, LF-LK-22-F1	0.19	2	1	0
Potassium	MG/KG	22	22	2810	2810	1320 J	4060 J	0	0	LF-LK-25-F	3130	8	4650	0
Selenium	MG/KG	22	22	0.69	0.69	0.45 J	0.96 J	0	0	LF-RV-24-O	0.73	7	4.1	0
Silver	MG/KG	1	22	0.02	0.04	0.04	0.04	0.028	0.073	LF-RV-20-O	0.14	0	0.21	0
Zinc	MG/KG	22	22	18.7	18.7	5 J	34.4	0	0	LF-LK-31	17.1	15	38.3	0
Pesticide/PCB														
4,4'-DDD	UG/KG	22	22	75	75	4	360	0	0	LF-LK-31	11	18	150	3
4,4'-DDE	UG/KG	22	22	180	180	6.1	820	0	0	LF-LK-31	43	15	280	7
4,4'-DDT	UG/KG	17	22	14	17	1.1 J	68 J	1.1	9.8	LF-LK-31	3.3	14	15	7
Aldrin	UG/KG	8	22	2	3	0.53 J	5.3 J	0.55	7.5	LF-RV-23-O				
alpha-Chlordane	UG/KG	21	22	30	31	2.8 J	110 J	11	11	LF-LK-31	3	20	29	8
Aroclor-1248	UG/KG	2	22	14	20	7.9	33	5	74	LF-LK-25-O				
Aroclor-1254	UG/KG	21	22	210	220	15	770 J	74	74	LF-RV-24-O	23	20	250	6
Aroclor-1260	UG/KG	22	22	250	250	23 J	1100	0	0	LF-LK-31	75	12	520	2
beta-BHC	UG/KG	7	22	1.4	1.5	0.6 J	2.3 J	0.51	7.5	LF-LK-22-O				
delta-BHC	UG/KG	1	22	1.2	0.47	0.47 J	0.47 J	0.51	7.5	LF-LK-33				

TABLE 4-6b (cont.)
STUDY AREA FISH TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Average Of Detects (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum	Study Area Background Fish Tissue Average Conc. (5)		Study Area Background Fish Tissue Maximum Conc. (6)	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Reach 6 (cont.)														
Pesticide/PCB (cont.)														
Dieldrin	UG/KG	16	22	11	14	0.93 J	59 J	1.1	9.8	LF-LK-31	2.4	12	2.8	11
Endosulfan I	UG/KG	9	22	2.3	3.6	0.38 J	6.4 J	0.51	7.5	LF-RV-24-O	1.3	8	5.5	2
Endosulfan II	UG/KG	9	22	7.6	15	7.1 J	21 J	1	15	LF-RV-24-O	3	9	13	5
Endosulfan Sulfate	UG/KG	9	22	3.4	4.8	0.8 J	8.9 J	1.1	9.8	LF-LK-22-O	2.4	7	1.2	8
Endrin	UG/KG	16	22	15	20	1.2 J	66 J	1.1	13	LF-RV-24-O				
Endrin Aldehyde	UG/KG	8	22	6.2	13	0.85 J	23 J	1.1	9.8	LF-LK-31	2.7	7	18	1
Endrin Ketone	UG/KG	5	22	2.9	3.4	0.61 J	6.6 J	0.98	15	LF-LK-34	2.4	2	6.4	1
gamma-Chlordane	UG/KG	22	22	9.6	9.6	1 J	26 J	0	0	LF-LK-31, LF-RV-24-O	2.1	18	16	4
Heptachlor	UG/KG	1	22	1.3	0.41	0.41 J	0.41 J	0.55	7.5	LF-LK-22-F2	1.2	0	0.39	1
Heptachlor Epoxide	UG/KG	8	22	2.8	5.5	0.53 J	10 J	0.51	5.1	LF-LK-31, LF-LK-34, LF-LK-35	1.5	7	8.6	3
Miscellaneous Parameters														
Percent Lipids	%	22	22	3.6	3.6	0.4	13.8	0	0	LF-LK-31	3	9	17.8	0
Percent_moisture	%	22	22	73.2	73.2	59.5	81.6	0	0	LF-LK-25-F	74.1	12	82.7	0

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

(5) Study area average background concentrations were calculated from the fish tissue reference data set consisting of 104 samples collected from 4 area ponds judged to be representative of background conditions. Average concentrations were calculated as described in note 2.

(6) Maximum concentration detected in the fish tissue reference data set described above.

TABLE 4-7a
REFERENCE STATION PLANT TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Average Of Detects (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum
						Min	Max	Min	Max	
Emergent										
Metals										
Aluminum	MG/KG	4	7	102	174	51	380	10	10	VE-MC-02-02-CAT-R
Arsenic	MG/KG	4	7	2.2	3.8	1.2 J	9.9 J	0.1	0.1	VE-MC-03-CAT-R
Barium	MG/KG	3	7	7.7	11.3	5	16 J	10	10	VE-MC-02-02-CAT-R
Cadmium	MG/KG	1	7	0.23	0.12	0.12	0.12	0.5	0.5	PL-23-01-AVG
Calcium	MG/KG	1	1	1060	1060	1060	1060	0	0	PL-23-01-AVG
Chromium	MG/KG	3	7	1.5	2.8	0.48 J	5.3	1	1	VE-MC-02-02-CAT-R
Cobalt	MG/KG	1	7	4.4	0.49	0.49 J	0.49 J	10	10	PL-23-01-AVG
Copper	MG/KG	1	7	4.4	0.97	0.97 J	0.97 J	10	10	PL-23-01-AVG
Iron	MG/KG	7	7	2280	2280	15 J	7600 J	0	0	VE-MC-02-01-CAT-R
Lead	MG/KG	4	7	2.6	4.2	1.1	8.6	1	1	VE-MC-02-02-CAT-R
Magnesium	MG/KG	1	1	173	173	173	173	0	0	PL-23-01-AVG
Manganese	MG/KG	7	7	153	153	26 J	460 J	0	0	VE-MC-02-02-CAT-R
Nickel	MG/KG	1	7	4.3	0.12	0.12 J	0.12 J	10	10	PL-23-01-AVG
Potassium	MG/KG	1	1	1040	1040	1040	1040	0	0	PL-23-01-AVG
Sodium	MG/KG	1	1	834	834	834	834	0	0	PL-23-01-AVG
Vanadium	MG/KG	4	7	0.91	1.4	0.64	2.8	0.5	0.5	VE-MC-02-02-CAT-R
Zinc	MG/KG	7	7	12.7	12.7	3.9	30	0	0	VE-MC-02-02-CAT-R
Pesticide/PCB										
4,4'-DDD	UG/KG	1	1	5.2	5.2	5.2	5.2	0	0	PL-23-01-AVG
4,4'-DDE	UG/KG	1	1	0.87	0.87	0.87 J	0.87 J	0	0	PL-23-01-AVG
4,4'-DDT	UG/KG	1	1	0.78	0.78	0.78 J	0.78 J	0	0	PL-23-01-AVG
alpha-Chlordane	UG/KG	1	1	0.43	0.43	0.43 J	0.43 J	0	0	PL-23-01-AVG
Heptachlor	UG/KG	1	1	0.28	0.28	0.28 J	0.28 J	0	0	PL-23-01-AVG
Miscellaneous Parameters										
Percent_moisture	%	1	1	87	87	87	87	0	0	PL-23-01-AVG

TABLE 4-7a (cont.)
REFERENCE STATION PLANT TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Average Of Detects (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum
						Min	Max	Min	Max	
Submergent										
Metals										
Aluminum	MG/KG	6	8	105	138	19	380	10	10	VE-MC-02-02-POT-S
Arsenic	MG/KG	8	8	1.2	1.2	0.19 J	3.4 J	0	0	VE-MC-02-02-POT-S
Barium	MG/KG	6	8	36.5	47	18 J	130 J	10	10	VE-MC-02-01-POT-R
Chromium	MG/KG	4	8	1.3	2.1	1.3	3	1	1	VE-MC-02-02-CER-S
Iron	MG/KG	8	8	2420	2420	59 J	7200 J	0	0	VE-MC-02-02-POT-S
Lead	MG/KG	4	8	3.6	6.6	1.6	17	1	1	VE-MC-02-02-POT-S
Manganese	MG/KG	8	8	1550	1550	180 J	4400 J	0	0	VE-MC-02-01-POT-R
Vanadium	MG/KG	5	8	1	1.5	0.62	3	0.5	0.5	VE-MC-02-02-POT-S
Zinc	MG/KG	8	8	13.1	13.1	5.8	19	0	0	VE-MC-02-02-CER-S, VE-MC-02-02-POT-S

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

TABLE 4-7b
STUDY AREA PLANT TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Average Of Detects (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum	Study Area Background Emergent Vegetation Average Conc.(5)		Study Area Background Emergent Vegetation Maximum Conc. (6)		Study Area Background Submergent Vegetation Average Conc. (5)		Study Area Background Submergent Vegetation Maximum Conc. (6)	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.	criteria	# exc.
Emergent																		
Metals																		
Aluminum	MG/KG	15	18	211	252	14 J	840 J	10	10	VE-MC-08-02-CAT-R	102	11	380	2	105	11	380	2
Antimony	MG/KG	1	18	0.24	0.91	0.91	0.91	0.17	0.5	VE-MC-08-02-CAT-R								
Arsenic	MG/KG	18	18	26.3	26.3	0.28 J	240 J	0	0	VE-MC-08-02-CAT-R	2.2	14	9.9	9	1.2	14	3.4	12
Barium	MG/KG	6	18	4.5	3.4	2.51	4.1	10	10	PL-18-01	7.7	0	16	0	36.5	0	130	0
Cadmium	MG/KG	9	18	0.64	1	0.42	3.9	0.5	0.5	VE-MC-08-02-CAT-R	0.23	9	0.12	9				
Calcium	MG/KG	6	6	1260	1260	1160	1420	0	0	PL-18-01	1060	6	1060	6				
Chromium	MG/KG	12	18	15.2	22.5	1.9	71.2 J	1	1	PL-18-01	1.5	12	5.3	11	1.3	12	3	11
Cobalt	MG/KG	7	18	5.8	7.1	0.61 J	44	10	10	VE-MC-08-02-CAT-R	4.4	1	0.49	7				
Copper	MG/KG	11	18	14.1	19.9	6.4 J	47	10	10	VE-MC-08-02-CAT-R	4.4	11	0.97	11				
Iron	MG/KG	18	18	2660	2660	31 J	17000 J	0	0	VE-MC-08-02-CAT-R	2280	4	7600	2	2420	4	7200	2
Lead	MG/KG	12	18	8.4	12.4	1	33	1	1	VE-MC-08-02-CAT-R	2.6	11	8.6	8	3.6	11	17	2
Magnesium	MG/KG	6	6	212	212	177	238	0	0	PL-20-01	173	6	173	6				
Manganese	MG/KG	18	18	81.5	81.5	25	240	0	0	VE-MC-08-02-CAT-R	153	2	460	0	1550	0	4400	0
Mercury	MG/KG	6	18	0.07	0.11	0.04 J	0.29 J	0.1	0.1	PL-21-01								
Nickel	MG/KG	7	18	4.2	2.9	0.48	16	10	10	VE-MC-08-02-CAT-R	4.3	1	0.12	7				
Potassium	MG/KG	6	6	969	969	500	1620	0	0	PL-20-02	1040	2	1040	2				
Selenium	MG/KG	2	18	0.27	0.56	0.55 J	0.58	0.251	0.54	VE-MC-08-02-CAT-R								
Sodium	MG/KG	6	6	957	957	568	1420	0	0	PL-21-01	834	3	834	3				
Vanadium	MG/KG	11	18	1.1	1.6	0.9	3.7	0.5	0.5	VE-MC-08-02-CAT-R	0.91	10	2.8	1	1	6	3	1
Zinc	MG/KG	18	18	237	237	9.6	2400 J	0	0	VE-MC-08-02-CAT-R	12.7	16	30	13	13.1	16	19	14
Semi-Volatile Organic Compounds																		
Benzo(a)pyrene	UG/KG	1	6	150	77	77 J	77 J	330	330	PL-20-01								
Benzo(b)fluoranthene	UG/KG	4	6	100	72	55 J	100 J	330	330	PL-20-01								
Benzo(k)fluoranthene	UG/KG	3	6	120	80	52 J	120 J	330	330	PL-20-01								
Chrysene	UG/KG	3	6	120	73	54 J	98 J	330	330	PL-20-01								
Fluoranthene	UG/KG	6	6	54	54	31 J	120 J	0	0	PL-20-01								
Indeno(1,2,3-cd)pyrene	UG/KG	1	6	150	63	63 J	63 J	330	330	PL-20-01								
Phenanthrene	UG/KG	2	6	120	32	25 J	38 J	330	330	PL-20-01								
Pyrene	UG/KG	5	6	87	72	33 J	110 J	330	330	PL-20-01								

