APPENDIX F

OU1 AND OU2 DATA SUMMARY TABLES – SOIL, SURFACE WATER AND SEDIMENT

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Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1010-CP-TP15 CP-TP15 9/18/2001 0-2.25 ft		1010-CP-TP19 CP-TP19 9/18/2001 0-2.25 ft		1010-CP-TP8 CP-TP8 9/18/2001 0-2.25 ft		1010-SED-SDF-3S SDF-3 9/17/2001 0-0.5 ft		1010-SED-SDF-4S SDF-4 9/17/2001 0-0.5 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	38000	ns	2.6	0.07							0.72	U	0.79	U
1,1-Dichloroethane	17	c	0.00068								0.72	U	0.79	U
1,2,4-Trichlorobenzene	99	c**	0.0029	0.2							0.72	U	0.79	U
1,2,4-Trimethylbenzene	260	ns	0.021								0.72	U	0.79	U
1,2-Dichlorobenzene	9800	ns	0.27	0.58							0.72	U	0.79	U
1,2-Dichloroethane	2.2	c*	0.000042	0.0014							0.72	U	0.79	U
1,3,5-Trimethylbenzene	10000	ns	0.12								0.72	U	0.79	U
2,4,4-Trimethyl-1-pentene	39	n									0.72	U	0.79	U
2,4,4-Trimethyl-2-pentene	39	n									0.72	U	0.79	U
2-Butanone	200000	nms	1								14	U	16	U
Acetic acid, methyl ester	1000000	nms	3.2											
Acetone	630000	nms	2.4								14	U	16	U
Benzene	5.4	c*	0.0002	0.0026							0.72	U	0.79	U
Formaldehyde	120000	nm	0.62											
Methylene chloride	960	c**	0.0025	0.0013							1.4	U	1.6	U
Naphthalene	18	c*	0.00047								7.2	U	7.9	U
Styrene	36000	ns	1.2	0.11							0.72	U	0.79	U
Tetrachloroethene	110	c**	0.0044	0.0023							0.72	U	0.79	U
Tetrahydrofuran	95000	n	0.71											
Toluene	45000	ns	0.59	0.69							0.72	U	0.79	U
Trichloroethene	6.4	c**	0.00016	0.0018							0.72	U	0.79	U
Xylenes (m&p)											0.72	U	0.79	U
Xylenes, Total	2700	ns	0.19	9.8							0.72	U	0.79	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	53	c	0.0051											
2,4-Dimethylphenol	12000	n	0.32								3.2	U	4.8	U
2,4-Dinitrophenol	1200	n	0.034								3.2	U	4.8	U
2-Methylnaphthalene	2200	n	0.14								3.2	U	4.8	U
2-Methylphenol	31000	n	0.58								3.2	U	4.8	U
3 & 4 Methylphenol											3.2	U	4.8	U
Acenaphthene	33000	n	4.1								3.2	U	4.8	U
Acenaphthylene											3.2	U	4.8	U
Acetophenone	100000	nms	0.45											
Aniline	300	c*	0.0039								16	U	24	U
Anthracene	170000	nm	42								3.2	U	4.8	U
Benzaldehyde	100000	nms	0.33											
Benzo(a)anthracene	2.1	c	0.01								3.2	U	4.8	U
Benzo(a)pyrene	0.21	c	0.0035	0.24							3.2	U	4.8	U
Benzo(b)fluoranthene	2.1	c	0.035								3.2	U	4.8	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1010-CP-TP15 CP-TP15 9/18/2001 0-2.25 ft		1010-CP-TP19 CP-TP19 9/18/2001 0-2.25 ft		1010-CP-TP8 CP-TP8 9/18/2001 0-2.25 ft		1010-SED-SDF-3S SDF-3 9/17/2001 0-0.5 ft		1010-SED-SDF-4S SDF-4 9/17/2001 0-0.5 ft	
Benzo(ghi)perylene											3.2	U	4.8	U
Benzo(k)fluoranthene	21	c	0.35								3.2	U	4.8	U
Benzoic Acid	2500000	nm	14								16	U	24	U
Benzyl alcohol	62000	n	0.37								6.4	U	9.5	U
Biphenyl	210	n	0.0087											
Bis(2-Ethylhexyl)phthalate	120	c	1.1	1.4							2.2		20	
Butylbenzylphthalate	910	c	0.2								3.2	U	4.8	U
Carbazole														
Chrysene	210	c	1.1								3.2	U	4.8	U
Dibenz(a,h)anthracene	0.21	c	0.011								3.2	U	4.8	U
Dibenzofuran	1000	n	0.11								3.2	U	4.8	U
Diethylphthalate	490000	nm	4.7								3.2	U	4.8	U
Dimethylphthalate											3.2	U	4.8	U
Di-n-butylphthalate	62000	n	1.7								3.2	U	4.8	U
Di-n-octylphthalate	6200	n	44								3.2	U	4.8	U
Diphenyl ether														
Diphenylamine	15000	n	0.44											
Fluoranthene	22000	n	70								3.2	U	4.8	U
Fluorene	22000	n	4								3.2	U	4.8	U
Hexachlorobenzene	1.1	c	0.00053	0.013							3.2	U	4.8	U
Indeno(1,2,3-cd)pyrene	2.1	c	0.2								3.2	U	4.8	U
Naphthalene	18	c*	0.00047								3.2	U	4.8	U
N-Nitrosodiphenylamine	350	c	0.057								3.2	U	4.8	U
Pentachlorophenol	2.7	c	0.00036	0.01							16	U	24	U
Phenanthrene											3.2	U	4.8	U
Phenol	180000	nm	2.6								3.2	U	4.8	U
Pyrene	17000	n	9.5								3.2	U	4.8	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene	170000	nm	42											
Benzo(a)anthracene	2.1	c	0.01											
Benzo(a)pyrene	0.21	c	0.0035	0.24										
Benzo(b)fluoranthene	2.1	c	0.035											
Benzo(ghi)perylene														
Benzo(k)fluoranthene	21	c	0.35											
Chrysene	210	c	1.1											
Dibenz(a,h)anthracene	0.21	c	0.011											
Fluoranthene	22000	n	70											
Indeno(1,2,3-cd)pyrene	2.1	c	0.2											
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
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Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1010-CP-TP15 CP-TP15 9/18/2001 0-2.25 ft		1010-CP-TP19 CP-TP19 9/18/2001 0-2.25 ft		1010-CP-TP8 CP-TP8 9/18/2001 0-2.25 ft		1010-SED-SDF-3S SDF-3 9/17/2001 0-0.5 ft		1010-SED-SDF-4S SDF-4 9/17/2001 0-0.5 ft	
Pyrene	17000	n	9.5											
Pesticides/PCBs (mg/Kg)														
4,4'-DDD	7.2	c	0.0064											
4,4'-DDE	5.1	c	0.046											
4,4'-DDT	7	c*	0.067											
Aldrin	0.1	c	0.00065											
Alpha-BHC	0.27	c	0.000036											
Alpha-Chlordane														
Beta-BHC	0.96	c	0.00013											
Chlordane (technical)	6.5	c*	0.013	0.14										
Delta-BHC														
Dieldrin	0.11	c	0.000061											
Endosulfan I														
Endrin	180	n	0.068	0.081										
Endrin ketone														
Gamma-BHC/Lindane	2.1	c	0.00021	0.0012										
Heptachlor epoxide	0.19	c*	0.000068	0.0041										
Aroclor-1016	21	c**	0.092		0.11	U	0.11	U	0.11	U				
Aroclor-1260	0.74	c	0.024		0.11	U	0.11	U	0.11	U				
Inorganics (mg/Kg)														
Aluminum	990000	nm	23000											
Antimony	410	n	0.27	0.27										
Arsenic	2.4	cR	0.0013	0.29	**3.9**		**5.1**		**13**		12	U	18	U
Barium	190000	nm	120	82	20		9.9		9.9		19		52	
Beryllium	2000	n	13	3.2										
Cadmium	800	n	0.52	0.38	0.2	U	0.2	U	0.2	U	2	U	4	U
Calcium														
Chromium	1500000	nm		180000	13		560		390		310	J	1700	
Chromium, Hexavalent	5.6	c	0.00059								1.1	UT	1.7	UT
Cobalt	300	n	0.21											
Copper	41000	n	22	46										
Iron	720000	nm	270											
Lead	800	L		14	11		3.1		3.9		62		85	
Magnesium														
Manganese	23000	n	21											
Mercury	43	ns	0.033	0.1	0.05	U	0.05	U	0.05	U	0.24		0.41	
Nickel	20000	n	20											
Potassium														
Selenium	5100	n	0.4	0.26	1	U	1	U	1	U	12	U	18	U
Silver	5100	n	0.6		1	U	1	U	1	U	12	U	18	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1010-CP-TP15 CP-TP15 9/18/2001 0-2.25 ft		1010-CP-TP19 CP-TP19 9/18/2001 0-2.25 ft		1010-CP-TP8 CP-TP8 9/18/2001 0-2.25 ft		1010-SED-SDF-3S SDF-3 9/17/2001 0-0.5 ft		1010-SED-SDF-4S SDF-4 9/17/2001 0-0.5 ft	
Sodium														
Thallium	10	n	0.011	0.14										
Tin	610000	nm	2300											
Vanadium	5100	n	63											
Zinc	310000	nm	290											
Chloride														
Cyanide, Available														
Cyanide, Total	140	n	0.014	2										
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**											170		180	
pH **(pH units)**											5.67		5.27	
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics	500													
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene	0.21	c	0.0035	0.24	0.4	U	0.4	U	0.4	U	**2.2**		**3.4**	
Benzo(ghi)perylene					0.4	U	0.4	U	0.4	U	0.8	U	1.2	U
C11-C22 Aromatics	3000				8		20		6.8		30		81	
C11-C22 Aromatics (unadj.)	3000				8		20		6.8		32		85	
C19-C36 Aliphatics	5000				5.9		36		3.8	U	39		110	
C9-C18 Aliphatics	3000				3.5	UJ	6.7	J	3.8	UJ	8.4	J	16	J
Extractable Petroleum Hydrocarbons, Total					14		63		6.8		77		200	
Specialty Compounds (mg/Kg)														
Hydrazine	0.95	c												
Acetaldehyde	52	c**	0.00045											
Formaldehyde	120000	nm	0.62											
Phthalic Acid/Phthalic anhydride	1200000	nm	5.3											

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1010-SED-SDF-5S SDF-5 9/17/2001 0-0.5 ft		1010-SED-SDF-6S SDF-6 9/17/2001 0-0.5 ft		102A LP-102 11/30/1998 0-2 ft		1120-BD-C22 BD-C22 10/27/2000 0.6-0.6 ft		1120-BD-C26 BD-C26 10/27/2000 0.5-0.5 ft		1120-BD-C31 BD-C31 10/27/2000 0.5-0.5 ft		1130-OSFILL-1120 OSFILL-1120 11/15/2000	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
1,1-Dichloroethane	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
1,2,4-Trichlorobenzene	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
1,2,4-Trimethylbenzene	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
1,2-Dichlorobenzene	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
1,2-Dichloroethane	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
1,3,5-Trimethylbenzene	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
2,4,4-Trimethyl-1-pentene	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
2,4,4-Trimethyl-2-pentene	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
2-Butanone	5.9	U	7.9	U			9.8	U	2.6	U	2.7	U	2.5	U
Acetic acid, methyl ester														
Acetone	5.9	U	7.9	U			9.8	U	2.6	U	2.7	U	2.5	U
Benzene	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
Formaldehyde														
Methylene chloride	0.59	U	0.79	U			2	U	0.26	U	0.27	U	0.25	U
Naphthalene	3	U	4	U			4.9	U	1.3	U	1.3	U	1.3	U
Styrene	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
Tetrachloroethene	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
Tetrahydrofuran														
Toluene	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
Trichloroethene	0.3	U	0.4	U			0.49	U	0.13	U	0.13	U	0.13	U
Xylenes (m&p)	0.3	U	0.4	U			0.49	UK	0.13	U	0.13	U	0.13	U