TABLE 4-7b (cont.)
STUDY AREA PLANT TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Emergent Vegetation Average Conc.[5]		Study Area Background Emergent Vegetation Maximum Conc. [6]		Study Area Background Submergent Vegetation Average Conc. [5]		Study Area Background Submergent Vegetation Maximum Conc. [6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.	criteria	# exc.
Emergent (cont.)																		
Pesticide/PCB																		
4,4'-DDD	UG/KG	3	6	0.63	0.77	0.58 J	1.1 J	0.98	0.98	PL-18-01	5.2	0	5.2	0				
4,4'-DDE	UG/KG	6	6	0.7	0.7	0.36 J	1.2	0	0	PL-18-01	0.87	1	0.87	1				
4,4'-DDT	UG/KG	1	6	0.5	0.56	0.56 J	0.56 J	0.98	0.99	PL-18-01	0.78	0	0.78	0				
alpha-BHC	UG/KG	1	6	0.26	0.27	0.27 J	0.27 J	0.5	0.51	PL-20-01								
alpha-Chlordane	UG/KG	6	6	1.4	1.4	0.84 J	2.3 J	0	0	PL-21-01, PL-21-02	0.43	6	0.43	6				
Aroclor-1260	UG/KG	6	6	7	7	5.6 J	8.9	0	0	PL-21-01, PL-21-02								
Endosulfan I	UG/KG	1	6	0.28	0.43	0.43 J	0.43 J	0.5	0.51	PL-20-01								
Endosulfan II	UG/KG	1	6	0.59	1.1	1.1 J	1.1 J	0.98	0.99	PL-21-01								
Endrin Aldehyde	UG/KG	4	6	1	1.3	0.63 J	2.9 J	0.98	0.99	PL-21-02								
gamma-Chlordane	UG/KG	6	6	0.47	0.47	0.32 J	0.56	0	0	PL-20-01								
Heptachlor	UG/KG	2	6	0.28	0.35	0.33 J	0.37 J	0.5	0.51	PL-20-01	0.28	2	0.28	2				
Heptachlor Epoxide	UG/KG	1	6	0.28	0.44	0.44 J	0.44 J	0.5	0.51	PL-20-01								
Percent_moisture	%	6	6	87.2	87.2	84.2	89.1	0	0	PL-20-02	87	4	87	4				
Submergent																		
Metals																		
Aluminum	MG/KG	15	16	38.1	40.3	14 J	90 J	10	10	VE-MC-09-02-LIL-S	102	0	380	0	105	0	380	0
Arsenic	MG/KG	16	16	14.1	14.1	1.7 J	43 J	0	0	VE-MC-06-01-PLA-R	2.2	15	9.9	9	1.2	16	3.4	13
Barium	MG/KG	2	16	5.9	12.5	12 J	13 J	10	10	VE-MC-08-01-LIL-S	7.7	2	16	0	36.5	0	130	0
Chromium	MG/KG	11	16	1.4	1.8	1.1	3.4	1	1	VE-MC-09-02-LIL-S	1.5	5	5.3	0	1.3	7	3	2
Copper	MG/KG	2	16	6.2	15	12	18	10	10	VE-MC-06-02-PLA-R	4.4	2	0.97	2				
Iron	MG/KG	16	16	1200	1200	250 J	3700 J	0	0	VE-MC-06-01-PLA-R	2280	3	7600	0	2420	3	7200	0
Lead	MG/KG	8	16	1.3	2.1	1	5.5	1	1	VE-MC-06-01-PLA-R	2.6	2	8.6	0	3.6	1	17	0
Manganese	MG/KG	15	16	72.5	77	10	210	10	10	VE-MC-06-01-PLA-S	153	3	460	0	1550	0	4400	0
Silver	MG/KG	1	16	0.44	3.3	3.3	3.3	0.5	0.5	VE-MC-06-02-PLA-R								
Zinc	MG/KG	16	16	34.6	34.6	7.8 J	76 J	0	0	VE-MC-06-01-PLA-R	12.7	13	30	8	13.1	13	19	12

TABLE 4-7b (cont.)
STUDY AREA PLANT TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Average Of Detects (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum	Study Area Background Emergent Vegetation Average Conc.(5)		Study Area Background Emergent Vegetation Maximum Conc. (6)		Study Area Background Submergent Vegetation Average Conc. (5)		Study Area Background Submergent Vegetation Maximum Conc. (6)	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.	criteria	# exc.
Reach 0																		
Metals																		
Aluminum	MG/KG	24	28	102	119	14 J	840 J	10	10	VE-MC-08-02-CAT-R	102	5	380	2	105	5	380	2
Antimony	MG/KG	1	28	0.27	0.91	0.91	0.91	0.5	0.5	VE-MC-08-02-CAT-R								
Arsenic	MG/KG	28	28	22.8	22.8	0.28 J	240 J	0	0	VE-MC-08-02-CAT-R	2.2	23	9.9	14	1.2	24	3.4	20
Barium	MG/KG	2	28	5.5	12.5	12 J	13 J	10	10	VE-MC-08-01-LIL-S	7.7	2	16	0	36.5	0	130	0
Cadmium	MG/KG	3	28	0.44	2.1	0.77	3.9	0.5	0.5	VE-MC-08-02-CAT-R	0.23	3	0.12	3				
Chromium	MG/KG	17	28	3.8	6	1.1	29	1	1	VE-MC-08-02-CAT-R	1.5	11	5.3	5	1.3	13	3	7
Cobalt	MG/KG	1	28	6.4	44	44	44	10	10	VE-MC-08-02-CAT-R	4.4	1	0.49	1				
Copper	MG/KG	7	28	9.2	21.9	10	47	10	10	VE-MC-08-02-CAT-R	4.4	7	0.97	7				
Iron	MG/KG	28	28	2090	2090	31 J	17000 J	0	0	VE-MC-08-02-CAT-R	2280	7	7600	2	2420	7	7200	2
Lead	MG/KG	14	28	3.7	6.9	1	33	1	1	VE-MC-08-02-CAT-R	2.6	7	8.6	2	3.6	6	17	2
Manganese	MG/KG	27	28	80.6	83.4	10	240	10	10	VE-MC-08-02-CAT-R	153	5	460	0	1550	0	4400	0
Nickel	MG/KG	1	28	5.4	16	16	16	10	10	VE-MC-08-02-CAT-R	4.3	1	0.12	1				
Selenium	MG/KG	1	28	0.26	0.58	0.58	0.58	0.5	0.5	VE-MC-08-02-CAT-R								
Silver	MG/KG	1	28	0.36	3.3	3.3	3.3	0.5	0.5	VE-MC-06-02-PLA-R								
Vanadium	MG/KG	5	28	0.54	1.8	0.93	3.7	0.5	0.5	VE-MC-08-02-CAT-R	0.91	5	2.8	1	1	2	3	1
Zinc	MG/KG	28	28	149	149	7.8 J	2400 J	0	0	VE-MC-08-02-CAT-R	12.7	23	30	15	13.1	23	19	20
Reach 1																		
Metals																		
Aluminum	MG/KG	6	6	256	256	154 J	348 J	0	0	PL-18-01, PL-20-01	102	6	380	0	105	6	380	0
Arsenic	MG/KG	6	6	10.2	10.2	2.9	15.9	0	0	PL-20-02	2.2	6	9.9	4	1.2	6	3.4	5
Barium	MG/KG	6	6	3.4	3.4	2.51	4.1	0	0	PL-18-01	7.7	0	16	0	36.5	0	130	0
Cadmium	MG/KG	6	6	0.52	0.52	0.42	0.78	0	0	PL-18-01	0.23	6	0.12	6				
Calcium	MG/KG	6	6	1260	1260	1160	1420	0	0	PL-18-01	1060	6	1060	6				
Chromium	MG/KG	6	6	31.4	31.4	15 J	71.2 J	0	0	PL-18-01	1.5	6	5.3	6	1.3	6	3	6
Cobalt	MG/KG	6	6	0.96	0.96	0.61 J	2.2 J	0	0	PL-18-01	4.4	0	0.49	6				
Copper	MG/KG	6	6	16.1	16.1	6.4 J	27.1 J	0	0	PL-18-01	4.4	6	0.97	6				
Iron	MG/KG	6	6	1450	1450	828	2270	0	0	PL-18-01	2280	0	7600	0	2420	0	7200	0
Lead	MG/KG	6	6	11.5	11.5	9.4 J	13.9 J	0	0	PL-20-01	2.6	6	8.6	6	3.6	6	17	0
Magnesium	MG/KG	6	6	212	212	177	238	0	0	PL-20-01	173	6	173	6				
Manganese	MG/KG	6	6	61.8	61.8	29	109	0	0	PL-20-02	153	0	460	0	1550	0	4400	0
Mercury	MG/KG	6	6	0.11	0.11	0.04 J	0.29 J	0	0	PL-21-01								

TABLE 4-7b (cont.)
STUDY AREA PLANT TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Average Of Detects (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum	Study Area Background Emergent Vegetation Average Conc.(5)		Study Area Background Emergent Vegetation Maximum Conc. (6)		Study Area Background Submergent Vegetation Average Conc. (5)		Study Area Background Submergent Vegetation Maximum Conc. (6)	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.	criteria	# exc.
Reach 1 (cont.)																		
Metals (cont.)																		
Nickel	MG/KG	6	6	0.71	0.71	0.48	1.5 J	0	0	PL-18-01	4.3	0	0.12	6				
Potassium	MG/KG	6	6	969	969	500	1620	0	0	PL-20-02	1040	2	1040	2				
Selenium	MG/KG	1	6	0.27	0.55	0.55 J	0.55 J	0.251	0.54	PL-21-01								
Sodium	MG/KG	6	6	957	957	568	1420	0	0	PL-21-01	834	3	834	3				
Vanadium	MG/KG	6	6	1.4	1.4	0.9	2.1	0	0	PL-18-01	0.91	5	2.8	0	1	4	3	0
Zinc	MG/KG	6	6	107	107	76 J	149 J	0	0	PL-18-01	12.7	6	30	6	13.1	6	19	6
Semi-Volatile Organic Compounds																		
Benzo(a)pyrene	UG/KG	1	6	150	77	77 J	77 J	330	330	PL-20-01								
Benzo(b)fluoranthene	UG/KG	4	6	100	72	55 J	100 J	330	330	PL-20-01								
Benzo(k)fluoranthene	UG/KG	3	6	120	80	52 J	120 J	330	330	PL-20-01								
Chrysene	UG/KG	3	6	120	73	54 J	98 J	330	330	PL-20-01								
Fluoranthene	UG/KG	6	6	54	54	31 J	120 J	0	0	PL-20-01								
Indeno(1,2,3-cd)pyrene	UG/KG	1	6	150	63	63 J	63 J	330	330	PL-20-01								
Phenanthrene	UG/KG	2	6	120	32	25 J	38 J	330	330	PL-20-01								
Pyrene	UG/KG	5	6	87	72	33 J	110 J	330	330	PL-20-01								
Pesticide/PCB																		
4,4'-DDD	UG/KG	3	6	0.63	0.77	0.58 J	1.1 J	0.98	0.98	PL-18-01	5.2	0	5.2	0				
4,4'-DDE	UG/KG	6	6	0.7	0.7	0.36 J	1.2	0	0	PL-18-01	0.87	1	0.87	1				
4,4'-DDT	UG/KG	1	6	0.5	0.56	0.56 J	0.56 J	0.98	0.99	PL-18-01	0.78	0	0.78	0				
alpha-BHC	UG/KG	1	6	0.26	0.27	0.27 J	0.27 J	0.5	0.51	PL-20-01								
alpha-Chlordane	UG/KG	6	6	1.4	1.4	0.84 J	2.3 J	0	0	PL-21-01, PL-21-02	0.43	6	0.43	6				
Aroclor-1260	UG/KG	6	6	7	7	5.6 J	8.9	0	0	PL-21-01, PL-21-02								
Endosulfan I	UG/KG	1	6	0.28	0.43	0.43 J	0.43 J	0.5	0.51	PL-20-01								
Endosulfan II	UG/KG	1	6	0.59	1.1	1.1 J	1.1 J	0.98	0.99	PL-21-01								
Endrin Aldehyde	UG/KG	4	6	1	1.3	0.63 J	2.9 J	0.98	0.99	PL-21-02								
gamma-Chlordane	UG/KG	6	6	0.47	0.47	0.32 J	0.56	0	0	PL-20-01								
Heptachlor	UG/KG	2	6	0.28	0.35	0.33 J	0.37 J	0.5	0.51	PL-20-01	0.28	2	0.28	2				
Heptachlor Epoxide	UG/KG	1	6	0.28	0.44	0.44 J	0.44 J	0.5	0.51	PL-20-01								
Percent_moisture	%	6	6	87.2	87.2	84.2	89.1	0	0	PL-20-02	87	4	87	4				

TABLE 4-7b (cont.)
STUDY AREA PLANT TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Average Of Detects (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum	Study Area Background Emergent Vegetation Average Conc.(5)		Study Area Background Emergent Vegetation Maximum Conc. (6)		Study Area Background Submergent Vegetation Average Conc. (5)		Study Area Background Submergent Vegetation Maximum Conc. (6)	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.	criteria	# exc.	criteria	# exc.

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

(5) Study area average background concentrations were calculated from the plant tissue reference data set consisting of aquatic plant samples from three reference locations that were judged to be representative of background conditions. Reference station samples included seven composite samples of emergent plant species and eight composite samples of submergent plant species. The emergent and submergent samples were divided into separate data sets to determine background concentrations. Average concentrations were calculated as described in note 2.

(6) Maximum concentration detected in the plant tissue reference data sets described above.

TABLE 4-8a
REFERENCE STATION BENTHIC INVERTEBRATE TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Average Of Detects (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum
						Min	Max	Min	Max	
Metals										
Aluminum	MG/KG	5	6	46.3	54.6	12 J	130 J	10	10	BI-MC-04-AC
Arsenic	MG/KG	6	6	0.46	0.46	0.24	0.93	0	0	BI-MC-01-AC
Chromium	MG/KG	1	6	1.2	4.9	4.9	4.9	1	1	BI-MC-04-AC
Copper	MG/KG	1	6	6.8	16	16	16	10	10	BI-MC-03-01-AC
Iron	MG/KG	6	6	372	372	110	720	0	0	BI-MC-01-AC
Lead	MG/KG	2	6	1.8	4.5	2.6	6.4	1	1	BI-MC-04-AC
Manganese	MG/KG	6	6	39.7	39.7	23 J	67 J	0	0	BI-MC-03-02-ODO
Vanadium	MG/KG	2	6	0.4	0.69	0.59	0.79	0.5	0.5	BI-MC-04-AC
Zinc	MG/KG	6	6	15.7	15.7	12	18	0	0	BI-MC-03-02-ODO
Semi-Volatile Organic Compounds										
Acenaphthylene	UG/KG	2	5	4	8	2	13	3	8	BI-MC-03-01-ODO
Anthracene	UG/KG	1	5	3	8	8 J	8 J	2	8	BI-MC-03-01-ODO
Benzo(a)anthracene	UG/KG	3	5	6	8	4 J	15 J	4	8	BI-MC-03-01-ODO
Benzo(a)pyrene	UG/KG	2	5	4	5	2	8	3	8	BI-MC-03-01-ODO
Benzo(b)fluoranthene	UG/KG	2	5	4	6	4	8	3	8	BI-MC-03-01-ODO
Benzo(g,h,i)perylene	UG/KG	2	5	4	6	3	8	3	8	BI-MC-03-01-ODO
Benzo(k)fluoranthene	UG/KG	1	5	3	7	7	7	2	8	BI-MC-03-01-ODO
Chrysene	UG/KG	3	5	6	8	5	12	4	8	BI-MC-03-01-ODO
Fluoranthene	UG/KG	5	5	13	13	4	28	0	0	BI-MC-03-01-ODO
Fluorene	UG/KG	1	5	3	7	7	7	2	8	BI-MC-03-01-ODO
Indeno(1,2,3-cd)pyrene	UG/KG	2	5	4	6	3	8	3	8	BI-MC-03-01-ODO
Naphthalene	UG/KG	1	5	26	89	89 J	89 J	15	27	BI-MC-03-01-ODO
Pyrene	UG/KG	4	5	10	12	8	21	4	4	BI-MC-03-01-ODO

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

TABLE 4-8b
STUDY AREA BENTHIC INVERTEBRATE TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER [1]	Units	Detects	Count	Average Conc. [2]	Average Of Detects [3]	Detected Concentrations		Detection Limits of Non-Detects [4]		Location of Maximum	Study Area Background Benthic Invertebrate Average Conc.[5]		Study Area Background Benthic Invertebrate Maximum Conc.[6]	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.
Metals														
Aluminum	MG/KG	6	6	97.5	97.5	14 J	300 J	0	0	BI-MC-06-CHI	46.3	2	130	2
Arsenic	MG/KG	6	6	9.4	9.4	2.3	26	0	0	BI-MC-06-CHI	0.46	6	0.93	6
Barium	MG/KG	1	6	6	11	11 J	11 J	10	10	BI-MC-06-CHI				
Cadmium	MG/KG	1	6	0.3	0.57	0.57	0.57	0.5	0.5	BI-MC-06-CHI				
Chromium	MG/KG	6	6	6.4	6.4	1.2	16	0	0	BI-MC-06-CHI, BI-MC-13-AC	1.2	5	4.9	2
Copper	MG/KG	4	6	16	21.5	18	26	10	10	BI-MC-07-AC	6.8	4	16	4
Iron	MG/KG	6	6	1140	1140	330	3300	0	0	BI-MC-06-CHI	372	5	720	2
Lead	MG/KG	3	6	3.9	7.4	1.1	13	1	1	BI-MC-06-CHI	1.8	2	6.4	2
Manganese	MG/KG	5	6	25	29	14 J	47 J	10	10	BI-MC-06-CHI	39.7	1	67	0
Vanadium	MG/KG	2	6	0.49	0.98	0.97	1	0.5	0.5	BI-MC-06-CHI	0.4	2	0.79	2
Zinc	MG/KG	6	6	54.3	54.3	26	160	0	0	BI-MC-06-CHI	15.7	6	18	6
Semi-Volatile Organic Compounds														
Acenaphthene	UG/KG	3	6	10	18	3	28	3	7	BI-MC-11-CHI				
Acenaphthylene	UG/KG	1	6	3	3	3	3	2	9	BI-MC-08-AC	4	0	13	0
Anthracene	UG/KG	5	6	9	10	3 J	23 J	2	2	BI-MC-11-CHI	3	3	8	3
Benzo(a)anthracene	UG/KG	6	6	21	21	3 J	59 J	0	0	BI-MC-11-CHI	6	5	15	3
Benzo(a)pyrene	UG/KG	5	6	12	14	6 J	25	2	2	BI-MC-11-CHI	4	5	8	3
Benzo(b)fluoranthene	UG/KG	6	6	24	24	2	73	0	0	BI-MC-11-CHI	4	5	8	3
Benzo(g,h,i)perylene	UG/KG	5	6	13	15	5 J	34	2	2	BI-MC-11-CHI	4	5	8	3
Benzo(k)fluoranthene	UG/KG	5	6	7	8	4 , J	19	2	2	BI-MC-11-CHI	3	5	7	2
Chrysene	UG/KG	6	6	37	37	4	130	0	0	BI-MC-11-CHI	6	5	12	3
Fluoranthene	UG/KG	6	6	110	110	14	450	0	0	BI-MC-11-CHI	13	6	28	4
Fluorene	UG/KG	4	6	9	12	3	29	3	7	BI-MC-11-CHI	3	3	7	2
Indeno(1,2,3-cd)pyrene	UG/KG	5	6	13	15	6 , J	34	2	2	BI-MC-11-CHI	4	5	8	3
Phenanthrene	UG/KG	3	6	54	96	28 J	180 J	12	42	BI-MC-11-CHI				
Pyrene	UG/KG	6	6	84	84	10	310	0	0	BI-MC-11-CHI	10	5	21	4

TABLE 4-8b (cont.)
STUDY AREA BENTHIC INVERTEBRATE TISSUE DATA - SUMMARY STATISTICS
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Average Of Detects (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum	Study Area Background Benthic Invertebrate Average Conc.(5)		Study Area Background Benthic Invertebrate Maximum Conc.(6)	
						Min	Max	Min	Max		criteria	# exc.	criteria	# exc.

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

(5) Study area average background concentrations were calculated from the benthic invertebrate tissue reference data set consisting of seven samples collected from four reference stations that were judged to be representative of background conditions. Reference station samples included four composite samples consisting of amphipods and chironomid larvae and three samples comprised only of odonate nymphs. Average concentrations were calculated as described in note 2.

(6) Maximum concentration detected in the benthic invertebrate tissue reference data set described above.

TABLE 4-9
SUB-SLAB SOIL GAS DATA - STATISTICAL SUMMARY
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

PARAMETER (1)	Units	Detects	Count	Average Conc. (2)	Average Of Detects (3)	Detected Concentrations		Detection Limits of Non-Detects (4)		Location of Maximum
						Min	Max	Min	Max	
Volatile Organic Compounds										
1,2,4-Trimethylbenzene	PPB/V	4	8	0.9	1	0.68	2.8	0.5	0.5	ABC Roofing
1,3,5-Trimethylbenzene	PPB/V	2	8	0.4	0.8	0.59	1	0.5	0.5	ABC Roofing
1,3-Butadiene	PPB/V	3	8	2	4	1.1	9.1	0.5	0.5	Pacer
2-Butanone	PPB/V	2	8	5	20	2 J	39	0.5	0.5	Pacer
2-Propanol	PPB/V	2	8	6	18	7	30 J	5	5	Teradyne-AVG
4-Ethyltoluene	PPB/V	4	8	0.9	1	0.5	3.2	0.5	0.5	ABC Roofing
Acetone	PPB/V	7	8	31	35	5	89 J	5	5	Pacer
Benzene	PPB/V	5	8	1	2	0.7	5.5	0.5	0.5	Pacer
Carbon Disulfide	PPB/V	3	8	0.5	1	1 , J	1.1	0.5	0.5	Sacco/B
Chloroethane	PPB/V	1	8	0.3	0.6	0.6 J	0.6 J	0.5	0.5	Teradyne-AVG
Chloroform	PPB/V	1	8	0.3	0.5	0.51	0.51	0.5	0.5	Sacco/B
Chloromethane	PPB/V	7	8	0.6	0.6	0.56	0.73	0.5	0.5	Ganglani
Cyclohexane	PPB/V	2	8	0.5	1	0.71	2 J	0.5	0.5	Teradyne-AVG
Dichlorodifluoromethane	PPB/V	8	8	4	4	0.6 J	24	0	0	Ganglani
Ethylbenzene	PPB/V	5	8	1	2	0.61	2.9	0.5	0.5	Ganglani
Heptane	PPB/V	3	8	2	4	0.85	8	0.5	0.5	Teradyne-AVG
Hexane	PPB/V	6	8	2	3	0.57	4.4	0.5	0.5	ABC Roofing
m&p-Xylene	PPB/V	6	8	4	5	0.72	11	0.5	0.5	Ganglani
Methyl tert-Butyl Ether	PPB/V	1	8	0.4	1	1.3	1.3	0.5	0.5	Pacer
Methylene Chloride	PPB/V	3	8	1	3	0.4 J	5.8	0.5	0.5	Vining
o-Xylene	PPB/V	5	8	1	1	0.62	2.8	0.5	0.5	Ganglani
Styrene	PPB/V	1	8	0.5	2	2	2	0.5	0.5	Teradyne-AVG
Tetrachloroethene	PPB/V	1	8	0.3	0.8	0.77	0.77	0.5	0.5	ABC Roofing
Toluene	PPB/V	7	8	3	4	0.61	7	0.5	0.5	Teradyne-AVG
Trichloroethene	PPB/V	1	8	0.8	5	5 J	5 J	0.5	0.5	Teradyne-AVG
Trichlorofluoromethane	PPB/V	3	8	1	3	0.51	8 J	0.5	0.5	Teradyne-AVG

(1) The parameters listed for each group are only those detected in that group.

(2) Average concentrations are calculated using the detected values and one-half the detection limit for non-detected values. In some cases, where detection limits are higher than the detected concentrations, the calculated average concentration may be higher than the maximum detected concentration.

(3) Average detected concentrations are calculated from positive-detected values only.

(4) Zero values are shown when there are no non-detects for the parameter in that group.

TABLE 5-1
SUMMARY OF CONTAMINANT TRANSPORT AND FATE PROCESSES
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

	PROPERTIES AFFECTING CONTAMINANT TRANSPORT	
PROCESS	**SUBSURFACE PROPERTY**	**CONTAMINANT PROPERTY**
Hydrodynamic Solute Transport		
Advection	Groundwater gradient, hydraulic conductivity, porosity	Independent of contaminant
Dispersion/Diffusion	Dispersivity, pore water velocity, porosity, hydraulic conductivity	Diffusion coefficient
Preferential Flow	Pore size distribution, fractures, macropores	Independent of contaminant
Abiotic Solute Transport		
Adsorption (Soil-Water Partitioning)	Organic content, clay content, specific surface area	Solubility, octanol-water partition coefficient
Volatilization (Air-Water Partitioning)	Degree of saturation	Vapor pressure, Henry's Law constant
Ion Exchange (Soil-Water Partitioning)	Cation exchange capacity, ionic strength, and background ions	Valency, dipole moment
Hydrolysis	pH, competing reactions	Hydrolysis half-life
Dissolution/Precipitation	pH, metals present	Solubility versus pH, speciation reactions
Co-solvation	Types and fraction of co-solvents present	Solubility, octanol-water partition coefficient
Oxidation/Reduction (Redox)	pE (electron acceptors), pH	pK_a
Colloid Transport	pH, ionic strength, flow rate, mobile particle size, and aquifer and particle surface chemistry	Sorption, reactivity, speciation, solubility
Biotic		
Metabolism/Co-metabolism (Decay)	Microorganisms, nutrients, pH, pE, and trace elements	BOD, COD, degree of halogenation, etc.