Xylenes, Total	0.3	U	0.4	U			0.49	UK	0.13	U	0.13	U	0.13	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
2,4-Dinitrophenol	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
2-Methylnaphthalene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
2-Methylphenol	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
3 & 4 Methylphenol	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Acenaphthene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Acenaphthylene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Acetophenone														
Aniline	33	U	25	U			27	U	3.6	U	180	UC	1.8	U
Anthracene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Benzaldehyde														
Benzo(a)anthracene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Benzo(a)pyrene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Benzo(b)fluoranthene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1010-SED-SDF-5S SDF-5 9/17/2001 0-0.5 ft		1010-SED-SDF-6S SDF-6 9/17/2001 0-0.5 ft		102A LP-102 11/30/1998 0-2 ft		1120-BD-C22 BD-C22 10/27/2000 0.6-0.6 ft		1120-BD-C26 BD-C26 10/27/2000 0.5-0.5 ft		1120-BD-C31 BD-C31 10/27/2000 0.5-0.5 ft		1130-OSFILL-1120 OSFILL-1120 11/15/2000	
Benzo(ghi)perylene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Benzo(k)fluoranthene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Benzoic Acid	33	U	25	U			27	U	3.6	U	180	UC	1.8	U
Benzyl alcohol	13	U	10	U			11	U	1.5	U	72	UC	0.72	U
Biphenyl														
Bis(2-Ethylhexyl)phthalate	7		6.9				10		2.9		**375**	C	0.27	J
Butylbenzylphthalate	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Carbazole														
Chrysene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Dibenz(a,h)anthracene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Dibenzofuran	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Diethylphthalate	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Dimethylphthalate	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Di-n-butylphthalate	6.7	U	5.1	U			5.5	U	0.43	J	36	UC	0.36	U
Di-n-octylphthalate	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Diphenyl ether														
Diphenylamine														
Fluoranthene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Fluorene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Hexachlorobenzene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Indeno(1,2,3-cd)pyrene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Naphthalene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
N-Nitrosodiphenylamine	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Pentachlorophenol	33	U	25	U			27	U	3.6	U	180	U	1.8	U
Phenanthrene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Phenol	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
Pyrene	6.7	U	5.1	U			5.5	U	0.73	U	36	UC	0.36	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1010-SED-SDF-5S SDF-5 9/17/2001 0-0.5 ft		1010-SED-SDF-6S SDF-6 9/17/2001 0-0.5 ft		102A LP-102 11/30/1998 0-2 ft		1120-BD-C22 BD-C22 10/27/2000 0.6-0.6 ft		1120-BD-C26 BD-C26 10/27/2000 0.5-0.5 ft		1120-BD-C31 BD-C31 10/27/2000 0.5-0.5 ft		1130-OSFILL-1120 OSFILL-1120 11/15/2000	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD							0.21	U	0.011	U	0.01	U		
4,4'-DDE							0.21	U	0.011	U	0.01	U		
4,4'-DDT							0.21	U	0.011	U	0.01	U		
Aldrin							0.21	U	0.011	U	0.01	U		
Alpha-BHC							0.21	U	0.011	U	0.01	U		
Alpha-Chlordane														
Beta-BHC							0.21	U	0.011	U	0.01	U		
Chlordane (technical)														
Delta-BHC							0.21	U	0.011	U	0.01	U		
Dieldrin							0.21	U	0.011	U	0.01	U		
Endosulfan I							0.21	U	0.011	U	0.01	U		
Endrin							0.21	U	0.011	U	0.01	U		
Endrin ketone														
Gamma-BHC/Lindane							0.21	U	0.011	U	0.01	U		
Heptachlor epoxide							0.21	U	0.011	U	0.01	U		
Aroclor-1016													0.11	U
Aroclor-1260													0.11	U
Inorganics (mg/Kg)														
Aluminum							1200		6800		5800			
Antimony														
Arsenic	18	U	21	U			5	U	**4.7**		**4**		**13**	
Barium	52		23										13	
Beryllium														
Cadmium	4	U	4	U			0.9	U	0.2	U	0.35		0.2	U
Calcium														
Chromium	300		400		117		5	U	36		38		11	
Chromium, Hexavalent	1.7	UT	2.5	UT	2.29	T								
Cobalt														
Copper														
Iron							710		5900		4900			
Lead	52		45				5	U	6.2		6.6		4.2	
Magnesium														
Manganese														
Mercury	0.33		0.23				0.2	U	0.05	U	0.05	U	0.05	U
Nickel														
Potassium														
Selenium	18	U	20	U			5	U	1	U	1	U	1	U
Silver	18	U	21	U									1	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1010-SED-SDF-5S SDF-5 9/17/2001 0-0.5 ft		1010-SED-SDF-6S SDF-6 9/17/2001 0-0.5 ft		102A LP-102 11/30/1998 0-2 ft		1120-BD-C22 BD-C22 10/27/2000 0.6-0.6 ft		1120-BD-C26 BD-C26 10/27/2000 0.5-0.5 ft		1120-BD-C31 BD-C31 10/27/2000 0.5-0.5 ft		1130-OSFILL-1120 OSFILL-1120 11/15/2000	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**	160		210											
pH **(pH units)**	5.73		4.77											
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene	**1.2**		**2**											
Benzo(ghi)perylene	3.9		8.4											
C11-C22 Aromatics	130		92										7.1	
C11-C22 Aromatics (unadj.)	140		100										7.1	
C19-C36 Aliphatics	190		110										6.2	
C9-C18 Aliphatics	17	J	17	J									3.6	UK
Extractable Petroleum Hydrocarbons, Total	340		210										13	
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1130-OSFILL-1170 OSFILL-1170 11/15/2000		1130-OSFILL-1220 OSFILL-1220 11/15/2000		1130-OSFILL-400 OSFILL-400 11/15/2000		1130-OSFILL-460 OSFILL-460 11/15/2000		1130-OSFILL-530 OSFILL-530 11/15/2000		1130-OSFILL-550 OSFILL-550 10/13/2000		1130-OSFILL-600 OSFILL-600 11/15/2000	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
1,1-Dichloroethane	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
1,2,4-Trichlorobenzene	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
1,2,4-Trimethylbenzene	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
1,2-Dichlorobenzene	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
1,2-Dichloroethane	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
1,3,5-Trimethylbenzene	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
2,4,4-Trimethyl-1-pentene	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
2,4,4-Trimethyl-2-pentene	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
2-Butanone	2.7	U	2.7	U	2.6	U	2.5	U	2.8	U	2.5	U	2.6	U
Acetic acid, methyl ester														
Acetone	2.7	U	2.7	U	2.6	U	2.5	U	2.8	U	2.5	U	2.6	U
Benzene	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
Formaldehyde														
Methylene chloride	0.27	U	0.27	U	0.26	U	0.25	U	0.28	U	0.12	U	0.26	U
Naphthalene	1.3	U	1.3	U	1.3	U	1.3	U	1.4	U	1.2	U	1.3	U
Styrene	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
Tetrachloroethene	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
Tetrahydrofuran														
Toluene	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
Trichloroethene	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
Xylenes (m&p)	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
Xylenes, Total	0.13	U	0.13	U	0.13	U	0.13	U	0.14	U	0.12	U	0.13	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
2,4-Dinitrophenol	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
2-Methylnaphthalene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
2-Methylphenol	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
3 & 4 Methylphenol	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Acenaphthene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Acenaphthylene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Acetophenone														
Aniline	1.8	U	1.8	U	1.8	U	1.9	U	1.8	U	1.7	U	1.8	U
Anthracene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Benzaldehyde														
Benzo(a)anthracene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Benzo(a)pyrene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Benzo(b)fluoranthene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1130-OSFILL-1170 OSFILL-1170 11/15/2000		1130-OSFILL-1220 OSFILL-1220 11/15/2000		1130-OSFILL-400 OSFILL-400 11/15/2000		1130-OSFILL-460 OSFILL-460 11/15/2000		1130-OSFILL-530 OSFILL-530 11/15/2000		1130-OSFILL-550 OSFILL-550 10/13/2000		1130-OSFILL-600 OSFILL-600 11/15/2000	
Benzo(ghi)perylene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Benzo(k)fluoranthene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Benzoic Acid	1.8	U	1.8	U	1.8	U	1.9	U	1.8	U	1.7	U	1.8	U
Benzyl alcohol	0.73	U	0.71	U	0.72	U	0.74	U	0.73	U	0.69	U	0.72	U
Biphenyl														
Bis(2-Ethylhexyl)phthalate	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.39		0.36	U
Butylbenzylphthalate	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Carbazole														
Chrysene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Dibenz(a,h)anthracene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Dibenzofuran	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Diethylphthalate	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Dimethylphthalate	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Di-n-butylphthalate	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Di-n-octylphthalate	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Diphenyl ether														
Diphenylamine														
Fluoranthene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Fluorene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Hexachlorobenzene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Indeno(1,2,3-cd)pyrene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Naphthalene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
N-Nitrosodiphenylamine	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Pentachlorophenol	1.8	U	1.8	U	1.8	U	1.9	U	1.8	U	1.7	U	1.8	U
Phenanthrene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Phenol	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
Pyrene	0.37	U	0.36	U	0.36	U	0.37	U	0.36	U	0.35	U	0.36	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1130-OSFILL-1170 OSFILL-1170 11/15/2000		1130-OSFILL-1220 OSFILL-1220 11/15/2000		1130-OSFILL-400 OSFILL-400 11/15/2000		1130-OSFILL-460 OSFILL-460 11/15/2000		1130-OSFILL-530 OSFILL-530 11/15/2000		1130-OSFILL-550 OSFILL-550 10/13/2000		1130-OSFILL-600 OSFILL-600 11/15/2000	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016	0.11	U	0.11	U	0.11	UF	0.11	U	0.1	U	0.1	U	0.11	U
Aroclor-1260	0.11	U	0.11	U	0.11	U	0.11	U	0.1	U	0.1	U	0.11	U
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic	**14**		**14**		**12**		**16**		**11**		**7.2**		**12**	
Barium	13		13		21		12		17		9.9		17	
Beryllium														
Cadmium	0.2	U	0.3	U	0.3	U	0.3	U	0.3	U	0.2	U	0.3	U
Calcium														
Chromium	10		10		14		8.7		11		8.9		11	
Chromium, Hexavalent														
Cobalt														
Copper														
Iron														
Lead	4		3.8		5.3		3.7		4.7		3.6		4.5	
Magnesium														
Manganese														
Mercury	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.04	U	0.05	U
Nickel														
Potassium														
Selenium	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Silver	1	U	1	U	1	U	1	U	1	U	1	U	1	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1130-OSFILL-1170 OSFILL-1170 11/15/2000		1130-OSFILL-1220 OSFILL-1220 11/15/2000		1130-OSFILL-400 OSFILL-400 11/15/2000		1130-OSFILL-460 OSFILL-460 11/15/2000		1130-OSFILL-530 OSFILL-530 11/15/2000		1130-OSFILL-550 OSFILL-550 10/13/2000		1130-OSFILL-600 OSFILL-600 11/15/2000	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics	3.6	U	3.6	U	3.6	U	3.7	U	3.6	U	8.4		3.6	U
C11-C22 Aromatics (unadj.)	3.6	U	3.6	U	3.6	U	3.7	U	3.6	U	8.4		3.6	U
C19-C36 Aliphatics	3.6	U	3.6	U	3.6	U	3.7	U	3.6	U	6.9		3.6	U
C9-C18 Aliphatics	3.6	UK	3.6	UK	3.6	UFK	3.7	UK	3.6	UK	3.4	U	3.6	UK
Extractable Petroleum Hydrocarbons, Total	3.6	U	3.6	U	3.6	U	3.7	U	3.6	U	15		3.6	U
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C78 CP-C78 5/9/2001 0.9-0.9 ft		1140-SD-C1 SD-C1 10/3/2000 0.5-0.5 ft		1140-SD-C10 SD-C10 10/11/2000 0.46-0.46 ft		1140-SD-C13 SD-C13 10/11/2000 0.46-0.46 ft		1140-SD-C14 SD-C14 10/11/2000 0.54-0.5		1140-SD-C15 SD-C15 10/11/2000 0.49-0.49		1140-SD-C16B SD-C16B 10/12/2000 0.21-0.21 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane					0.14	U					0.17	U		
1,1-Dichloroethane					0.14	U					0.17	U		
1,2,4-Trichlorobenzene					0.14	U					0.17	U		
1,2,4-Trimethylbenzene					0.14	U					0.17	U		
1,2-Dichlorobenzene					0.14	U					0.17	U		
1,2-Dichloroethane					0.14	U					0.17	U		
1,3,5-Trimethylbenzene					0.14	U					0.17	U		
2,4,4-Trimethyl-1-pentene					0.14	U					0.17	U		
2,4,4-Trimethyl-2-pentene					0.14	U					0.17	U		
2-Butanone					2.8	U					3.4	U		
Acetic acid, methyl ester														
Acetone					2.8	U					3.4	U		
Benzene					0.14	U					0.17	U		
Formaldehyde														
Methylene chloride					0.14	U					0.17	U		
Naphthalene					1.4	U					1.7	U		
Styrene					0.14	U					0.17	U		
Tetrachloroethene					0.14	U					0.17	U		
Tetrahydrofuran														
Toluene					0.14	U					0.17	U		
Trichloroethene					0.14	U					0.17	U		
Xylenes (m&p)					0.14	U					0.17	U		
Xylenes, Total					0.14	U					0.17	U		
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
2,4-Dinitrophenol	1.8	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
2-Methylnaphthalene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
2-Methylphenol	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
3 & 4 Methylphenol			0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Acenaphthene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Acenaphthylene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Acetophenone														
Aniline			2.1	U	1.9	U	13	U	3.5	U	2.2	U	23	U
Anthracene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Benzaldehyde														
Benzo(a)anthracene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Benzo(a)pyrene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Benzo(b)fluoranthene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C78 CP-C78 5/9/2001 0.9-0.9 ft		1140-SD-C1 SD-C1 10/3/2000 0.5-0.5 ft		1140-SD-C10 SD-C10 10/11/2000 0.46-0.46 ft		1140-SD-C13 SD-C13 10/11/2000 0.46-0.46 ft		1140-SD-C14 SD-C14 10/11/2000 0.54-0.5		1140-SD-C15 SD-C15 10/11/2000 0.49-0.49		1140-SD-C16B SD-C16B 10/12/2000 0.21-0.21 ft	
Benzo(ghi)perylene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Benzo(k)fluoranthene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Benzoic Acid			2.1	U	1.9	U	13	U	3.5	U	2.2	U	23	U
Benzyl alcohol	0.74	U	0.86	U	0.78	U	5.2	U	1.4	U	0.88	U	9.2	U
Biphenyl														
Bis(2-Ethylhexyl)phthalate	0.21	J	0.43	U	0.34	J	8.8		0.7	U	0.88		28	
Butylbenzylphthalate	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Carbazole	0.37	U												
Chrysene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Dibenz(a,h)anthracene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Dibenzofuran	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Diethylphthalate	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Dimethylphthalate	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Di-n-butylphthalate	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Di-n-octylphthalate	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Diphenyl ether														
Diphenylamine														
Fluoranthene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Fluorene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Hexachlorobenzene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Indeno(1,2,3-cd)pyrene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Naphthalene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
N-Nitrosodiphenylamine	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Pentachlorophenol	1.8	U	2.1	U	1.9	U	13	U	3.5	U	2.2	U	23	U
Phenanthrene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Phenol	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
Pyrene	0.37	U	0.43	U	0.39	U	2.6	U	0.7	U	0.44	U	4.6	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C78 CP-C78 5/9/2001 0.9-0.9 ft		1140-SD-C1 SD-C1 10/3/2000 0.5-0.5 ft		1140-SD-C10 SD-C10 10/11/2000 0.46-0.46 ft		1140-SD-C13 SD-C13 10/11/2000 0.46-0.46 ft		1140-SD-C14 SD-C14 10/11/2000 0.54-0.5		1140-SD-C15 SD-C15 10/11/2000 0.49-0.49		1140-SD-C16B SD-C16B 10/12/2000 0.21-0.21 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD					0.058	U					0.068	U		
4,4'-DDE					0.058	U					0.068	U		
4,4'-DDT					0.058	U					0.068	U		
Aldrin					0.058	U					0.068	U		
Alpha-BHC					0.058	U					0.068	U		
Alpha-Chlordane														
Beta-BHC					0.15	U					0.17	U		
Chlordane (technical)														
Delta-BHC					0.058	U					0.068	U		
Dieldrin					0.058	U					0.068	U		
Endosulfan I					0.058	U					0.068	U		
Endrin					0.058	U					0.068	U		
Endrin ketone														
Gamma-BHC/Lindane					0.058	U					0.068	U		
Heptachlor epoxide					0.058	U					0.068	U		
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum					670						3900			
Antimony														
Arsenic					1	U					2			
Barium														
Beryllium														
Cadmium					0.3	U					0.4	U		
Calcium														
Chromium	69		300	G	1.4		46		36		33		55	
Chromium, Hexavalent														
Cobalt														
Copper														
Iron					81						2500			
Lead					1.5						5.1			
Magnesium														
Manganese														
Mercury					0.05	U					0.06	U		
Nickel														
Potassium														
Selenium					1	U					2	U		
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C78 CP-C78 5/9/2001 0.9-0.9 ft	1140-SD-C1 SD-C1 10/3/2000 0.5-0.5 ft	1140-SD-C10 SD-C10 10/11/2000 0.46-0.46 ft	1140-SD-C13 SD-C13 10/11/2000 0.46-0.46 ft	1140-SD-C14 SD-C14 10/11/2000 0.54-0.5	1140-SD-C15 SD-C15 10/11/2000 0.49-0.49	1140-SD-C16B SD-C16B 10/12/2000 0.21-0.21 ft
Sodium							
Thallium							
Tin							
Vanadium							
Zinc							
Chloride							
Cyanide, Available							
Cyanide, Total							
Eh **(mV)**							
Nitrogen, as Ammonia							
Oxidation Reduction Potential **(mV)**							
pH **(pH units)**							
Sulfate							
Total Organic Carbon							
Total Organic Carbon **(%)**							
VPH (mg/Kg)							
C9-C10 Aromatics							
Volatile Petroleum Hydrocarbons, Total							
EPH (mg/Kg)							
Benzo(a)pyrene							
Benzo(ghi)perylene							
C11-C22 Aromatics							
C11-C22 Aromatics (unadj.)							