SOURCE: Subsurface Transport and Fate Problems, Robert C. Knox, David A. Sabitini, Larry W. Canter, 1993.

TABLE 6-1
SUMMARY OF RECEPTOR RISKS - SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
HB01	Current	RME	3E-06	8E-02		N/A
		CT	7E-07	6E-02		
	Future	RME	6E-06	2E-01		N/A
		CT	7E-07	6E-02		
HB02	Future	RME	1E-05	4E-01		N/A
		CT	2E-06	1E-01		
HB03	Current	RME	3E-06	8E-02		N/A
		CT	7E-07	6E-02		
	Future	RME	6E-06	2E-01		N/A
		CT	7E-07	6E-02		
AR	Current	RME	5E-06	1E-01		N/A
		CT	1E-06	1E-01		
	Future	RME	1E-05	3E-01		N/A
		CT	1E-06	1E-01		
BE-1	Current	RME	2E-07	8E-03		N/A
		CT	5E-08	4E-03		
	Future	RME	1E-06	4E-02		N/A
		CT	1E-07	1E-02		
BE-2	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	6E-06	2E-01		N/A
		CT	8E-07	6E-02		
NR	Current	RME	1E-05	3E-01		N/A
		CT	3E-06	2E-01		
	Future	RME	3E-05	6E-01		N/A
		CT	3E-06	2E-01		
14	Current	RME	5E-06	1E-01		N/A
		CT	1E-06	5E-02		
	Future	RME	1E-05	2E-01		N/A
		CT	1E-06	5E-02		
22/TT-22	Current	RME	5E-06	5E-01		N/A
		CT	1E-06	1E-01		
	Future	RME	2E-05	2E+00		N/A
		CT	1E-06	1E-01		
13/TT-27	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	**7E-04**	**1E+01**	sediment	(C) - As; benzo(a)pyrene
		CT	5E-05	**3E+00**		(NC) - As
WH	Current	RME	1E-04	**2E+00**	sediment	(NC) - As
		CT	2E-05	1E+00		
	Future	RME	**4E-04**	**7E+00**	sediment	(C) - As; benzo(a)pyrene
		CT	2E-05	1E+00		(NC) - As
NT-1	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	**5E-04**	**9E+00**	sediment	(C) - As; benzo(a)pyrene
		CT	3E-05	**2E+00**		(NC) - As

TABLE 6-1 (cont.)
SUMMARY OF RECEPTOR RISKS - SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
NT-2	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	**3E-04**	**6E+00**	sediment	(C) - As; benzo(a)pyrene
		CT	2E-05	1E+00		(NC) - As
NT-3	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	9E-05	**2E+00**	sediment	(NC) - As
		CT	6E-06	4E-01		
WG	Current	RME	2E-05	4E-01		N/A
		CT	3E-06	2E-01		
	Future	RME	5E-05	1E+00		N/A
		CT	3E-06	2E-01		
WW	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	1E-05	7E-01		N/A
		CT	5E-07	1E-01		
JY	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	5E-05	2E+00		N/A
		CT	4E-06	3E-01		
WS	Current	RME	6E-05	1E+00		N/A
		CT	8E-06	6E-01		
	Future	RME	6E-05	1E+00		N/A
		CT	8E-06	6E-01		
TT-30	Current	RME	7E-05	2E+00		N/A
		CT	1E-05	1E+00		
	Future	RME	7E-05	2E+00		N/A
		CT	1E-05	1E+00		
TT-31	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	6E-06	3E-01		N/A
		CT	2E-07	3E-02		
CB-01	Current	RME	1E-05	7E-01		N/A
		CT	2E-06	3E-01		
	Future	RME	1E-05	7E-01		N/A
		CT	2E-06	3E-01		
CB-02	Current	RME	1E-05	3E-01		N/A
		CT	2E-06	1E-01		
	Future	RME	1E-05	3E-01		N/A
		CT	2E-06	1E-01		N/A
CB-03	Current	RME	1E-04	**3E+00**	sediment	(C) - As
		CT	2E-05	1E+00		(NC) - As
	Future	RME	1E-04	**3E+00**	sediment	(NC) - As
		CT	2E-05	1E+00		

TABLE 6-1 (cont.)
SUMMARY OF RECEPTOR RISKS - SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
CB-04	Current	RME	4E-05	1E+00		N/A
		CT	7E-06	5E-01		
	Future	RME	4E-05	1E+00		N/A
		CT	7E-06	5E-01		
CB-06	Current	RME	3E-05	1E+00		N/A
		CT	5E-06	5E-01		
	Future	RME	3E-05	1E+00		N/A
		CT	5E-06	5E-01		
CB-07	Current	RME	1E-05	3E-01		N/A
		CT	3E-06	2E-01		
	Future	RME	1E-05	3E-01		N/A
		CT	3E-06	2E-01		
16/TT-33	Current	RME	4E-05	9E-01		N/A
		CT	3E-06	2E-01		
	Future	RME	4E-05	9E-01		N/A
		CT	3E-06	2E-01		
09	Current	RME	8E-06	2E-01		N/A
		CT	6E-07	3E-02		
	Future	RME	8E-06	2E-01		N/A
		CT	6E-07	3E-02		
AM	Current	RME	7E-06	2E-01		N/A
		CT	2E-06	1E-01		
	Future	RME	7E-06	2E-01		N/A
		CT	2E-06	1E-01		
KF	Current	RME	1E-05	2E-01		N/A
		CT	6E-07	5E-02		
	Future	RME	1E-05	2E-01		N/A
		CT	6E-07	5E-02		
08	Current	RME	9E-06	2E-01		N/A
		CT	4E-07	2E-02		
	Future	RME	9E-06	2E-01		N/A
		CT	4E-07	2E-02		
07	Current	RME	3E-05	5E-01		N/A
		CT	3E-06	9E-02		
	Future	RME	3E-05	5E-01		N/A
		CT	3E-06	9E-02		
LP	Current	RME	3E-05	6E-01		N/A
		CT	2E-06	1E-01		
	Future	RME	3E-05	6E-01		N/A
		CT	2E-06	1E-01		
AS	Current	RME	7E-06	2E-01		N/A
		CT	1E-06	1E-01		
	Future	RME	2E-05	7E-01		N/A
		CT	1E-06	1E-01		

TABLE 6-1 (cont.)
SUMMARY OF RECEPTOR RISKS - SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
05	Current	RME	1E-05	2E-01		N/A
		CT	2E-07	1E-02		
	Future	RME	1E-05	2E-01		N/A
		CT	2E-07	1E-02		
AJRW	Current	RME	3E-06	8E-02		N/A
		CT	2E-07	2E-02		
	Future	RME	3E-06	8E-02		N/A
		CT	2E-07	2E-02		
03	Current	RME	2E-05	4E-01		N/A
		CT	5E-07	3E-02		
	Future	RME	2E-05	4E-01		N/A
		CT	5E-07	3E-02		
01	Current	RME	2E-06	5E-02		N/A
		CT	1E-07	9E-03		
	Future	RME	2E-06	5E-02		N/A
		CT	1E-07	9E-03		

Notes
Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.

HI - Hazard Index
RME - Reasonable Maximum Exposure
CT - Central Tendency Exposure
As - Arsenic

(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
NE - Not Evaluated
N/A - Not Applicable

TABLE 6-2
SUMMARY OF RECEPTOR RISKS - SEDIMENT CORES
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
SC01	Future Dredger	RME	5E-06	4E-01		N/A
		CT	4E-07	7E-02		
SC02	Future Dredger	RME	5E-05	**4E+00**	sediment	(NC) - As
		CT	6E-06	1E+00		
SC03	Future Dredger	RME	2E-06	1E-01		N/A
		CT	2E-07	3E-02		
SC04	Future Dredger	RME	5E-06	4E-01		N/A
		CT	5E-07	9E-02		
SC05	Future Dredger	RME	3E-05	**3E+00**	sediment	(NC) - As
		CT	5E-06	1E+00		
SC06	Future Dredger	RME	6E-05	**5E+00**	sediment	(NC) - As
		CT	7E-06	1E+00		
SC07	Future Dredger	RME	1E-05	1E+00		N/A
		CT	3E-06	7E-01		
SC08	Future Dredger	RME	4E-05	**4E+00**	sediment	(NC) - As
		CT	3E-06	5E-01		
SC09	Future Dredger	RME	3E-06	3E-01		N/A
		CT	4E-07	7E-02		
SC10	Future Dredger	RME	2E-06	2E-01		N/A
		CT	5E-07	8E-02		
SC11	Future Dredger	RME	4E-06	5E-01		N/A
		CT	9E-07	2E-01		
SC12	Future Dredger	RME	4E-06	6E-01		N/A
		CT	1E-06	3E-01		
SC13	Future Dredger	RME	4E-06	5E-01		N/A
		CT	1E-06	2E-01		

Notes
Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.

HI - Hazard Index
RME - Reasonable Maximum Exposure
CT - Central Tendency Exposure
As - Arsenic

(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
NE - Not Evaluated
N/A - Not Applicable

TABLE 6-3
SUMMARY OF RECEPTOR RISKS - SURFACE WATER
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks		Total Noncancer Risks	
			1995	2001-2002	1995	2001-2002
HB01	Current (wader)	RME	NE	3E-08	NE	4E-03
		CT	NE	5E-09	NE	2E-03
	Future (wader)	RME	NE	1E-07	NE	2E-02
		CT	NE	5E-09	NE	2E-03
HB02	Current (wader)	RME	NE	NE	NE	NE
		CT	NE	NE	NE	NE
	Future (wader)	RME	NE	3E-08	NE	3E-02
		CT	NE	2E-09	NE	3E-03
HB03	Current (wader)	RME	NE	3E-08	NE	4E-03
		CT	NE	6E-09	NE	2E-03
	Future (wader)	RME	NE	1E-07	NE	2E-02
		CT	NE	6E-09	NE	2E-03
AR	Current (wader)	RME	NE	2E-08	NE	2E-03
		CT	NE	3E-09	NE	8E-04
	Future (wader)	RME	NE	9E-08	NE	8E-03
		CT	NE	3E-09	NE	8E-04
BE-2	Current (wader)	RME	NE	NE	NE	NE
		CT	NE	NE	NE	NE
	Future (wader)	RME	NE	1E-07	NE	2E-02
		CT	NE	5E-09	NE	2E-03
NR	Current (wader)	RME	2E-07	1E-07	3E-02	8E-03
		CT	3E-08	2E-08	1E-02	4E-03
	Future (wader)	RME	4E-07	2E-07	6E-02	2E-02
		CT	3E-08	2E-08	1E-02	4E-03
14	Current (wader)	RME	2E-07	1E-07	3E-02	8E-03
		CT	3E-08	2E-08	1E-02	4E-03
	Future (wader)	RME	4E-07	2E-07	6E-02	2E-02
		CT	3E-08	2E-08	1E-02	4E-03
22/TT-22	Current (wader)	RME	2E-07	1E-07	3E-02	8E-03
		CT	3E-08	2E-08	1E-02	4E-03
	Future (wader)	RME	7E-07	3E-07	8E-02	2E-02
		CT	3E-08	2E-08	1E-02	4E-03
13/TT-27	Current (wader)	RME	NE	NE	NE	NE
		CT	NE	NE	NE	NE
	Future (wader)	RME	7E-07	3E-07	8E-02	2E-02
		CT	3E-08	2E-08	1E-02	4E-03
WH	Current (wader)	RME	2E-07	1E-07	3E-02	8E-03
		CT	3E-08	2E-08	1E-02	4E-03
	Future (wader)	RME	7E-07	3E-07	8E-02	2E-02
		CT	3E-08	2E-08	1E-02	4E-03
NT-1	Current (wader)	RME	NE	NE	NE	NE
		CT	NE	NE	NE	NE
	Future (wader)	RME	7E-07	3E-07	8E-02	2E-02
		CT	3E-08	2E-08	1E-02	4E-03
NT-2	Current (wader)	RME	NE	NE	NE	NE
		CT	NE	NE	NE	NE
	Future (wader)	RME	7E-07	3E-07	8E-02	2E-02
		CT	3E-08	2E-08	1E-02	4E-03