C19-C36 Aliphatics							
C9-C18 Aliphatics							
Extractable Petroleum Hydrocarbons, Total							
Specialty Compounds (mg/Kg)							
Hydrazine							
Acetaldehyde							
Formaldehyde							
Phthalic Acid/Phthalic anhydride							

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C17B SD-C17B 10/12/2000 0.47-0		1140-SD-C18B SD-C18B 10/12/2000 -0.03- -0.03 ft		1140-SD-C19B SD-C19B 10/12/2000 0.11-0.11 ft		1140-SD-C1B SD-C1B 10/3/2000 0.5-0.5 ft		1140-SD-C2 SD-C2 10/3/2000 0.5-0.5 ft		1140-SD-C20B SD-C20B 10/12/2000 0.51-0.51 ft		1140-SD-C21B SD-C21B 10/12/2000 0.27-0.27 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.14	U			0.13	U							0.14	U
1,1-Dichloroethane	0.14	U			0.13	U							0.14	U
1,2,4-Trichlorobenzene	0.14	U			0.13	U							0.14	U
1,2,4-Trimethylbenzene	0.14	U			0.13	U							0.14	U
1,2-Dichlorobenzene	0.14	U			0.13	U							0.14	U
1,2-Dichloroethane	0.14	U			0.13	U							0.14	U
1,3,5-Trimethylbenzene	0.14	U			0.13	U							0.14	U
2,4,4-Trimethyl-1-pentene	0.14	U			0.13	U							0.14	U
2,4,4-Trimethyl-2-pentene	0.14	U			0.13	U							0.14	U
2-Butanone	2.8	U			2.7	U							2.9	U
Acetic acid, methyl ester														
Acetone	2.8	U			2.7	U							2.9	U
Benzene	0.14	U			0.13	U							0.14	U
Formaldehyde														
Methylene chloride	0.14	U			0.13	U							0.14	U
Naphthalene	1.4	U			1.3	U							1.4	U
Styrene	0.14	U			0.13	U							0.14	U
Tetrachloroethene	0.14	U			0.13	U							0.14	U
Tetrahydrofuran														
Toluene	0.14	U			0.13	U							0.14	U
Trichloroethene	0.14	U			0.13	U							0.14	U
Xylenes (m&p)	0.14	U			0.13	U							0.14	U
Xylenes, Total	0.14	U			0.13	U							0.14	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
2,4-Dinitrophenol	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
2-Methylnaphthalene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
2-Methylphenol	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
3 & 4 Methylphenol	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Acenaphthene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Acenaphthylene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Acetophenone														
Aniline	2.1	U	2	U	2	U	2	U	2.2	U	2.2	U	20	U
Anthracene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Benzaldehyde														
Benzo(a)anthracene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Benzo(a)pyrene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Benzo(b)fluoranthene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C17B SD-C17B 10/12/2000 0.47-0		1140-SD-C18B SD-C18B 10/12/2000 -0.03- -0.03 ft		1140-SD-C19B SD-C19B 10/12/2000 0.11-0.11 ft		1140-SD-C1B SD-C1B 10/3/2000 0.5-0.5 ft		1140-SD-C2 SD-C2 10/3/2000 0.5-0.5 ft		1140-SD-C20B SD-C20B 10/12/2000 0.51-0.51 ft		1140-SD-C21B SD-C21B 10/12/2000 0.27-0.27 ft	
Benzo(ghi)perylene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Benzo(k)fluoranthene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Benzoic Acid	2.1	U	2	U	2	U	2	U	2.2	U	2.2	U	20	U
Benzyl alcohol	0.85	U	0.8	U	0.8	U	0.8	U	0.89	U	0.89	U	8	U
Biphenyl														
Bis(2-Ethylhexyl)phthalate	0.89		0.25	J	1.2		0.4	U	0.44	U	0.29	J	40	
Butylbenzylphthalate	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Carbazole														
Chrysene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Dibenz(a,h)anthracene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Dibenzofuran	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Diethylphthalate	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Dimethylphthalate	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Di-n-butylphthalate	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Di-n-octylphthalate	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Diphenyl ether														
Diphenylamine														
Fluoranthene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Fluorene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Hexachlorobenzene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Indeno(1,2,3-cd)pyrene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Naphthalene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
N-Nitrosodiphenylamine	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Pentachlorophenol	2.1	U	2	U	2	U	2	U	2.2	U	2.2	U	20	U
Phenanthrene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Phenol	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
Pyrene	0.42	U	0.4	U	0.4	U	0.4	U	0.44	U	0.44	U	4	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C17B SD-C17B 10/12/2000 0.47-0		1140-SD-C18B SD-C18B 10/12/2000 -0.03- -0.03 ft		1140-SD-C19B SD-C19B 10/12/2000 0.11-0.11 ft		1140-SD-C1B SD-C1B 10/3/2000 0.5-0.5 ft		1140-SD-C2 SD-C2 10/3/2000 0.5-0.5 ft		1140-SD-C20B SD-C20B 10/12/2000 0.51-0.51 ft		1140-SD-C21B SD-C21B 10/12/2000 0.27-0.27 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD	0.064	U			0.057	U							0.06	U
4,4'-DDE	0.064	U			0.057	U							0.06	U
4,4'-DDT	0.064	U			0.057	U							0.06	U
Aldrin	0.064	U			0.057	U							0.06	U
Alpha-BHC	0.064	U			0.057	U							0.06	U
Alpha-Chlordane														
Beta-BHC	0.16	U			0.14	U							0.15	U
Chlordane (technical)														
Delta-BHC	0.064	U			0.057	U							0.06	U
Dieldrin	0.064	U			0.057	U							0.06	U
Endosulfan I	0.064	U			0.057	U							0.06	U
Endrin	0.064	U			0.057	U							0.06	U
Endrin ketone														
Gamma-BHC/Lindane	0.064	U			0.057	U							0.06	U
Heptachlor epoxide	0.064	U			0.057	U							0.06	U
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	1500				1000								4600	
Antimony														
Arsenic	**9.4**				3	U							**3**	
Barium														
Beryllium														
Cadmium	0.3	U			0.3	U							0.3	U
Calcium														
Chromium	170		250		180		140	G	200	G	120		300	
Chromium, Hexavalent														
Cobalt														
Copper														
Iron	4500				1800								6200	
Lead	14				3.4								4.1	
Magnesium														
Manganese														
Mercury	0.06	U			0.05	U							0.05	U
Nickel														
Potassium														
Selenium	3	U			3	U							3	U
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C17B SD-C17B 10/12/2000 0.47-0	1140-SD-C18B SD-C18B 10/12/2000 -0.03- -0.03 ft	1140-SD-C19B SD-C19B 10/12/2000 0.11-0.11 ft	1140-SD-C1B SD-C1B 10/3/2000 0.5-0.5 ft	1140-SD-C2 SD-C2 10/3/2000 0.5-0.5 ft	1140-SD-C20B SD-C20B 10/12/2000 0.51-0.51 ft	1140-SD-C21B SD-C21B 10/12/2000 0.27-0.27 ft
Sodium							
Thallium							
Tin							
Vanadium							
Zinc							
Chloride							
Cyanide, Available							
Cyanide, Total							
Eh **(mV)**							
Nitrogen, as Ammonia							
Oxidation Reduction Potential **(mV)**							
pH **(pH units)**							
Sulfate							
Total Organic Carbon							
Total Organic Carbon **(%)**							
VPH (mg/Kg)							
C9-C10 Aromatics							
Volatile Petroleum Hydrocarbons, Total							
EPH (mg/Kg)							
Benzo(a)pyrene							
Benzo(ghi)perylene							
C11-C22 Aromatics							
C11-C22 Aromatics (unadj.)							
C19-C36 Aliphatics							
C9-C18 Aliphatics							
Extractable Petroleum Hydrocarbons, Total							
Specialty Compounds (mg/Kg)							
Hydrazine							
Acetaldehyde							
Formaldehyde							
Phthalic Acid/Phthalic anhydride							

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C29B SD-C29B 11/2/2000 0.48-0.48 ft		1140-SD-C30B SD-C30B 11/2/2000 0.48-0.48 ft		1140-SD-C40B SD-C40B 11/3/2000 0.48-0.48 ft		1140-SD-C42B SD-C42B 11/3/2000 0.38-0.38 ft		1140-SD-C43B SD-C43B 11/3/2000 0.65-0.65 ft		1140-SD-C48N SD-C48N 5/14/2001 0.26-0.76 ft		1140-SD-C48S SD-C48S 5/14/2001 0.66-1.16 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.14	U					0.18	U	0.16	U				
1,1-Dichloroethane	0.14	U					0.18	U	0.16	U				
1,2,4-Trichlorobenzene	0.14	U					0.18	UB	0.16	UB				
1,2,4-Trimethylbenzene	0.14	U					0.18	U	0.16	U				
1,2-Dichlorobenzene	0.14	U					0.18	U	0.16	U				
1,2-Dichloroethane	0.14	U					0.18	U	0.16	U				
1,3,5-Trimethylbenzene	0.14	U					0.18	U	0.16	U				
2,4,4-Trimethyl-1-pentene	0.14	U					0.18	U	0.16	U				
2,4,4-Trimethyl-2-pentene	0.14	U					0.18	U	0.16	U				
2-Butanone	2.7	U					3.7	U	3.3	U				
Acetic acid, methyl ester														
Acetone	2.7	U					3.7	U	3.3	U				
Benzene	0.14	U					0.18	U	0.16	U				
Formaldehyde														
Methylene chloride	0.27	U					0.44	B	0.33	UB				
Naphthalene	1.4	U					1.8	U	1.6	U				
Styrene	0.14	U					0.18	U	0.16	U				
Tetrachloroethene	0.14	U					0.18	U	0.16	U				
Tetrahydrofuran														
Toluene	0.14	U					0.18	U	0.16	U				
Trichloroethene	0.14	U					0.18	U	0.16	U				
Xylenes (m&p)	0.14	U					0.18	U	0.16	U				
Xylenes, Total	0.14	U					0.18	U	0.16	U				
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
2,4-Dinitrophenol	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
2-Methylnaphthalene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
2-Methylphenol	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
3 & 4 Methylphenol	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Acenaphthene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Acenaphthylene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Acetophenone														
Aniline	110	UC	2.7	UC	2.6	UC	25	UC	41	UC				
Anthracene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Benzaldehyde														
Benzo(a)anthracene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Benzo(a)pyrene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Benzo(b)fluoranthene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C29B SD-C29B 11/2/2000 0.48-0.48 ft		1140-SD-C30B SD-C30B 11/2/2000 0.48-0.48 ft		1140-SD-C40B SD-C40B 11/3/2000 0.48-0.48 ft		1140-SD-C42B SD-C42B 11/3/2000 0.38-0.38 ft		1140-SD-C43B SD-C43B 11/3/2000 0.65-0.65 ft		1140-SD-C48N SD-C48N 5/14/2001 0.26-0.76 ft		1140-SD-C48S SD-C48S 5/14/2001 0.66-1.16 ft	
Benzo(ghi)perylene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Benzo(k)fluoranthene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Benzoic Acid	110	UC	2.7	UC	2.6	UC	25	UC	41	UC				
Benzyl alcohol	46	UC	1.1	UC	1.1	UC	10	UC	17	UC				
Biphenyl														
Bis(2-Ethylhexyl)phthalate	99	C	0.58	C	1.9	C	3.2	JC	52	C				
Butylbenzylphthalate	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Carbazole														
Chrysene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Dibenz(a,h)anthracene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Dibenzofuran	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Diethylphthalate	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Dimethylphthalate	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Di-n-butylphthalate	23	UC	0.53	UC	0.53	UC	3	JC	8.3	UC				
Di-n-octylphthalate	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Diphenyl ether														
Diphenylamine														
Fluoranthene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Fluorene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Hexachlorobenzene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Indeno(1,2,3-cd)pyrene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Naphthalene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
N-Nitrosodiphenylamine	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Pentachlorophenol	110	U	2.7	U	2.6	U	25	U	41	U				
Phenanthrene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Phenol	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
Pyrene	23	UC	0.53	UC	0.53	UC	5.1	UC	8.3	UC				
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C29B SD-C29B 11/2/2000 0.48-0.48 ft		1140-SD-C30B SD-C30B 11/2/2000 0.48-0.48 ft		1140-SD-C40B SD-C40B 11/3/2000 0.48-0.48 ft		1140-SD-C42B SD-C42B 11/3/2000 0.38-0.38 ft		1140-SD-C43B SD-C43B 11/3/2000 0.65-0.65 ft		1140-SD-C48N SD-C48N 5/14/2001 0.26-0.76 ft		1140-SD-C48S SD-C48S 5/14/2001 0.66-1.16 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD	0.065	U					0.015	U	0.12	U				
4,4'-DDE	0.065	U					0.015	U	0.12	U				
4,4'-DDT	0.065	U					0.015	J	0.12	U				
Aldrin	0.065	U					0.015	U	0.12	U				
Alpha-BHC	0.065	U					0.015	U	0.12	U				
Alpha-Chlordane														
Beta-BHC	0.065	U					0.015	U	0.12	U				
Chlordane (technical)														
Delta-BHC	0.065	U					0.015	U	0.12	U				
Dieldrin	0.065	U					0.015	U	0.12	U				
Endosulfan I	0.065	U					0.015	U	0.12	U				
Endrin	0.065	U					0.015	U	0.12	U				
Endrin ketone														
Gamma-BHC/Lindane	0.065	U					0.015	U	0.12	U				
Heptachlor epoxide	0.065	U					0.015	U	0.12	U				
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	2200						4100		4800					
Antimony														
Arsenic	2	U					**32**		**31**					
Barium														
Beryllium														
Cadmium	0.3	U					0.3	U	0.5					
Calcium														
Chromium	210		49		140		1400		96		150		240	
Chromium, Hexavalent														
Cobalt														
Copper														
Iron	1300						13000		14000					
Lead	3						19		9.9					
Magnesium														
Manganese														
Mercury	0.06	U					0.09		0.11					
Nickel														
Potassium														
Selenium	3	U					2	U	1	U				
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C29B SD-C29B 11/2/2000 0.48-0.48 ft	1140-SD-C30B SD-C30B 11/2/2000 0.48-0.48 ft	1140-SD-C40B SD-C40B 11/3/2000 0.48-0.48 ft	1140-SD-C42B SD-C42B 11/3/2000 0.38-0.38 ft	1140-SD-C43B SD-C43B 11/3/2000 0.65-0.65 ft	1140-SD-C48N SD-C48N 5/14/2001 0.26-0.76 ft	1140-SD-C48S SD-C48S 5/14/2001 0.66-1.16 ft
Sodium							
Thallium							
Tin							
Vanadium							
Zinc							
Chloride							
Cyanide, Available							
Cyanide, Total							
Eh **(mV)**							
Nitrogen, as Ammonia							
Oxidation Reduction Potential **(mV)**							
pH **(pH units)**							
Sulfate							
Total Organic Carbon							
Total Organic Carbon **(%)**							
VPH (mg/Kg)							
C9-C10 Aromatics							
Volatile Petroleum Hydrocarbons, Total							
EPH (mg/Kg)							
Benzo(a)pyrene							
Benzo(ghi)perylene							
C11-C22 Aromatics							
C11-C22 Aromatics (unadj.)							
C19-C36 Aliphatics							
C9-C18 Aliphatics							
Extractable Petroleum Hydrocarbons, Total							
Specialty Compounds (mg/Kg)							
Hydrazine							
Acetaldehyde							
Formaldehyde							
Phthalic Acid/Phthalic anhydride							

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C49N SD-C49N 5/14/2001 -0.04-0.46 ft		1140-SD-C50N SD-C50N 5/14/2001 0.06-0.56 ft		1140-SD-C51N SD-C51N 5/14/2001 0.56-1.06 ft		1140-SD-C52N SD-C52N 5/14/2001 0.56-1.06 ft		1140-SD-C53N SD-C53N 5/15/2001 0.63-1.13 ft		1140-SD-C54S SD-C54S 5/15/2001 0.53-1.03 ft		1140-SD-C6 SD-C6 10/11/2000 0.48-0.48 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane							0.13	U					0.34	U
1,1-Dichloroethane							0.13	U					0.34	U
1,2,4-Trichlorobenzene							0.13	U					0.34	U
1,2,4-Trimethylbenzene							0.13	U					0.34	U
1,2-Dichlorobenzene							0.13	U					0.34	U
1,2-Dichloroethane							0.13	U					0.34	U
1,3,5-Trimethylbenzene							0.13	U					0.34	U
2,4,4-Trimethyl-1-pentene							0.13	U					0.34	U
2,4,4-Trimethyl-2-pentene							0.13	U					0.34	U
2-Butanone							2.6	U					6.7	U
Acetic acid, methyl ester														
Acetone							2.6	U					6.7	U
Benzene							0.13	U					0.34	U
Formaldehyde														
Methylene chloride							0.26	U					0.34	U
Naphthalene							1.3	U					3.4	U
Styrene							0.13	U					0.34	U
Tetrachloroethene							0.13	U					0.34	U
Tetrahydrofuran														
Toluene							0.13	U					0.34	U
Trichloroethene							0.13	U					0.34	U
Xylenes (m&p)							0.13	U					0.34	U
Xylenes, Total							0.13	U					0.34	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol											0.82	U	8.8	U
2,4-Dinitrophenol											0.82	U	8.8	U
2-Methylnaphthalene											0.82	U	8.8	U
2-Methylphenol											0.82	U	8.8	U
3 & 4 Methylphenol											0.82	U	8.8	U
Acenaphthene											0.82	U	8.8	U
Acenaphthylene											0.82	U	8.8	U
Acetophenone														
Aniline											4.1	U	44	U
Anthracene											0.82	U	8.8	U
Benzaldehyde														
Benzo(a)anthracene											0.82	U	8.8	U
Benzo(a)pyrene											0.82	U	8.8	U
Benzo(b)fluoranthene											0.82	U	8.8	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C49N SD-C49N 5/14/2001 -0.04-0.46 ft	1140-SD-C50N SD-C50N 5/14/2001 0.06-0.56 ft	1140-SD-C51N SD-C51N 5/14/2001 0.56-1.06 ft	1140-SD-C52N SD-C52N 5/14/2001 0.56-1.06 ft	1140-SD-C53N SD-C53N 5/15/2001 0.63-1.13 ft	1140-SD-C54S SD-C54S 5/15/2001 0.53-1.03 ft	1140-SD-C6 SD-C6 10/11/2000 0.48-0.48 ft
Benzo(ghi)perylene						0.82 U	8.8 U
Benzo(k)fluoranthene						0.82 U	8.8 U
Benzoic Acid						4.1 U	44 U
Benzyl alcohol						1.6 U	18 U
Biphenyl							
Bis(2-Ethylhexyl)phthalate						1.1	110
Butylbenzylphthalate						0.82 U	8.8 U
Carbazole							
Chrysene						0.82 U	8.8 U
Dibenz(a,h)anthracene						0.82 U	8.8 U
Dibenzofuran						0.82 U	8.8 U
Diethylphthalate						0.82 U	8.8 U
Dimethylphthalate						0.82 U	8.8 U
Di-n-butylphthalate						0.82 U	8.8 U
Di-n-octylphthalate						0.82 U	8.8 U
Diphenyl ether							
Diphenylamine							
Fluoranthene						0.82 U	8.8 U
Fluorene						0.82 U	8.8 U
Hexachlorobenzene						0.82 U	8.8 U
Indeno(1,2,3-cd)pyrene						0.82 U	8.8 U
Naphthalene						0.82 U	8.8 U
N-Nitrosodiphenylamine						0.82 U	8.8 U
Pentachlorophenol						4.1 U	44 U
Phenanthrene						0.82 U	8.8 U
Phenol						0.82 U	8.8 U
Pyrene						0.82 U	8.8 U
PAHs (mg/Kg)							
Acenaphthylene							
Anthracene							
Benzo(a)anthracene							
Benzo(a)pyrene							
Benzo(b)fluoranthene							
Benzo(ghi)perylene							
Benzo(k)fluoranthene							
Chrysene							
Dibenz(a,h)anthracene							
Fluoranthene							
Indeno(1,2,3-cd)pyrene							
Phenanthrene							

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C49N SD-C49N 5/14/2001 -0.04-0.46 ft		1140-SD-C50N SD-C50N 5/14/2001 0.06-0.56 ft		1140-SD-C51N SD-C51N 5/14/2001 0.56-1.06 ft		1140-SD-C52N SD-C52N 5/14/2001 0.56-1.06 ft		1140-SD-C53N SD-C53N 5/15/2001 0.63-1.13 ft		1140-SD-C54S SD-C54S 5/15/2001 0.53-1.03 ft		1140-SD-C6 SD-C6 10/11/2000 0.48-0.48 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD													0.13	U
4,4'-DDE													0.13	U
4,4'-DDT													0.13	U
Aldrin													0.13	U
Alpha-BHC													0.13	U
Alpha-Chlordane														
Beta-BHC													0.33	U
Chlordane (technical)														
Delta-BHC													0.13	U
Dieldrin													0.13	U
Endosulfan I													0.13	U
Endrin													0.13	U
Endrin ketone														
Gamma-BHC/Lindane													0.13	U
Heptachlor epoxide													0.13	U
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum													9800	
Antimony														
Arsenic													**10**	
Barium														
Beryllium														
Cadmium													1	
Calcium														
Chromium	8.3		2400		5.7		74		320		72		200	
Chromium, Hexavalent														
Cobalt														
Copper														
Iron													9100	
Lead													50	
Magnesium														
Manganese														
Mercury													0.25	
Nickel														
Potassium														
Selenium													3	U
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C49N SD-C49N 5/14/2001 -0.04-0.46 ft		1140-SD-C50N SD-C50N 5/14/2001 0.06-0.56 ft		1140-SD-C51N SD-C51N 5/14/2001 0.56-1.06 ft		1140-SD-C52N SD-C52N 5/14/2001 0.56-1.06 ft		1140-SD-C53N SD-C53N 5/15/2001 0.63-1.13 ft		1140-SD-C54S SD-C54S 5/15/2001 0.53-1.03 ft		1140-SD-C6 SD-C6 10/11/2000 0.48-0.48 ft	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C7 SD-C7 10/11/2000 0.49-0.49 ft		1140-SD-C9 SD-C9 10/11/2000 0.5-0.5 ft		1140-WDW-C34 WDW-C34 5/16/2001 -0.6--0.06 ft		1160-A8CW-1-E A8CW-1-E 11/9/2000 0-2 ft		1160-A8CW-1-N A8CW-1-N 11/9/2000 0-2 ft		1160-A8CW-1-S A8CW-1-S 11/9/2000 0-2 ft		1160-A8CW-1-W A8CW-1-W 11/9/2000 0-2 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane														
1,1-Dichloroethane														
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane														
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene														
2,4,4-Trimethyl-2-pentene														
2-Butanone														
Acetic acid, methyl ester														
Acetone														
Benzene														
Formaldehyde														
Methylene chloride														
Naphthalene														
Styrene														
Tetrachloroethene														
Tetrahydrofuran														
Toluene														
Trichloroethene														
Xylenes (m&p)														
Xylenes, Total														
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
2,4-Dinitrophenol	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
2-Methylnaphthalene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
2-Methylphenol	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
3 & 4 Methylphenol	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Acenaphthene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Acenaphthylene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Acetophenone														
Aniline	3.9	U	3	U			2.6	U	2.3	U	2.1	U	2.2	U
Anthracene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Benzaldehyde														
Benzo(a)anthracene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Benzo(a)pyrene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Benzo(b)fluoranthene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C7 SD-C7 10/11/2000 0.49-0.49 ft		1140-SD-C9 SD-C9 10/11/2000 0.5-0.5 ft		1140-WDW-C34 WDW-C34 5/16/2001 -0.6--0.06 ft		1160-A8CW-1-E A8CW-1-E 11/9/2000 0-2 ft		1160-A8CW-1-N A8CW-1-N 11/9/2000 0-2 ft		1160-A8CW-1-S A8CW-1-S 11/9/2000 0-2 ft		1160-A8CW-1-W A8CW-1-W 11/9/2000 0-2 ft	
Benzo(ghi)perylene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Benzo(k)fluoranthene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Benzoic Acid	3.9	U	3	U			2.6	U	2.3	U	2.1	U	2.2	U
Benzyl alcohol	1.6	U	1.2	U			1	U	0.91	U	0.83	U	0.88	U
Biphenyl														
Bis(2-Ethylhexyl)phthalate	9.5		0.42	J			0.79		0.33	J	0.29	J	0.55	
Butylbenzylphthalate	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Carbazole														
Chrysene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Dibenz(a,h)anthracene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Dibenzofuran	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Diethylphthalate	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Dimethylphthalate	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Di-n-butylphthalate	0.78	U	0.6	U			0.31	J	0.3	J	0.41	U	0.24	J
Di-n-octylphthalate	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Diphenyl ether														
Diphenylamine														
Fluoranthene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Fluorene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Hexachlorobenzene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Indeno(1,2,3-cd)pyrene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Naphthalene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
N-Nitrosodiphenylamine	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Pentachlorophenol	3.9	U	3	U			2.6	U	2.3	U	2.1	U	2.2	U
Phenanthrene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Phenol	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
Pyrene	0.78	U	0.6	U			0.51	U	0.45	U	0.41	U	0.44	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C7 SD-C7 10/11/2000 0.49-0.49 ft		1140-SD-C9 SD-C9 10/11/2000 0.5-0.5 ft		1140-WDW-C34 WDW-C34 5/16/2001 -0.6--0.06 ft		1160-A8CW-1-E A8CW-1-E 11/9/2000 0-2 ft		1160-A8CW-1-N A8CW-1-N 11/9/2000 0-2 ft		1160-A8CW-1-S A8CW-1-S 11/9/2000 0-2 ft		1160-A8CW-1-W A8CW-1-W 11/9/2000 0-2 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD							0.015	U	0.013	U	0.012	U	0.013	U
4,4'-DDE							0.015	U	0.013	U	0.012	U	0.013	U
4,4'-DDT							0.021		0.013	U	0.012	U	0.027	
Aldrin							0.015	U	0.013	U	0.012	U	0.013	U
Alpha-BHC							0.015	U	0.013	U	0.012	U	0.013	U
Alpha-Chlordane														
Beta-BHC							0.015	U	0.013	U	0.012	U	0.013	U
Chlordane (technical)														
Delta-BHC							0.015	U	0.013	U	0.012	U	0.013	U
Dieldrin							0.015	U	0.013	U	0.012	U	0.013	U
Endosulfan I							0.015	U	0.013	U	0.012	U	0.013	U
Endrin							0.015	U	0.013	U	0.012	U	0.013	U
Endrin ketone														
Gamma-BHC/Lindane							0.015	U	0.013	U	0.012	U	0.013	U
Heptachlor epoxide							0.015	U	0.013	U	0.012	U	0.013	U
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium							0.4	U	0.3	U	0.3	U	0.3	U
Calcium														
Chromium	19		13		20		250		740		170		140	
Chromium, Hexavalent														
Cobalt														
Copper														
Iron														
Lead							7.3		12		8.8		7.5	
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Selenium														
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C7 SD-C7 10/11/2000 0.49-0.49 ft	1140-SD-C9 SD-C9 10/11/2000 0.5-0.5 ft	1140-WDW-C34 WDW-C34 5/16/2001 -0.6--0.06 ft	1160-A8CW-1-E A8CW-1-E 11/9/2000 0-2 ft	1160-A8CW-1-N A8CW-1-N 11/9/2000 0-2 ft	1160-A8CW-1-S A8CW-1-S 11/9/2000 0-2 ft	1160-A8CW-1-W A8CW-1-W 11/9/2000 0-2 ft
Sodium							
Thallium							
Tin							
Vanadium							
Zinc							
Chloride							
Cyanide, Available							
Cyanide, Total							
Eh **(mV)**							
Nitrogen, as Ammonia							
Oxidation Reduction Potential **(mV)**							
pH **(pH units)**							
Sulfate							
Total Organic Carbon							
Total Organic Carbon **(%)**							
VPH (mg/Kg)							
C9-C10 Aromatics							
Volatile Petroleum Hydrocarbons, Total							
EPH (mg/Kg)							
Benzo(a)pyrene							
Benzo(ghi)perylene							
C11-C22 Aromatics							
C11-C22 Aromatics (unadj.)							