TABLE 6-3 (cont.)
SUMMARY OF RECEPTOR RISKS - SURFACE WATER
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks		Total Noncancer Risks	
			1995	2001-2002	1995	2001-2002
NT-3	Current (wader)	RME	NE	NE	NE	NE
		CT	NE	NE	NE	NE
	Future (wader)	RME	7E-07	3E-07	8E-02	2E-02
		CT	3E-08	2E-08	1E-02	4E-03
WG	Current (wader)	RME	2E-07	1E-07	3E-02	8E-03
		CT	3E-08	2E-08	1E-02	4E-03
	Future (wader)	RME	7E-07	3E-07	8E-02	2E-02
		CT	3E-08	2E-08	1E-02	4E-03
WW	Current (wader)	RME	NE	NE	NE	NE
		CT	NE	NE	NE	NE
	Future (wader)	RME	7E-07	3E-07	8E-02	2E-02
		CT	3E-08	2E-08	1E-02	4E-03
JY	Current (wader)	RME	NE	NE	NE	NE
		CT	NE	NE	NE	NE
	Future (wader)	RME	7E-07	3E-07	8E-02	2E-02
		CT	3E-08	2E-08	1E-02	4E-03
WS/WSS	Current (wader)	RME	9E-07	4E-07	1E-01	3E-02
		CT	1E-07	5E-08	4E-02	1E-02
	Future (wader)	RME	9E-07	4E-07	1E-01	3E-02
		CT	1E-07	5E-08	4E-02	1E-02
TT-30	Current (wader)	RME	2E-07	1E-07	1E-02	8E-03
		CT	3E-08	2E-08	5E-03	4E-03
	Future (wader)	RME	2E-07	1E-07	1E-02	8E-03
		CT	3E-08	2E-08	5E-03	4E-03
TT-31	Current (wader)	RME	NE	NE	NE	NE
		CT	NE	NE	NE	NE
	Future (wader)	RME	5E-07	3E-07	3E-02	2E-02
		CT	3E-08	2E-08	5E-03	4E-03
CB-01	Current (wader)	RME	6E-07	4E-07	5E-02	3E-02
		CT	8E-08	5E-08	2E-02	1E-02
	Future (wader)	RME	6E-07	4E-07	5E-02	3E-02
		CT	8E-08	5E-08	2E-02	1E-02
CB-02	Current (wader)	RME	6E-07	4E-07	5E-02	3E-02
		CT	8E-08	5E-08	2E-02	1E-02
	Future (wader)	RME	6E-07	4E-07	5E-02	3E-02
		CT	8E-08	5E-08	2E-02	1E-02
CB-03	Current (wader)	RME	6E-07	4E-07	5E-02	3E-02
		CT	8E-08	5E-08	2E-02	1E-02
	Future (wader)	RME	6E-07	4E-07	5E-02	3E-02
		CT	8E-08	5E-08	2E-02	1E-02
CB-04	Current (wader)	RME	6E-07	4E-07	5E-02	3E-02
		CT	8E-08	5E-08	2E-02	1E-02
	Future (wader)	RME	6E-07	4E-07	5E-02	3E-02
		CT	8E-08	5E-08	2E-02	1E-02
CB-06	Current (wader)	RME	6E-07	4E-07	5E-02	3E-02
		CT	8E-08	5E-08	2E-02	1E-02
	Future (wader)	RME	6E-07	4E-07	5E-02	3E-02
		CT	8E-08	5E-08	2E-02	1E-02

TABLE 6-3 (cont.)
SUMMARY OF RECEPTOR RISKS - SURFACE WATER
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks		Total Noncancer Risks	
			1995	2001-2002	1995	2001-2002
CB-07	Current	RME	2E-07	1E-07	1E-02	8E-03
	(wader)	CT	3E-08	2E-08	5E-03	4E-03
	Future	RME	2E-07	1E-07	1E-02	8E-03
	(wader)	CT	3E-08	2E-08	5E-03	4E-03
16/TT-33	Current	RME	5E-07	3E-07	3E-02	2E-02
	(wader)	CT	3E-08	2E-08	5E-03	4E-03
	Future	RME	5E-07	3E-07	3E-02	2E-02
	(wader)	CT	3E-08	2E-08	5E-03	4E-03
09	Current	RME	5E-07	3E-07	3E-02	2E-02
	(wader)	CT	3E-08	2E-08	5E-03	4E-03
	Future	RME	5E-07	3E-07	3E-02	2E-02
	(wader)	CT	3E-08	2E-08	5E-03	4E-03
DA	Current	RME	5E-07	3E-07	3E-02	2E-02
	(wader)	CT	3E-08	2E-08	5E-03	4E-03
	Future	RME	5E-07	3E-07	3E-02	2E-02
	(wader)	CT	3E-08	2E-08	5E-03	4E-03
AM	Current	RME	2E-07	1E-07	1E-02	8E-03
	(wader)	CT	3E-08	2E-08	5E-03	4E-03
	Future	RME	2E-07	1E-07	1E-02	8E-03
	(wader)	CT	3E-08	2E-08	5E-03	4E-03
KF	Current	RME	1E-07	3E-07	8E-03	2E-02
	(wader)	CT	5E-09	2E-08	1E-03	4E-03
	Future	RME	1E-07	3E-07	8E-03	2E-02
	(wader)	CT	5E-09	2E-08	1E-03	4E-03
08	Current	RME	1E-07	3E-07	8E-03	2E-02
	(wader)	CT	5E-09	2E-08	1E-03	4E-03
	Future	RME	1E-07	3E-07	8E-03	2E-02
	(wader)	CT	5E-09	2E-08	1E-03	4E-03
07	Current	RME	N/A	2E-07	1E-02	2E-02
	(wader)	CT	N/A	1E-08	2E-03	3E-03
	Future	RME	N/A	2E-07	1E-02	2E-02
	(wader)	CT	N/A	1E-08	2E-03	3E-03
LP	Current	RME	N/A	2E-07	1E-02	2E-02
	(wader)	CT	N/A	1E-08	2E-03	3E-03
	Future	RME	N/A	2E-07	1E-02	2E-02
	(wader)	CT	N/A	1E-08	2E-03	3E-03
AS	Current	RME	N/A	7E-08	4E-03	6E-03
	(wader)	CT	N/A	1E-08	2E-03	3E-03
	Future	RME	N/A	2E-07	1E-02	2E-02
	(wader)	CT	N/A	1E-08	2E-03	3E-03
06	Current	RME	N/A	9E-08	1E-02	7E-03
	(wader)	CT	N/A	5E-09	2E-03	1E-03
	Future	RME	N/A	9E-08	1E-02	7E-03
	(wader)	CT	N/A	5E-09	2E-03	1E-03
05	Current	RME	9E-07	6E-08	6E-03	5E-03
	(wader)	CT	6E-08	3E-09	1E-03	8E-04
	Future	RME	9E-07	6E-08	6E-03	5E-03
	(wader)	CT	6E-08	3E-09	1E-03	8E-04

TABLE 6-3 (cont.)
SUMMARY OF RECEPTOR RISKS - SURFACE WATER
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS
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Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks		Total Noncancer Risks	
			1995	2001-2002	1995	2001-2002
AJRW	Current (wader)	RME	9E-07	6E-08	6E-03	5E-03
		CT	6E-08	3E-09	1E-03	8E-04
	Future (wader)	RME	9E-07	6E-08	6E-03	5E-03
		CT	6E-08	3E-09	1E-03	8E-04
04	Current (wader)	RME	7E-08	4E-08	9E-03	1E-03
		CT	3E-09	2E-09	9E-04	2E-04
	Future (wader)	RME	7E-08	4E-08	9E-03	1E-03
		CT	3E-09	2E-09	9E-04	2E-04
03	Current (wader)	RME	7E-08	4E-08	9E-03	1E-03
		CT	3E-09	2E-09	9E-04	2E-04
	Future (wader)	RME	7E-08	4E-08	9E-03	1E-03
		CT	3E-09	2E-09	9E-04	2E-04
02	Current (wader)	RME	7E-08	4E-08	9E-03	1E-03
		CT	3E-09	2E-09	9E-04	2E-04
	Future (wader)	RME	7E-08	4E-08	9E-03	1E-03
		CT	3E-09	2E-09	9E-04	2E-04
01	Current (swimmer)	RME	3E-07	2E-07	8E-03	3E-03
		CT	7E-09	4E-09	5E-04	2E-04
	Future (swimmer)	RME	3E-07	2E-07	8E-03	3E-03
		CT	7E-09	4E-09	5E-04	2E-04

Notes
Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.
RME - Reasonable Maximum Exposure NE - Not Evaluated
CT - Central Tendency Exposure N/A - Not Applicable

TABLE 6-4
SUMMARY OF RECEPTOR RISKS - FISH FILLET TISSUE
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
HBHA (Reach 0)	Current Angler	RME	2E-05	6E-01		N/A
		CT	2E-06	2E-01		
	Future Angler	RME	2E-05	6E-01		N/A
		CT	2E-06	2E-01		
Reach 3	Current Angler	RME	9E-06	9E-01		N/A
		CT	7E-07	3E-01		
	Future Angler	RME	9E-06	9E-01		N/A
		CT	7E-07	3E-01		
Reach 4/5	Current Angler	RME	3E-05	2E+00 [(a)]		N/A
		CT	2E-06	7E-01		
	Future Angler	RME	3E-05	2E+00 [(a)]		N/A
		CT	2E-06	7E-01		
Reach 6	Current Angler	RME	3E-05	1E+00		N/A
		CT	2E-06	5E-01		
	Future Angler	RME	3E-05	1E+00		N/A
		CT	2E-06	5E-01		

Notes
Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.
(a) Even though the total receptor HI exceeded 1 for this pathway, target organ HIs were all less than the target HI of 1.

HI - Hazard Index
RME - Reasonable Maximum Exposure
CT - Central Tendency Exposure
(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
NE - Not Evaluated
N/A - Not Applicable

TABLE 6-5
SUMMARY OF RECEPTOR RISKS - SOIL
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
A6	Current Rec. User	RME	7E-06	2E-01		N/A
		CT	2E-06	1E-01		
	Future Rec. User	RME	1E-05	4E-01		N/A
	(surface soil)	CT	2E-06	1E-01		
	Future Rec. User	RME	2E-05	5E-01		N/A
	(subsurface soil)	CT	7E-07	6E-02		
HB04	Current Rec. User	RME	3E-07	1E-02		N/A
		CT	7E-08	6E-03		
	Future Rec. User	RME	7E-07	2E-02		N/A
	(surface soil)	CT	7E-08	6E-03		
	Current Groundskeeper	RME	2E-06	1E-02		N/A
	(surface soil)	CT	4E-07	7E-03		
	Future Groundskeeper	RME	7E-06	5E-02		N/A
	(surface soil)	CT	1E-06	2E-02		
	Future Day Care Child	RME	2E-05	6E-01		N/A
	(surface soil)	CT	4E-06	3E-01		
	Future Const. Worker	RME	6E-07	1E-01		N/A
	(surface soil)	CT	2E-07	3E-02		
SO	Current Groundskeeper	RME	1E-05	5E-02		N/A
	(surface soil)	CT	2E-06	2E-02		
	Current Day Care Child	RME	1E-04	1E+00		N/A
	(surface soil)	CT	1E-05	7E-01		
	Future Groundskeeper	RME	4E-05	2E-01		N/A
	(surface soil)	CT	6E-06	8E-02		
	Future Day Care Child	RME	1E-04	**2E+00**	soil	(C) - As
	(surface soil)	CT	2E-05	1E+00		
	Future Day Care Child	RME	**1E-03**	**4E+01**	soil	(C) - As
	(subsurface soil)	CT	**3E-04**	**2E+01**		(NC) - As
	Future Const. Worker	RME	3E-06	4E-01		N/A
	(surface soil)	CT	1E-06	1E-01		
	Future Const. Worker	RME	4E-05	**7E+00**	soil	(NC) - As
	(subsurface soil)	CT	1E-05	**2E+00**		
NR	Current	RME	2E-05	4E-01		N/A
	Recreational User	CT	4E-06	2E-01		
	Future	RME	4E-05	9E-01		N/A
	Recreational User	CT	4E-06	2E-01		
WSS	Current	RME	4E-06	2E-01		N/A
	Recreational User	CT	2E-06	1E-01		
	Future	RME	4E-06	2E-01		N/A
	Recreational User	CT	2E-06	1E-01		
CB-05	Current	RME	2E-05	6E-01		N/A
	Recreational User	CT	1E-05	5E-01		
	Future	RME	2E-05	6E-01		N/A
	Recreational User	CT	1E-05	5E-01		

TABLE 6-5 (cont.)
SUMMARY OF RECEPTOR RISKS - SOIL
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
DA	Current Recreational User	RME	6E-05	2E+00 [(a)]		N/A
		CT	4E-06	3E-01		
	Future Recreational User	RME	6E-05	2E+00 [(a)]		N/A
		CT	4E-06	3E-01		
KF	Current Recreational User	RME	1E-05	4E-01		N/A
		CT	9E-07	7E-02		
	Future Recreational User	RME	1E-05	4E-01		N/A
		CT	9E-07	7E-02		
DP	Current Recreational User	RME	1E-05	5E-01		N/A
		CT	9E-07	9E-02		
	Future Recreational User	RME	1E-05	5E-01		N/A
		CT	9E-07	9E-02		
AJRW	Current Recreational User	RME	2E-05	5E-01		N/A
		CT	1E-06	9E-02		
	Future Recreational User	RME	2E-05	5E-01		N/A
		CT	1E-06	9E-02		
WSS	Current/Future Area Resident	RME	1E-05	5E-01		N/A
		CT	8E-06	5E-01		
CB-05	Current/Future Area Resident	RME	7E-05	2E+00 [(a)]		N/A
		CT	5E-05	2E+00 [(a)]		
KF	Current/Future Area Resident	RME	5E-05	1E+00		N/A
		CT	9E-06	8E-01		
DP	Current/Future Area Resident	RME	5E-05	2E+00 [(a)]		N/A
		CT	9E-06	1E+00		
AJRW	Current/Future Area Resident	RME	7E-05	2E+00 [(a)]		N/A
		CT	1E-05	9E-01		

Notes
Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.
(a) Even though the total receptor HI exceeded 1 for this pathway, target organ HIs were all less than the target HI of 1.