C19-C36 Aliphatics							
C9-C18 Aliphatics							
Extractable Petroleum Hydrocarbons, Total							
Specialty Compounds (mg/Kg)							
Hydrazine							
Acetaldehyde							
Formaldehyde							
Phthalic Acid/Phthalic anhydride							

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB 32-S1 LPB32 7/12/2001 0-2 ft		1160-LPB14-S1 LPB14 7/11/2001 0-2.5 ft		1160-LPB24-S1 LPB24 7/11/2001 0-2 ft		1160-LPB25-S1 LPB25 7/11/2001 0-2.5 ft		1160-LPB3-S1 LPB3 7/9/2001 0-2.5 ft		1160-LPB4-S1 LPB4 7/10/2001 0-1 ft		1160-LPB5-S1 LPB5 7/10/2001 0-2.5 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane			0.12	U									0.099	U
1,1-Dichloroethane			0.12	U									0.099	U
1,2,4-Trichlorobenzene			0.12	U									0.099	U
1,2,4-Trimethylbenzene			0.12	U									0.099	U
1,2-Dichlorobenzene			0.12	U									0.099	U
1,2-Dichloroethane			0.12	U									0.099	U
1,3,5-Trimethylbenzene			0.12	U									0.099	U
2,4,4-Trimethyl-1-pentene			0.12	U									0.099	U
2,4,4-Trimethyl-2-pentene			0.12	U									0.099	U
2-Butanone			2.4	U									2	U
Acetic acid, methyl ester														
Acetone			2.4	U									2	U
Benzene			0.12	U									0.099	U
Formaldehyde														
Methylene chloride			0.24	U									0.2	U
Naphthalene			1.2	U									0.99	U
Styrene			0.12	U									0.099	U
Tetrachloroethene			0.12	U									0.099	U
Tetrahydrofuran														
Toluene			0.12	U									0.099	U
Trichloroethene			0.12	U									0.099	U
Xylenes (m&p)			0.12	U									0.099	U
Xylenes, Total			0.12	U									0.099	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol			0.38	UA									0.36	U
2,4-Dinitrophenol			0.38	UA									0.36	U
2-Methylnaphthalene			0.38	UA									0.36	U
2-Methylphenol			0.38	UA									0.36	U
3 & 4 Methylphenol			0.38	UA									0.36	U
Acenaphthene			0.38	UA									0.36	U
Acenaphthylene			0.38	UA									0.36	U
Acetophenone														
Aniline			1.9	UA									1.8	U
Anthracene			0.38	UA									0.36	U
Benzaldehyde														
Benzo(a)anthracene			0.38	UA									0.36	U
Benzo(a)pyrene			0.38	UA									0.36	U
Benzo(b)fluoranthene			0.38	UA									0.36	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB 32-S1 LPB32 7/12/2001 0-2 ft		1160-LPB14-S1 LPB14 7/11/2001 0-2.5 ft		1160-LPB24-S1 LPB24 7/11/2001 0-2 ft		1160-LPB25-S1 LPB25 7/11/2001 0-2.5 ft		1160-LPB3-S1 LPB3 7/9/2001 0-2.5 ft		1160-LPB4-S1 LPB4 7/10/2001 0-1 ft		1160-LPB5-S1 LPB5 7/10/2001 0-2.5 ft	
Benzo(ghi)perylene			0.38	UA									0.36	U
Benzo(k)fluoranthene			0.38	UA									0.36	U
Benzoic Acid			1.9	UA									1.8	U
Benzyl alcohol			0.76	UA									0.71	U
Biphenyl														
Bis(2-Ethylhexyl)phthalate			2	AJ									0.2	BJ
Butylbenzylphthalate			0.38	UA									0.36	U
Carbazole														
Chrysene			0.38	UA									0.36	U
Dibenz(a,h)anthracene			0.38	UA									0.36	U
Dibenzofuran			0.38	UA									0.36	U
Diethylphthalate			0.38	UA									0.36	U
Dimethylphthalate			0.38	UA									0.36	U
Di-n-butylphthalate			0.38	UA									0.36	U
Di-n-octylphthalate			0.38	UA									0.36	U
Diphenyl ether														
Diphenylamine														
Fluoranthene			0.38	UA									0.36	U
Fluorene			0.38	UA									0.36	U
Hexachlorobenzene			0.38	UA									0.36	U
Indeno(1,2,3-cd)pyrene			0.38	UA									0.36	U
Naphthalene			0.38	UA									0.36	U
N-Nitrosodiphenylamine			0.38	UA									0.36	U
Pentachlorophenol			1.9	U									1.8	U
Phenanthrene			0.38	UA									0.36	U
Phenol			0.38	UA									0.36	U
Pyrene			0.38	UA									0.36	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB 32-S1 LPB32 7/12/2001 0-2 ft		1160-LPB14-S1 LPB14 7/11/2001 0-2.5 ft		1160-LPB24-S1 LPB24 7/11/2001 0-2 ft		1160-LPB25-S1 LPB25 7/11/2001 0-2.5 ft		1160-LPB3-S1 LPB3 7/9/2001 0-2.5 ft		1160-LPB4-S1 LPB4 7/10/2001 0-1 ft		1160-LPB5-S1 LPB5 7/10/2001 0-2.5 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD			0.057	U									0.011	U
4,4'-DDE			0.057	U									0.011	U
4,4'-DDT			0.057	U									0.011	U
Aldrin			0.057	U									0.011	U
Alpha-BHC			0.057	U									0.011	U
Alpha-Chlordane														
Beta-BHC			0.057	U									0.011	U
Chlordane (technical)														
Delta-BHC			0.057	U									0.011	U
Dieldrin			0.057	U									0.011	U
Endosulfan I			0.057	U									0.011	U
Endrin			0.057	U									0.011	U
Endrin ketone														
Gamma-BHC/Lindane			0.057	U									0.011	U
Heptachlor epoxide			0.057	U									0.011	U
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic			6	U									11	U
Barium														
Beryllium														
Cadmium			1	U									2	U
Calcium														
Chromium	27		690		18	J	40	J	78		27		140	
Chromium, Hexavalent														
Cobalt														
Copper														
Iron														
Lead			19										11	U
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Selenium														
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB 32-S1 LPB32 7/12/2001 0-2 ft		1160-LPB14-S1 LPB14 7/11/2001 0-2.5 ft		1160-LPB24-S1 LPB24 7/11/2001 0-2 ft		1160-LPB25-S1 LPB25 7/11/2001 0-2.5 ft		1160-LPB3-S1 LPB3 7/9/2001 0-2.5 ft		1160-LPB4-S1 LPB4 7/10/2001 0-1 ft		1160-LPB5-S1 LPB5 7/10/2001 0-2.5 ft	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia			37										11	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics			2.4	U									2	U
Volatile Petroleum Hydrocarbons, Total			2.4	U									2	U
EPH (mg/Kg)														
Benzo(a)pyrene			0.4	U									0.4	U
Benzo(ghi)perylene			0.4	U									0.4	U
C11-C22 Aromatics			210										3.6	U
C11-C22 Aromatics (unadj.)			210										3.6	U
C19-C36 Aliphatics			13										3.6	U
C9-C18 Aliphatics			3.8	UK									3.6	UK
Extractable Petroleum Hydrocarbons, Total			220										3.6	U
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB6-S1 LPB6 7/10/2001 0-1 ft		97598-DB-C1 DB-C1 8/10/2000 0.7-0.7 ft		A8CW-2 A8CW-2 12/16/1996 0-1 ft		A8CW-3 A8CW-3 12/16/1996 0-1 ft		A8CW-4 A8CW-4 12/16/1996 0-1 ft		A9CW-(COMP) A9CW-(COMP) 12/16/1996 0-1 ft		A9CW-1 A9CW-1 12/16/1996 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane			0.068	U	0.006	U	0.006	U	0.007	U			0.01	U
1,1-Dichloroethane			0.068	U	0.006	U	0.006	U	0.007	U			0.01	U
1,2,4-Trichlorobenzene			0.098											
1,2,4-Trimethylbenzene			0.21											
1,2-Dichlorobenzene			0.068	U										
1,2-Dichloroethane			0.068	U	0.006	U	0.006	U	0.007	U			0.01	U
1,3,5-Trimethylbenzene			0.13											
2,4,4-Trimethyl-1-pentene				U	0.006	UJ	0.006	UJ	0.002	J			0.01	UJ
2,4,4-Trimethyl-2-pentene				U	0.006	U	0.006	U	0.007	U			0.01	U
2-Butanone			0.68	U	0.013	U	0.013	U	0.014	U			0.021	U
Acetic acid, methyl ester														
Acetone			0.68	U	0.054	U	0.018	U	0.012	U			0.022	U
Benzene			0.068	U	0.006	U	0.006	U	0.007	U			0.01	U
Formaldehyde														
Methylene chloride			0.44	B	0.004	U	0.005	U	0.005	U			0.008	U
Naphthalene			0.14	U										
Styrene			0.068	U	0.006	U	0.006	U	0.007	U			0.01	U
Tetrachloroethene			0.068	U	0.006	U	0.006	U	0.007	U			0.01	U
Tetrahydrofuran														
Toluene			0.068	U	0.006	U	0.006	U	0.007	U			0.01	U
Trichloroethene			0.068	U	0.006	U	0.006	U	0.007	U			0.01	U
Xylenes (m&p)			0.068	U										
Xylenes, Total			0.068	U	0.006	U	0.006	U	0.007	U			0.01	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
2,4-Dinitrophenol			0.63	U	2.7	U	2.1	U	2.1	U	2.8	U		
2-Methylnaphthalene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
2-Methylphenol			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
3 & 4 Methylphenol														
Acenaphthene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Acenaphthylene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Acetophenone														
Aniline														
Anthracene			0.31	U	0.56	U	0.011	J	0.43	U	0.58	U		
Benzaldehyde														
Benzo(a)anthracene			0.31	U	0.56	U	0.015	J	0.43	U	0.58	U		
Benzo(a)pyrene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Benzo(b)fluoranthene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB6-S1 LPB6 7/10/2001 0-1 ft		97598-DB-C1 DB-C1 8/10/2000 0.7-0.7 ft		A8CW-2 A8CW-2 12/16/1996 0-1 ft		A8CW-3 A8CW-3 12/16/1996 0-1 ft		A8CW-4 A8CW-4 12/16/1996 0-1 ft		A9CW-(COMP) A9CW-(COMP) 12/16/1996 0-1 ft		A9CW-1 A9CW-1 12/16/1996 0-1 ft	
Benzo(ghi)perylene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Benzo(k)fluoranthene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Benzoic Acid			0.63	U	2.7	U	0.07	J	2.1	U	2.8	U		
Benzyl alcohol			0.63	U	0.56	U	0.43	U	0.43	U	0.58	U		
Biphenyl														
Bis(2-Ethylhexyl)phthalate			2.4	B	0.13	J	0.09	J	0.43	U	0.19	J		
Butylbenzylphthalate			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Carbazole			0.31	U										
Chrysene			0.31	U	0.56	U	0.015	J	0.43	U	0.58	U		
Dibenz(a,h)anthracene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Dibenzofuran			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Diethylphthalate			0.31	U	0.56	U	0.021	U	0.43	U	0.58	U		
Dimethylphthalate			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Di-n-butylphthalate			0.31	U	0.56	U	0.04	U	0.04	U	0.065	U		
Di-n-octylphthalate			0.31	U	0.56	U	0.012	J	0.43	U	0.58	U		
Diphenyl ether														
Diphenylamine														
Fluoranthene			0.31	U	0.56	U	0.027	J	0.43	U	0.58	U		
Fluorene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Hexachlorobenzene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Indeno(1,2,3-cd)pyrene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Naphthalene			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
N-Nitrosodiphenylamine			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Pentachlorophenol			0.63	U	2.7	U	2.1	U	2.1	U	2.8	U		
Phenanthrene			0.31	U	0.56	U	0.03	J	0.43	U	0.58	U		
Phenol			0.31	U	0.56	U	0.43	U	0.43	U	0.58	U		
Pyrene			0.31	U	0.56	U	0.024	J	0.43	U	0.58	U		
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB6-S1 LPB6 7/10/2001 0-1 ft		97598-DB-C1 DB-C1 8/10/2000 0.7-0.7 ft		A8CW-2 A8CW-2 12/16/1996 0-1 ft		A8CW-3 A8CW-3 12/16/1996 0-1 ft		A8CW-4 A8CW-4 12/16/1996 0-1 ft		A9CW-(COMP) A9CW-(COMP) 12/16/1996 0-1 ft		A9CW-1 A9CW-1 12/16/1996 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD			0.02	U	0.0056	U	0.0042	U	0.0043	U	0.0005	J		
4,4'-DDE			0.02	U	0.00089	J	0.00069	J	0.00064	J	0.0016	J		
4,4'-DDT			0.02	U	0.0017	J	0.0016	J	0.0024	J	0.003	J		
Aldrin			0.0099	U	0.0029	U	0.0022	U	0.0022	U	0.0019	J		
Alpha-BHC			0.0099	U	0.0011	J	0.0022	UJ	0.0022	UJ	0.003	U		
Alpha-Chlordane			0.0099	U	0.0029	U	0.0022	U	0.0022	U	0.003	U		
Beta-BHC			0.0099	U	0.0029	U	0.0022	UJ	0.0022	UJ	0.003	U		
Chlordane (technical)			0.036		0.0029	UJ	0.0022	UJ	0.0022	UJ	0.0052	J		
Delta-BHC			0.031	#	0.0029	U	0.0022	U	0.0022	U	0.003	U		
Dieldrin			0.02	U	0.0056	U	0.0013	J	0.0043	U	0.0058	U		
Endosulfan I			0.0099	U	0.0029	U	0.0022	U	0.0022	U	0.0021	J		
Endrin			0.02	U	0.0056	U	0.0042	U	0.0043	U	0.0058	U		
Endrin ketone			0.02	U	0.0056	UJ	0.0042	UJ	0.0043	UJ	0.0058	UJ		
Gamma-BHC/Lindane			0.13	F	0.00092	J	0.0022	U	0.0022	U	0.0052			
Heptachlor epoxide			0.0099	U	0.0029	U	0.0022	U	0.0022	U	0.003	U		
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum									2400		2400			
Antimony									1.2	U	1.7	U		
Arsenic									**3**	J	**3**	J		
Barium									10	[]	20	[]		
Beryllium									0.2	U	0.28	U		
Cadmium			1.5	U					0.2	U	0.28	U		
Calcium									340	[]	470	[]		
Chromium	11		27		25		4.3		34		38			
Chromium, Hexavalent														
Cobalt									1.1	[]	1.4	[]		
Copper									1.1	[]	6	[]		
Iron									2900		2400			
Lead			7.6	U					6.3		17			
Magnesium									510	[]	130	[]		
Manganese									18		6.8			
Mercury									0.089	UN	0.18	UN		
Nickel									2.3	[]	3.9	[]		
Potassium									120	[]	87	[]		
Selenium									0.99	UN	1.4	UN		
Silver										R		R		

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB6-S1 LPB6 7/10/2001 0-1 ft		97598-DB-C1 DB-C1 8/10/2000 0.7-0.7 ft		A8CW-2 A8CW-2 12/16/1996 0-1 ft		A8CW-3 A8CW-3 12/16/1996 0-1 ft		A8CW-4 A8CW-4 12/16/1996 0-1 ft		A9CW-(COMP) A9CW-(COMP) 12/16/1996 0-1 ft		A9CW-1 A9CW-1 12/16/1996 0-1 ft	
Sodium									73	[]	120	[]		
Thallium									1.6	UJ	2.2	UJ		
Tin														
Vanadium									7.1	[]	6.4	[]		
Zinc									11		15			
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia					301		94.9		73.1		168			
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate					290		150		290		400			
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	A9CW-2 A9CW-2 12/16/1996 0-1 ft		A9CW-3 A9CW-3 12/16/1996 0-1 ft		A9CW-4 A9CW-4 12/16/1996 0-1 ft		AREA 03 AREA-3 7/9/1991 0-1 ft		AREA 04 AREA-4 7/9/1991 0-1 ft		AREA 05 AREA-5 7/9/1991 0-1 ft		AREA 06 AREA-6 7/9/1991 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.007	U	0.071		0.007	U	0.007	UJ	0.0055	UJ	0.005	U	0.005	U
1,1-Dichloroethane	0.007	U	0.007	U	0.007	U	0.007	UJ	0.0055	UJ	0.005	U	0.005	U
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane	0.007	U	0.007	U	0.007	U	0.007	UJ	0.0055	UJ	0.005	U	0.005	U
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene	0.007	UJ	0.007	UJ	0.007	UJ	0.014	U	0.011	U	0.01	U	0.01	U
2,4,4-Trimethyl-2-pentene	0.007	U	0.007	U	0.007	U	0.014	U	0.011	U	0.01	U	0.01	U
2-Butanone	0.013	U	0.013	U	0.014	U	0.021	UJ	0.016	UJ	0.015	U	0.015	U
Acetic acid, methyl ester														
Acetone	0.013	U	0.013	U	0.026	U	0.021	UJ	0.016	U	0.015	U	0.015	U
Benzene	0.007	U	0.007	U	0.007	U	0.007	UJ	0.0055	UJ	0.005	U	0.005	U
Formaldehyde														
Methylene chloride	0.005	U	0.007	U	0.004	U	0.02	UJ	0.019	UJ	0.013	U	0.01	U
Naphthalene														
Styrene	0.007	U	0.007	U	0.007	U	0.007	UJ	0.0055	UJ	0.005	U	0.005	U
Tetrachloroethene	0.007	U	0.007	U	0.007	U	0.001	J	0.0055	UJ	0.005	U	0.005	U
Tetrahydrofuran														
Toluene	0.007	U	0.007	U	0.007	U	0.007	UJ	0.002	J	0.005	U	0.003	J
Trichloroethene	0.007	U	0.007		0.007	U	0.007	UJ	0.0055	UJ	0.005	U	0.005	U
Xylenes (m&p)														
Xylenes, Total	0.007	U	0.007	U	0.007	U	0.007	UJ	0.0055	UJ	0.005	U	0.005	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol							0.92	U	0.69	U	0.99	U	0.66	U
2,4-Dinitrophenol							4.5	U	3.4	U	4.8	U	3.2	U
2-Methylnaphthalene							0.92	U	0.075	J	0.99	U	0.66	U
2-Methylphenol							0.92	U	0.69	U	0.99	U	0.66	U
3 & 4 Methylphenol														
Acenaphthene							0.92	U	0.69	U	0.99	U	0.66	U
Acenaphthylene							0.92	U	0.057	J	0.033	J	0.66	U
Acetophenone														
Aniline														
Anthracene							0.92	U	0.069	J	0.044	J	0.66	U
Benzaldehyde														
Benzo(a)anthracene							0.099	J	0.36	J	0.22	J	0.056	J
Benzo(a)pyrene							0.072	J	**0.24**	J	**0.22**	J	0.044	J
Benzo(b)fluoranthene							0.16	J	0.56	J	0.31	J	0.066	J

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	A9CW-2 A9CW-2 12/16/1996 0-1 ft	A9CW-3 A9CW-3 12/16/1996 0-1 ft	A9CW-4 A9CW-4 12/16/1996 0-1 ft	AREA 03 AREA-3 7/9/1991 0-1 ft	AREA 04 AREA-4 7/9/1991 0-1 ft	AREA 05 AREA-5 7/9/1991 0-1 ft	AREA 06 AREA-6 7/9/1991 0-1 ft
Benzo(ghi)perylene				0.92 U	0.69 U	0.12 J	0.041 J
Benzo(k)fluoranthene				0.039 J	0.15 J	0.11 J	0.024 J
Benzoic Acid				4.5 U	3.4 U	4.8 U	3.2 U
Benzyl alcohol				0.92 U	0.69 U	0.99 U	0.66 U
Biphenyl							
Bis(2-Ethylhexyl)phthalate				0.53 J	0.34 J	0.82 J	1.4
Butylbenzylphthalate				0.92 U	0.061 J	0.13 J	0.035 J
Carbazole							
Chrysene				0.15 J	0.64 J	0.4 J	0.072 J