HI - Hazard Index
RME - Reasonable Maximum Exposure
CT - Central Tendency Exposure
As - Arsenic
(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
NE - Not Evaluated
N/A - Not Applicable

TABLE 6-6
SUMMARY OF RECEPTOR RISKS - GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
Class A	Future Const. Worker	RME	4E-07	1E-01		N/A
		CT	2E-08	1E-02		
	Future Industrial Worker	RME	1E-05	2E-01		N/A
		CT	3E-06	1E-01		
	Future Car Wash Worker	RME	N/A	2E-02		N/A
		CT	N/A	1E-02		
Study Area	Future Const. Worker	RME	2E-05	**3E+00**	groundwater	(NC) - As
		CT	6E-06	9E-01		
	Future Industrial Worker	RME	**1E-03**	**2E+01**	groundwater indoor air	(C) - 1,2-Dichloroethane, benzene, chloroform, trichloroethene, pentachlorophenol, MTBE, As
		CT	**4E-04**	**2E+01**		(NC) - Benzene, naphthalene, As
	Future Car Wash Worker	RME	**1E-03**	**2E+01**	indoor air	(C) - 1,2-Dichloroethane, benzene, chloroform, trichloroethene, MTBE
		CT	**4E-04**	**2E+01**		(NC) - Benzene, naphthalene

Notes
Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.

HI - Hazard Index
RME - Reasonable Maximum Exposure
CT - Central Tendency Exposure
As - Arsenic
MTBE - Methyl tert-butyl ether

(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
NE - Not Evaluated
N/A - Not Applicable

TABLE 7-1
SUMMARY OF RISK CONCLUSIONS - MSGRP RI STUDY AREA
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Receptor/ Endpoint	Ecological Significance [1]						INCREASING LEVEL OF RISK FROM NEGLIGIBLE TO UNNACCEPTABLE/ACTIONABLE → → → → → → →				
	Endangered or sensitive species[2]	Magnitude of the effect and level of biological organization affected [3]	Likelihood the effect will occur or continue [4]	Relative importance of the affected area to the surrounding habitat [5]	Extent to which the affected area is highly sensitive or ecologically unique [6]	Recovery potential of the affected receptor and chemical persistence [7]	Negligible Risk Potential Low Uncertainty	Low Risk Potential Increased Uncertainty	Low/Moderate Risk High Uncertatinty	Moderate/High Risk Decreased Uncertainty	High Level of Impacts Low Uncertainty
Muskrat	No	U / L [8, 9]	L	U / M [10]	U / M	U / M [11]			Moderate risk - arsenic in diet in Reaches 0, 1 & 2. Modeling with high uncertainty. Uncertain population effects.		
River Otter	No	n / a	n / a	n / a	n / a	n / a		Low risk. Modeling with moderate uncertainty.			
Green Heron	No	n / a	n / a	n / a	n / a	n / a	Negligible Risk Potential Low Uncertainty.				
Mallard	No	U / L [8, 9]	L	U / L [10]	U / L	U / L [11]		Low risk due to metals in limited area of Reach 1. Modeling with moderate uncertainty.			
Northern Short-tailed Shrew	No	U / L [8, 9]	L	U / L [10]	L	U / L [11]		Low risk - arsenic in diet. Modeling with high uncertainty. Uncertain population effects.			
Warmwater fish populations	No	L [9, 12]	L	U / L [10]	L	L [13]	Reaches 2 to 6 with low risk based on tissue data. Uncertain risk in Reach 1.		HBHA Pond and HBHA Wetlands with low risk based on tissue arsenic data in. Some exceedences of tissue benchmarks. Uncertain population effects.		

TABLE 7-1 (cont.)
SUMMARY OF RISK CONCLUSIONS - MSGRP RI STUDY AREA
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Receptor/ Endpoint	Ecological Significance [1]						INCREASING LEVEL OF RISK FROM NEGLIGIBLE TO UNNACCEPTABLE/ACTIONABLE → → → → → → →				
	Endangered or sensitive species[2]	Magnitude of the effect and level of biological organization affected [3]	Likelihood the effect will occur or continue [4]	Relative importance of the affected area to the surrounding habitat [5]	Extent to which the affected area is highly sensitive or ecologically unique [6]	Recovery potential of the affected receptor and chemical persistence [7]	Negligible Risk Potential Low Uncertainty	Low Risk Potential Increased Uncertainty	Low/Moderate Risk High Uncertatinty	Moderate/High Risk Decreased Uncertainty	High Level of Impacts Low Uncertainty
Benthic Invertebrate Communities	No	U / M [9, 14]	L	L	L	L [13]		HBHA wetland and Reaches 1 & 2 with Low/uncertain toxicity and communtiy impairment.		HBHA Pond with severe toxicity and community impairment. High tissue metals.	

RATING: L = LOW, M = MODERATE, H = HIGH , U = UNCERTAIN , n / a = NEGLIGIBLE RISK, or not applicable

NOTES:

1 Ecological significance is defined in USEPA (1997) or OSWER Directive 9285.7-28, "Ecological Risk Assessment and Risk Management Principles for Superfund Sites," dated October 7, 1999. The six categories address the factors recommended in the OSWER guidance to be considered in evaluating the significance of ecological effects. The magnitude of the potential risk was considered in evaluating the significance of each factor; a low risk to the receptor generally equates to low ecological significance.
2 No endangered species were identified. The affected populations do not represent other known species with sensitivity to the chemical of potential concern (arsenic).
3 The magnitude of the observed or predicted ecological effects and level of biological organization affected (individual, local population, or community).
4 The likelihood that effects will occur or continue in terms of bioaccumulation or biomagnification into the food chain.
5 The extent to which the affected area is important to the functioning of the surrounding habitat (e.g., wildlife migration corridor, overwintering habitat, etc.).
6 The degree to which the affected area itself (directly) represents highly sensitive or ecologically unique (essential) habitat to the receptor population (e.g., nursery habitat).
7 The likelihood an affected receptor will not recover from the effect of site releases (i.e., species has long generation time or limited foraging range, chemical persistance in the environment).
8 There is high uncertainty in the magnitude of risk because it was estimated using modeling methods without any direct measure of effect (no model verification).
9 Loss of individuals or effects on reproduction may be mitigated in the affected area by immigration from nearby habitats (recruitment from the regional population).
10 Halls Brook and the Aberjona River could function as migration corridors to wildlife and fish, however, it is uncertain whether they are used for this purpose.
11 Receptor has generation time that is moderately short, sediment arsenic is persistent in the affected area, but not fully bioavailable because of chelation to iron.
12 No population effect was detected in Reaches 1 to 6 based on tissue data, however, no fish tissue samples were collected in Reach 1. Tissue concentrations of arsenic exceeded benchmarks in Reach 0. Population effects uncertain in Reach 0.
13 Receptor has generation time that is short (invertebrates) or moderately short (fish), sediment arsenic is persistent in the affected area, but not fully bioavailable because of chelation to iron.
14 Triad analysis (chemical, biological, and ecological field sampling) identified a high magnitude of effect in the HBHA Pond, however, downgradient of the pond there was lower community effects associated with higher uncertainty.

TABLE 7-2
HAZARD QUOTIENT SUMMARY FOR MUSKRAT, USING LOAEL[1] TRVS[2]
WELLS G&H SITE OU3 REACH 1 AND 2, AND NORTHERN STUDY AREA REACH 0
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Habitat Type	Aberjona River Reach	Plant Tissue Arsenic[4] (mg/kg)	Station sediment Arsenic (mg/kg)	COPC HAZARD QUOTIENT[3]			
					HQ (LOAEL TRV from BERA)[5]	HQ (lowest LOAEL TRV = 0.55)	HQ (highest TRV = 24)	HQ (geometric mean mean TRV = 2.35)
MC-02*	Pond	Reference	1.3	30				
MC-03*	Pond	Reference	2.8	21		3		
23*	River	Reference	1.5	13				
AR		0	20	364	3	20		5
BE-1		0	1.2	21		2		
BE-2		0	12	219	2	12		3
BE-3		0	4.8	88		5		
HB01-1*		0	22	203	4	22		5
HB02-1*		0	32	651	5	32		7
HB03-1		0	23	334	4	23		5
HB03-2*		0	15	476	3	16		4
MC-09*		0	14	802	3	17		4
MC-13		0	23	339	4	23		5
10	River	1	45	863	6	44		10
11	River	1	15	287	2	15		3
12	River	1	76	1437	10	73	2	17
13	Wetland	1	67	1267	9	67	2	16
14	River	1	3.2	61		3		
15	Wetland	1	8.8	167		9		2
18*	Wetland	1	38	721	5	37		9
19	Wetland	1	133	2518	17	127	3	30
20*	Wetland	1	15	283	2	14		3
21*	Wetland	1	9.2	175		9		2
BW	Wetland	1	65	1239	9	65		15
JY	Wetland	1	7.6	145		8		2
NRSE	Wetland	1	8.7	166		9		2
TT-28	River	1	40	752	5	38		9

TABLE 7-2 (cont.)
HAZARD QUOTIENT SUMMARY FOR MUSKRAT, USING LOAEL[1] TRVS[2]
WELLS G&H SITE OU3 REACH 1 AND 2, AND NORTHERN STUDY AREA REACH 0
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Habitat Type	Aberjona River Reach	Plant Tissue Arsenic[4] (mg/kg)	Station sediment Arsenic (mg/kg)	COPC HAZARD QUOTIENT[3]			
					HQ (LOAEL TRV from BERA)[5]	HQ (lowest LOAEL TRV = 0.55)	HQ (highest TRV = 24)	HQ (geometric mean mean TRV = 2.35)
TT-29	River	1	39	747	5	38		9
WG	Wetland	1	7.2	136		7		2
WH	Wetland	1	6.0	114		6		
WS	River	1	8.9	168		9		2
WW	Wetland	1	2.2	41		2		
8	River	2	0.99	19				
9	River	2	1.5	29		2		
16	River	2	0.57	11				
AM	River	2	6.4	121		6		
CB-01	Wetland	2	2.2	41		2		
CB-02	Wetland	2	1.4	27		2		
CB-03	Wetland	2	14	272	2	14		3
CB-04	Wetland	2	5.9	112		6		
CB-06	Wetland	2	5.2	98		5		
KFSE	River	2	2.0	38		2		
TT-30	River	2	31	587	4	30		7
TT-31	Wetland	2	0.87	17				
TT-32	River	2	13	252	2	13		3
TT-33	River	2	13	241	2	12		3
% of stations (non-reference) with HQ>1					51	93	7	65

[1] LOAEL: Lowest Observed Adverse Effect Level
[2] TRV: Toxicity Reference Value
[3] A blank cell indicates that the HQ was less than 1.0
[4] Plant tissue concentration value utilized in the dose estimate for each station. Stations marked with * had plant samples collected. All other stations used an estimated plant tissue concentration based on the sediment cocentration times an uptake factor.
[5] HQ from BERA, using TRV used in BERA
* Station where plant tissue sample was collected

TABLE 7-3
COMPARISON OF TOXICITY REFERENCE VALUES FOR MUSKRAT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Chemical of Potential Concern [1]	Test Species	Body Weight (kg) [2]	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d	Test TRV Type	Source	Wildlife TRV (mg/kg-d) [3]
Arsenic									
Arsenite	rat	0.35	oral (chronic)	2 yr	growth	4	LOAEL	ATSDR, 2000	3.22
Arsenite	mouse	0.03	oral (chronic)	2 yr	growth	1	LOAEL	Eisler, 2000	0.44
Arsenite	mouse	0.03	oral in water (chronic)	3 gen	reproductive	1.26	LOAEL	Sample et al., 199	0.55
Arsenate	rat	0.35	oral (chronic)	2 yr	growth	2	NOAEL	ATSDR, 2000	1.61
Arsenate	rat	0.35	oral (chronic)	27 months	growth	7	LOAEL	ATSDR, 2000	5.63
Arsenate	rat	0.35	oral (chronic)	27 months	growth	30	LOAEL	ATSDR, 2000	24.12

Geometric mean 2.35

d - day
gen - generations
COPC - Chemical of Potential Concern
TRV - Toxicity Reference Value
NOAEL - No Observed Adverse Effect Level
LOAEL - Lowest Observed Adverse Effect Level
1 COPC or COPC and analyte/compound used in toxicological testing
2 Body weight for mouse and rat based on USEPA (1985b *cited in* Sample *et al*., 1996), other body weights are actual body weights of animals used in test
3 Test NOAELs and LOAELs were adjusted for wildlife species body weight using the following equation:

LOAEL/NOAELwildlife = LOAEL/NOAELtest * (BW test/BW wildlife) ^0.25 (Sample et al., 1996)

TABLE 7-4
HAZARD QUOTIENT SUMMARY FOR MUSKRAT, USING LOAEL[1] TRVS[2]
WELLS G&H SITE OU3, REACH 1 AND 2, NORTHERN STUDY AREA REACH 0
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Habitat Type	Plant Tissue Source	Aberjona River Reach	Arsenic Plant (mg/kg-wet)	Arsenic Sediment (mg/kg-dry)	HQ (LOAEL TRV)[3]
MC-02	pond	MC-02	Reference	1.3	30	
MC-03	pond	MC-03	Reference	2.8	21	
23	river	23	Reference	1.5	13	
HB01-1	pond	MC-06	0	22	203	5
HB02-1	Wetland	MC-08	0	32	651	7
MC-09	Wetland	MC-09	0	14	802	4
HB03-2	pond	MC-11	0	15	476	4
18	Wetland	18	1	12.5	721	3
20	Wetland	20	1	14.7	283	3
21	Wetland	21	1	3.6	175	

Notes:
[1] LOAEL: Lowest Observed Adverse Effect Level
[2] TRV: Toxicity Reference Value
[3] A blank cell indicates that the HQ was less than 1.0. HQ based on average arsenic concentration in plant data collected from the station and a TRV of 2.35 mg/kg-d

TABLE 7-5
COMPARISON OF TOXICITY REFERENCE VALUES FOR SHREW
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Chemical of Potential Concern [1]	Test Species	Body Weight (kg) [2]	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d	Test TRV Type	Source	Wildlife TRV (mg/kg-d) [3]
Arsenic									
Arsenite	mouse	0.03	oral in water (chronic)	3 gen	reproductive	1.26	LOAEL	Sample et al., 1996	1.50
Arsenite	mouse	0.03	oral (chronic)	2 yr	growth	1	LOAEL	Eisler, 2000	1.19
Arsenite	rat	0.35	oral (chronic)	2 yr	growth	4	LOAEL	ATSDR, 2000	8.79
Arsenate	rat	0.35	oral (chronic)	2 yr	growth	2	LOAEL	ATSDR, 2000	4.40
Arsenate	rat	0.35	oral (chronic)	27 months	growth	7	LOAEL	ATSDR, 2000	15.38
Arsenate	rat	0.35	oral (chronic)	27 months	growth	30	LOAEL	ATSDR, 2000	65.93

Geomean= 6.42

d - day
gen - generations
COPC - Chemical of Potential Concern
TRV - Toxicity Reference Value
NOAEL - No Observed Adverse Effect Level
LOAEL - Lowest Observed Adverse Effect Level
1 COPC or COPC and analyte/compound used in toxicological testing
2 Body weight for mouse and rat based on USEPA (1985b *cited in* Sample *et al*., 1996), other body weights are actual body weights of animals used in test
3 Test NOAELs and LOAELs were adjusted for wildlife species body weight using the following equation:

LOAEL/NOAELwildlife = LOAEL/NOAELtest * (BW test/BW wildlife) ^0.25 (Sample et al., 1996)

TABLE 8-1
SUMMARY OF RECEPTOR RISKS - SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
HB01	Current	RME	3E-06	8E-02		N/A
		CT	7E-07	6E-02		
	Future	RME	6E-06	2E-01		N/A
		CT	7E-07	6E-02		
HB02	Future	RME	1E-05	4E-01		N/A
		CT	2E-06	1E-01		
HB03	Current	RME	3E-06	8E-02		N/A
		CT	7E-07	6E-02		
	Future	RME	6E-06	2E-01		N/A
		CT	7E-07	6E-02		
AR	Current	RME	5E-06	1E-01		N/A
		CT	1E-06	1E-01		
	Future	RME	1E-05	3E-01		N/A
		CT	1E-06	1E-01		
BE-1	Current	RME	2E-07	8E-03		N/A
		CT	5E-08	4E-03		
	Future	RME	1E-06	4E-02		N/A
		CT	1E-07	1E-02		
BE-2	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	6E-06	2E-01		N/A
		CT	8E-07	6E-02		
NR	Current	RME	1E-05	3E-01		N/A
		CT	3E-06	2E-01		
	Future	RME	3E-05	6E-01		N/A
		CT	3E-06	2E-01		
14	Current	RME	5E-06	1E-01		N/A
		CT	1E-06	5E-02		
	Future	RME	1E-05	2E-01		N/A
		CT	1E-06	5E-02		
22/TT-22	Current	RME	5E-06	5E-01		N/A
		CT	1E-06	1E-01		
	Future	RME	2E-05	2E+00		N/A
		CT	1E-06	1E-01		
13/TT-27	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	**7E-04**	**1E+01**	sediment	(C) - As; benzo(a)pyrene
		CT	5E-05	**3E+00**		(NC) - As
WH	Current	RME	1E-04	**2E+00**	sediment	(NC) - As
		CT	2E-05	1E+00		
	Future	RME	**4E-04**	**7E+00**	sediment	(C) - As; benzo(a)pyrene
		CT	2E-05	1E+00		(NC) - As
NT-1	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	**5E-04**	**9E+00**	sediment	(C) - As; benzo(a)pyrene
		CT	3E-05	**2E+00**		(NC) - As

TABLE 8-1 (cont.)
SUMMARY OF RECEPTOR RISKS - SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
NT-2	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	**3E-04**	**6E+00**	sediment	(C) - As; benzo(a)pyrene
		CT	2E-05	1E+00		(NC) - As
NT-3	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	9E-05	**2E+00**	sediment	(NC) - As
		CT	6E-06	4E-01		
WG	Current	RME	2E-05	4E-01		N/A
		CT	3E-06	2E-01		
	Future	RME	5E-05	1E+00		N/A
		CT	3E-06	2E-01		
WW	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	1E-05	7E-01		N/A
		CT	5E-07	1E-01		
JY	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	5E-05	2E+00		N/A
		CT	4E-06	3E-01		
WS	Current	RME	6E-05	1E+00		N/A
		CT	8E-06	6E-01		
	Future	RME	6E-05	1E+00		N/A
		CT	8E-06	6E-01		
TT-30	Current	RME	7E-05	2E+00		N/A
		CT	1E-05	1E+00		
	Future	RME	7E-05	2E+00		N/A
		CT	1E-05	1E+00		
TT-31	Current	RME	NE	NE		N/A
		CT	NE	NE		
	Future	RME	6E-06	3E-01		N/A
		CT	2E-07	3E-02		
CB-01	Current	RME	1E-05	7E-01		N/A
		CT	2E-06	3E-01		
	Future	RME	1E-05	7E-01		N/A
		CT	2E-06	3E-01		
CB-02	Current	RME	1E-05	3E-01		N/A
		CT	2E-06	1E-01		
	Future	RME	1E-05	3E-01		N/A
		CT	2E-06	1E-01		N/A
CB-03	Current	RME	1E-04	**3E+00**	sediment	(C) - As
		CT	2E-05	1E+00		(NC) - As
	Future	RME	1E-04	**3E+00**	sediment	(NC) - As
		CT	2E-05	1E+00		

TABLE 8-1 (cont.)
SUMMARY OF RECEPTOR RISKS - SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
CB-04	Current	RME	4E-05	1E+00		N/A
		CT	7E-06	5E-01		
	Future	RME	4E-05	1E+00		N/A
		CT	7E-06	5E-01		
CB-06	Current	RME	3E-05	1E+00		N/A
		CT	5E-06	5E-01		
	Future	RME	3E-05	1E+00		N/A
		CT	5E-06	5E-01		
CB-07	Current	RME	1E-05	3E-01		N/A
		CT	3E-06	2E-01		
	Future	RME	1E-05	3E-01		N/A
		CT	3E-06	2E-01		
16/TT-33	Current	RME	4E-05	9E-01		N/A
		CT	3E-06	2E-01		
	Future	RME	4E-05	9E-01		N/A
		CT	3E-06	2E-01		
09	Current	RME	8E-06	2E-01		N/A
		CT	6E-07	3E-02		
	Future	RME	8E-06	2E-01		N/A
		CT	6E-07	3E-02		
AM	Current	RME	7E-06	2E-01		N/A
		CT	2E-06	1E-01		
	Future	RME	7E-06	2E-01		N/A
		CT	2E-06	1E-01		
KF	Current	RME	1E-05	2E-01		N/A
		CT	6E-07	5E-02		
	Future	RME	1E-05	2E-01		N/A
		CT	6E-07	5E-02		
08	Current	RME	9E-06	2E-01		N/A
		CT	4E-07	2E-02		
	Future	RME	9E-06	2E-01		N/A
		CT	4E-07	2E-02		
07	Current	RME	3E-05	5E-01		N/A
		CT	3E-06	9E-02		
	Future	RME	3E-05	5E-01		N/A
		CT	3E-06	9E-02		
LP	Current	RME	3E-05	6E-01		N/A
		CT	2E-06	1E-01		
	Future	RME	3E-05	6E-01		N/A
		CT	2E-06	1E-01		
AS	Current	RME	7E-06	2E-01		N/A
		CT	1E-06	1E-01		
	Future	RME	2E-05	7E-01		N/A
		CT	1E-06	1E-01		

TABLE 8-1 (cont.)
SUMMARY OF RECEPTOR RISKS - SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor (Recreational User)	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
05	Current	RME	1E-05	2E-01		N/A
		CT	2E-07	1E-02		
	Future	RME	1E-05	2E-01		N/A
		CT	2E-07	1E-02		
AJRW	Current	RME	3E-06	8E-02		N/A
		CT	2E-07	2E-02		
	Future	RME	3E-06	8E-02		N/A
		CT	2E-07	2E-02		
03	Current	RME	2E-05	4E-01		N/A
		CT	5E-07	3E-02		
	Future	RME	2E-05	4E-01		N/A
		CT	5E-07	3E-02		
01	Current	RME	2E-06	5E-02		N/A
		CT	1E-07	9E-03		
	Future	RME	2E-06	5E-02		N/A
		CT	1E-07	9E-03		

Notes
Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.

HI - Hazard Index
RME - Reasonable Maximum Exposur
CT - Central Tendency Exposure
As - Arsenic
(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
NE - Not Evaluated
N/A - Not Applicable

TABLE 8-2
SUMMARY OF RECEPTOR RISKS - SEDIMENT CORES
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
SC01	Future Dredger	RME	5E-06	4E-01		N/A
		CT	4E-07	7E-02		
SC02	Future Dredger	RME	5E-05	**4E+00**	sediment	(NC) - As
		CT	6E-06	1E+00		
SC03	Future Dredger	RME	2E-06	1E-01		N/A
		CT	2E-07	3E-02		
SC04	Future Dredger	RME	5E-06	4E-01		N/A
		CT	5E-07	9E-02		
SC05	Future Dredger	RME	3E-05	**3E+00**	sediment	(NC) - As
		CT	5E-06	1E+00		
SC06	Future Dredger	RME	6E-05	**5E+00**	sediment	(NC) - As
		CT	7E-06	1E+00		
SC07	Future Dredger	RME	1E-05	1E+00		N/A
		CT	3E-06	7E-01		
SC08	Future Dredger	RME	4E-05	**4E+00**	sediment	(NC) - As
		CT	3E-06	5E-01		
SC09	Future Dredger	RME	3E-06	3E-01		N/A
		CT	4E-07	7E-02		
SC10	Future Dredger	RME	2E-06	2E-01		N/A
		CT	5E-07	8E-02		
SC11	Future Dredger	RME	4E-06	5E-01		N/A
		CT	9E-07	2E-01		
SC12	Future Dredger	RME	4E-06	6E-01		N/A
		CT	1E-06	3E-01		
SC13	Future Dredger	RME	4E-06	5E-01		N/A
		CT	1E-06	2E-01		

Notes
Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.

HI - Hazard Index
RME - Reasonable Maximum Exposure
CT - Central Tendency Exposure
As - Arsenic

(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
NE - Not Evaluated
N/A - Not Applicable

TABLE 8-3
SUMMARY OF RECEPTOR RISKS - SOIL
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
A6	Current Rec. User	RME	7E-06	2E-01		N/A
		CT	2E-06	1E-01		
	Future Rec. User	RME	1E-05	4E-01		N/A
	(surface soil)	CT	2E-06	1E-01		
	Future Rec. User	RME	2E-05	5E-01		N/A
	(subsurface soil)	CT	7E-07	6E-02		
HB04	Current Rec. User	RME	3E-07	1E-02		N/A
		CT	7E-08	6E-03		
	Future Rec. User	RME	7E-07	2E-02		N/A
	(surface soil)	CT	7E-08	6E-03		
	Current Groundskeeper	RME	2E-06	1E-02		N/A
	(surface soil)	CT	4E-07	7E-03		
	Future Groundskeeper	RME	7E-06	5E-02		N/A
	(surface soil)	CT	1E-06	2E-02		
	Future Day Care Child	RME	2E-05	6E-01		N/A
	(surface soil)	CT	4E-06	3E-01		
	Future Const. Worker	RME	6E-07	1E-01		N/A
	(surface soil)	CT	2E-07	3E-02		
SO	Current Groundskeeper	RME	1E-05	5E-02		N/A
	(surface soil)	CT	2E-06	2E-02		
	Current Day Care Child	RME	1E-04	1E+00		N/A
	(surface soil)	CT	1E-05	7E-01		
	Future Groundskeeper	RME	4E-05	2E-01		N/A
	(surface soil)	CT	6E-06	8E-02		
	Future Day Care Child	RME	1E-04	**2E+00**	soil	(C) - As
	(surface soil)	CT	2E-05	1E+00		
	Future Day Care Child	RME	**1E-03**	**4E+01**	soil	(C) - As
	(subsurface soil)	CT	**3E-04**	**2E+01**		(NC) - As
	Future Const. Worker	RME	3E-06	4E-01		N/A
	(surface soil)	CT	1E-06	1E-01		
	Future Const. Worker	RME	4E-05	**7E+00**	soil	(NC) - As
	(subsurface soil)	CT	1E-05	**2E+00**		
NR	Current	RME	2E-05	4E-01		N/A
	Recreational User	CT	4E-06	2E-01		
	Future	RME	4E-05	9E-01		N/A
	Recreational User	CT	4E-06	2E-01		
WSS	Current	RME	4E-06	2E-01		N/A
	Recreational User	CT	2E-06	1E-01		
	Future	RME	4E-06	2E-01		N/A
	Recreational User	CT	2E-06	1E-01		
CB-05	Current	RME	2E-05	6E-01		N/A
	Recreational User	CT	1E-05	5E-01		
	Future	RME	2E-05	6E-01		N/A
	Recreational User	CT	1E-05	5E-01		
DA	Current	RME	6E-05	2E+00 [(a)]		N/A
	Recreational User	CT	4E-06	3E-01		
	Future	RME	6E-05	2E+00 [(a)]		N/A
	Recreational User	CT	4E-06	3E-01		

TABLE 8-3 (cont.)
SUMMARY OF RECEPTOR RISKS - SOIL
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
KF	Current Recreational User	RME	1E-05	4E-01		N/A
		CT	9E-07	7E-02		
	Future Recreational User	RME	1E-05	4E-01		N/A
		CT	9E-07	7E-02		
DP	Current Recreational User	RME	1E-05	5E-01		N/A
		CT	9E-07	9E-02		
	Future Recreational User	RME	1E-05	5E-01		N/A
		CT	9E-07	9E-02		
AJRW	Current Recreational User	RME	2E-05	5E-01		N/A
		CT	1E-06	9E-02		
	Future Recreational User	RME	2E-05	5E-01		N/A
		CT	1E-06	9E-02		
WSS	Current/Future Area Resident	RME	1E-05	5E-01		N/A
		CT	8E-06	5E-01		
CB-05	Current/Future Area Resident	RME	7E-05	2E+00 [(a)]		N/A
		CT	5E-05	2E+00 [(a)]		
KF	Current/Future Area Resident	RME	5E-05	1E+00		N/A
		CT	9E-06	8E-01		
DP	Current/Future Area Resident	RME	5E-05	2E+00 [(a)]		N/A
		CT	9E-06	1E+00		
AJRW	Current/Future Area Resident	RME	7E-05	2E+00 [(a)]		N/A
		CT	1E-05	9E-01		

Notes
Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.
(a) Even though the total receptor HI exceeded 1 for this pathway, target organ HIs were all less than the target HI of 1.

HI - Hazard Index
RME - Reasonable Maximum Exposure
CT - Central Tendency Exposure
As - Arsenic
(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
NE - Not Evaluated
N/A - Not Applicable

TABLE 8-4
SUMMARY OF RECEPTOR RISKS - GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Station	Scenario/Receptor	RME or CT	Total Cancer Risks	Total Noncancer Risks	Media > 1E-04 or HI > 1	Major contributors to risk (> 1E-06, HI > 1)
Class A	Future Const. Worker	RME	4E-07	1E-01		N/A
		CT	2E-08	1E-02		
	Future Industrial Worker	RME	1E-05	2E-01		N/A
		CT	3E-06	1E-01		
	Future Car Wash Worker	RME	N/A	2E-02		N/A
		CT	N/A	1E-02		
Study Area	Future Const. Worker	RME	2E-05	**3E+00**	groundwater	(NC) - As
		CT	6E-06	9E-01		
	Future Industrial Worker	RME	**1E-03**	**2E+01**	groundwater indoor air	(C) - 1,2-Dichloroethane, benzene, chloroform, trichloroethene, pentachlorophenol, MTBE, As
		CT	**4E-04**	**2E+01**		(NC) - Benzene, naphthalene, As
	Future Car Wash Worker	RME	**1E-03**	**2E+01**	indoor air	(C) - 1,2-Dichloroethane, benzene, chloroform, trichloroethene, MTBE
		CT	**4E-04**	**2E+01**		(NC) - Benzene, naphthalene

Notes
Bolded values exceed a cancer risk of 1E-04 or a target organ HI of 1.

HI - Hazard Index
RME - Reasonable Maximum Exposure
CT - Central Tendency Exposure
As - Arsenic
MTBE - Methyl tert-butyl ether

(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
NE - Not Evaluated
N/A - Not Applicable

TABLE 8-5
SUMMARY OF RISK CONCLUSIONS - MSGRP RI STUDY AREA
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Receptor/ Endpoint	INCREASING LEVEL OF RISK FROM NEGLIGIBLE TO HIGH → → → → → → →					Ecological Significance [1]						Unacceptable Ecological Risk[15]
	Negligible Risk Potential Low Uncertainty	Low Risk Potential Increased Uncertainty	Moderate Risk High Uncertatinty	Moderate/High Risk Decreased Uncertainty	High Level of Impacts Low Uncertainty	Endangered or sensitive species[2]	Magnitude of the effect and level of biological organization affected [3]	Likelihood the effect will occur or continue [4]	Relative importance of the affected area to the surrounding habitat[5]	Extent to which the affected area is highly sensitive or ecologically unique [6]	Recovery potential of the affected receptor and chemical persistence [7]	
Muskrat			Moderate risk - arsenic in diet in Reaches 0, 1 & 2. Modeling with high uncertainty. Uncertain population effects.			No	U / L [8, 9]	L	U / M [10]	U / M	U / M [11]	No
River Otter		Low risk. Modeling with moderate uncertainty.				No	n / a	n / a	n / a	n / a	n / a	No
Green Heron	Negligible Risk Potential Low Uncertainty.					No	n / a	n / a	n / a	n / a	n / a	No
Mallard		Low risk due to metals in limited area of Reach 1. Modeling with moderate uncertainty.				No	U / L [8, 9]	L	U / L [10]	U / L	U / L [11]	No

TABLE 8-5 (cont.)
SUMMARY OF RISK CONCLUSIONS - MSGRP RI STUDY AREA
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

Receptor/ Endpoint	INCREASING LEVEL OF RISK FROM NEGLIGIBLE TO HIGH → → → → → → →					Ecological Significance [1]						Unacceptable Ecological Risk[15]
	Negligible Risk Potential Low Uncertainty	Low Risk Potential Increased Uncertainty	Moderate Risk High Uncertatinty	Moderate/High Risk Decreased Uncertainty	High Level of Impacts Low Uncertainty	Endangered or sensitive species[2]	Magnitude of the effect and level of biological organization affected [3]	Likelihood the effect will occur or continue [4]	Relative importance of the affected area to the surrounding habitat [5]	Extent to which the affected area is highly sensitive or ecologically unique [6]	Recovery potential of the affected receptor and chemical persistence [7]	
Northern Short-tailed Shrew		Low risk - arsenic in diet. Modeling with high uncertainty. Uncertain population effects.				No	U / L [8, 9]	L	U / L [10]	L	U / L [11]	No
Warmwater fish populations	Reaches 2 to 6 with low risk based on tissue data. Uncertain risk in Reach 1.	HBHA Pond and HBHA Wetlands with low risk based on tissue arsenic data. Some exceedences of tissue benchmarks. Uncertain population effects.				No	L [9, 12]	L	U / L [10]	L	L [13]	No
Benthic Invertebrate Communities		HBHA wetland and Reaches 1 & 2 with Low/uncertain toxicity and communtiy impairment.		HBHA Pond with high risk based on severe toxicity and community impairment. High tissue metals.		No	U / M [9, 14]	L	L	L	L [13]	Yes

TABLE 8-5 (cont.)
SUMMARY OF RISK CONCLUSIONS - MSGRP RI STUDY AREA
DRAFT FINAL MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

RATING: L = LOW, M = MODERATE, H = HIGH , U = UNCERTAIN , n / a = NEGLIGIBLE RISK, or not applicable

NOTES:

1 Ecological significance is defined in USEPA (1997) or OSWER Directive 9285.7-28, "Ecological Risk Assessment and Risk Management Principles for Superfund Sites," dated October 7, 1999. The six categories address the factors recommended in the OSWER guidance to be considered in evaluating the significance of ecological effects. The magnitude of the potential risk was considered in evaluating the significance of each factor; a low risk to the receptor generally equates to low ecological significance.

2 No endangered species were identified. The affected populations do not represent other known species with sensitivity to the chemical of potential concern (arsenic).

3 The magnitude of the observed or predicted ecological effects and level of biological organization affected (individual, local population, or community).

4 The likelihood that effects will occur or continue in terms of bioaccumulation or biomagnification into the food chain.

5 The extent to which the affected area is important to the functioning of the surrounding habitat (e.g., wildlife migration corridor, overwintering habitat, etc.).

6 The degree to which the affected area itself (directly) represents highly sensitive or ecologically unique (essential) habitat to the receptor population (e.g., nursery habitat).

7 The likelihood an affected receptor will not recover from the effect of site releases (i.e., species has long generation time or limited foraging range, chemical persistance in the environment).

8 There is high uncertainty in the magnitude of risk because it was estimated using modeling methods without any direct measure of effect (no model verification).

9 Loss of individuals or effects on reproduction may be mitigated in the affected area by immigration from nearby habitats (recruitment from the regional population).

10 Halls Brook and the Aberjona River could function as migration corridors to wildlife and fish, however, it is uncertain whether they are used for this purpose.

11 Receptor has generation time that is moderately short, sediment arsenic is persistent in the affected area, but not fully bioavailable because of chelation to iron.

12 No population effect was detected in Reaches 1 to 6 based on tissue data, however, no fish tissue samples were collected in Reach 1. Tissue concentrations of arsenic exceeded benchmarks in Reach 0. Population effects uncertain in Reach 0.

13 Receptor has generation time that is short (invertebrates) or moderately short (fish), sediment arsenic is persistent in the affected area, but not fully bioavailable because of chelation to iron.

14 Triad analysis (chemical, biological, and ecological field sampling) identified a high magnitude of effect in the HBHA Pond, however, downgradient of the pond there was lower community effects associated with higher uncertainty.

15 Unacceptable Risk is defined in USEPA (see footnote 1) as a predicted impact to a local population or community of sufficient magnitude, severity, areal extent, and duration that they will not be able to recover and/or maintain themselves in a healthy state. Additionally, these effects are predicted to exceed the natural variation in similar reference areas.