Dibenz(a,h)anthracene				0.92 U	0.074 J	0.99 U	0.66 U
Dibenzofuran				0.92 U	0.69 U	0.99 U	0.66 U
Diethylphthalate				0.92 U	0.69 U	0.99 U	0.033 J
Dimethylphthalate				0.92 U	0.69 U	0.99 U	0.064 J
Di-n-butylphthalate				0.92 U	0.034 J	0.036 J	0.035 J
Di-n-octylphthalate				0.92 U	0.69 U	0.99 U	0.02 J
Diphenyl ether							
Diphenylamine							
Fluoranthene				0.2 J	0.94	0.51 J	0.11 J
Fluorene				0.92 U	0.69 U	0.99 U	0.66 U
Hexachlorobenzene				0.92 U	0.69 U	0.99 U	0.66 U
Indeno(1,2,3-cd)pyrene				0.092 J	0.2 J	0.13 J	0.038 J
Naphthalene				0.92 U	0.066 J	0.99 U	0.66 U
N-Nitrosodiphenylamine				0.92 U	0.69 U	0.059 J	0.48 J
Pentachlorophenol				0.92 U	0.69 U	0.99 U	0.66 U
Phenanthrene				0.15 J	0.68 J	0.34 J	0.064 J
Phenol				0.92 U	0.69 U	0.069 J	0.047 J
Pyrene				0.18 J	0.66 J	0.45 J	0.077 J
PAHs (mg/Kg)							
Acenaphthylene							
Anthracene							
Benzo(a)anthracene							
Benzo(a)pyrene							
Benzo(b)fluoranthene							
Benzo(ghi)perylene							
Benzo(k)fluoranthene							
Chrysene							
Dibenz(a,h)anthracene							
Fluoranthene							
Indeno(1,2,3-cd)pyrene							
Phenanthrene							

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	A9CW-2 A9CW-2 12/16/1996 0-1 ft		A9CW-3 A9CW-3 12/16/1996 0-1 ft		A9CW-4 A9CW-4 12/16/1996 0-1 ft		AREA 03 AREA-3 7/9/1991 0-1 ft		AREA 04 AREA-4 7/9/1991 0-1 ft		AREA 05 AREA-5 7/9/1991 0-1 ft		AREA 06 AREA-6 7/9/1991 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD							0.045	UJ	0.039	J	0.048	UJ	0.032	UJ
4,4'-DDE							0.045	UJ	0.049	J	0.048	UJ	0.032	UJ
4,4'-DDT							0.045	UJ	0.68	J	0.061	J	0.032	UJ
Aldrin							0.022	UJ	0.017	UJ	0.024	UJ	0.016	UJ
Alpha-BHC							0.022	UJ	0.017	UJ	0.024	UJ	0.016	UJ
Alpha-Chlordane							0.22	UJ	0.17	UJ	0.24	UJ	0.16	UJ
Beta-BHC							0.022	UJ	0.017	UJ	0.024	UJ	0.016	UJ
Chlordane (technical)							0.22	UJ	0.17	UJ	0.24	UJ	0.16	UJ
Delta-BHC							0.022	UJ	0.017	UJ	0.024	UJ	0.016	UJ
Dieldrin							0.045	UJ	0.68	UJ	0.061	UJ	0.032	UJ
Endosulfan I							0.022	UJ	0.017	UJ	0.024	UJ	0.016	UJ
Endrin							0.045	UJ	0.034	UJ	0.061	UJ	0.032	UJ
Endrin ketone							0.045	UJ	0.034	UJ	0.061	UJ	0.032	UJ
Gamma-BHC/Lindane							0.022	UJ	0.017	UJ	0.024	UJ	0.016	UJ
Heptachlor epoxide							0.022	UJ	0.017	UJ	0.024	UJ	0.016	UJ
Aroclor-1016							0.22	UJ	0.17	UJ	0.24	UJ	0.16	UJ
Aroclor-1260							0.45	UJ	0.34	UJ	0.48	UJ	0.32	UJ
Inorganics (mg/Kg)														
Aluminum							6000		4300		4800		4800	
Antimony							20	U	20	U	20	U	20	U
Arsenic							**11**		**8.6**		**15**		**6.8**	
Barium							42		20		21		19	
Beryllium							1.5	U	1.5	U	1.5	U	1.5	U
Cadmium							1	U	1	U	1	U	1	U
Calcium							1400		990		1600		1100	
Chromium							19		27		12		27	
Chromium, Hexavalent														
Cobalt							2.7		1.8		2.7		3	
Copper							19		16		24		8.4	
Iron							7000		6600		7200		8100	
Lead							73		61		53		17	
Magnesium							1200		1400		1800		1900	
Manganese							54		66		87		87	
Mercury							0.14		0.01		0.1	U	0.1	U
Nickel							8.1		8		8.9		8.6	
Potassium							440		440		510		780	
Selenium							0.93		0.5	U	0.5	U	0.67	U
Silver							1.5	U	1.5	U	1.5	U	1.5	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	A9CW-2 A9CW-2 12/16/1996 0-1 ft		A9CW-3 A9CW-3 12/16/1996 0-1 ft		A9CW-4 A9CW-4 12/16/1996 0-1 ft		AREA 03 AREA-3 7/9/1991 0-1 ft		AREA 04 AREA-4 7/9/1991 0-1 ft		AREA 05 AREA-5 7/9/1991 0-1 ft		AREA 06 AREA-6 7/9/1991 0-1 ft	
Sodium							53		34		33		37	
Thallium							0.93	U	0.67	U	0.68	U	0.67	U
Tin														
Vanadium							24		20		20		16	
Zinc							52		38		58		47	
Chloride							40	UJ	40	UJ	40	UJ	40	UJ
Cyanide, Available														
Cyanide, Total							2	UJ	2	UJ	2	UJ	2	UJ
Eh **(mV)**														
Nitrogen, as Ammonia							39		23		14		18	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate							37	J	4.2	J	4.2	J	4.2	J
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AREA 07 AREA-7 7/9/1991 0-1 ft		AREA 09 AREA-9 7/9/1991 0-1 ft		AREA 1-6 AREA-1-6 12/15/1996 0-1 ft		AREA8-2 AREA-8-2 12/16/1996 0-1 ft		AREA8-3 AREA-8-3 12/16/1996 0-1 ft		BS015SDX BS015 1/21/1997 0-0 ft		BS016SMD BS016 1/21/1997 0-0 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.005	U	0.006	UJ	0.012		0.016		0.006	U				
1,1-Dichloroethane	0.005	U	0.006	UJ	0.008	U	0.006	U	0.006	U				
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane	0.005	U	0.006	UJ	0.008	U	0.006	U	0.006	U				
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene	0.01	U	0.012	U	0.008	U	0.006	UJ	0.006	UJ				
2,4,4-Trimethyl-2-pentene	0.01	U	0.012	U	0.008	U	0.006	U	0.006	U				
2-Butanone	0.015	U	0.018	UJ	0.015	U	0.013	U	0.013	U				
Acetic acid, methyl ester														
Acetone	0.015	U	0.018	UJ	0.015	U	0.017	U	0.009	U				
Benzene	0.005	U	0.006	UJ	0.008	U	0.006	U	0.006	U				
Formaldehyde														
Methylene chloride	0.01	U	0.041	UJ	0.002	J	0.006	U	0.006	U				
Naphthalene														
Styrene	0.005	U	0.006	UJ	0.008	U	0.006	U	0.006	U				
Tetrachloroethene	0.005	U	0.006	UJ	0.008	U	0.006	U	0.006	U				
Tetrahydrofuran														
Toluene	0.005	U	0.004	J	0.008	U	0.006	U	0.006	U				
Trichloroethene	0.005	U	0.006	UJ	0.008	U	0.006	U	0.006	U				
Xylenes (m&p)														
Xylenes, Total	0.005	U	0.006	UJ	0.008	U	0.006	U	0.006	U				
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
2,4-Dinitrophenol	3.4	UJ	3.8	U			2.4	U	2.4	U	160	U	24	U
2-Methylnaphthalene	0.69	UJ	0.038	J			0.5	U	0.5	U	32	U	5	U
2-Methylphenol	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
3 & 4 Methylphenol														
Acenaphthene	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
Acenaphthylene	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
Acetophenone														
Aniline														
Anthracene	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	0.035	J
Benzaldehyde														
Benzo(a)anthracene	0.029	J	0.1	J			0.5	U	0.5	U	32	U	5	U
Benzo(a)pyrene	0.03	J	0.094	J			0.5	U	0.5	U	32	U	5	U
Benzo(b)fluoranthene	0.039	J	0.17	J			0.046	J	0.5	U	32	U	5	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AREA 07 AREA-7 7/9/1991 0-1 ft		AREA 09 AREA-9 7/9/1991 0-1 ft		AREA 1-6 AREA-1-6 12/15/1996 0-1 ft		AREA8-2 AREA-8-2 12/16/1996 0-1 ft		AREA8-3 AREA-8-3 12/16/1996 0-1 ft		BS015SDX BS015 1/21/1997 0-0 ft		BS016SMD BS016 1/21/1997 0-0 ft	
Benzo(ghi)perylene	0.69	UJ	0.082	J			0.5	U	0.5	U	32	U	5	U
Benzo(k)fluoranthene	0.69	UJ	0.051	J			0.036	J	0.5	U	32	U	5	U
Benzoic Acid	3.4	UJ	0.22	J			0.21	J	2.4	U	160	U	24	U
Benzyl alcohol	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
Biphenyl														
Bis(2-Ethylhexyl)phthalate	2	J	0.24	J			0.5	U	0.5	U	**200**	B	20	B
Butylbenzylphthalate	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
Carbazole														
Chrysene	0.053	J	0.19	J			0.5	U	0.5	U	32	U	5	U
Dibenz(a,h)anthracene	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
Dibenzofuran	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
Diethylphthalate	0.69	UJ	0.021	J			0.5	U	0.5	U	32	U	0.085	JB
Dimethylphthalate	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
Di-n-butylphthalate	0.018	J	0.79	U			0.046	U	0.5	U	0.4	JB	0.074	JB
Di-n-octylphthalate	0.053	J	0.79	U			0.5	U	0.5	U	32	U	5	U
Diphenyl ether														
Diphenylamine														
Fluoranthene	0.072	J	0.28	J			0.056	J	0.5	U	32	U	0.081	J
Fluorene	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
Hexachlorobenzene	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
Indeno(1,2,3-cd)pyrene	0.035	J	0.11	J			0.5	U	0.5	U	32	U	5	U
Naphthalene	0.69	UJ	0.027	J			0.5	U	0.5	U	32	U	5	U
N-Nitrosodiphenylamine	0.69	UJ	0.79	U			0.5	U	0.5	U	2.8	J	0.55	J
Pentachlorophenol	0.69	UJ	0.79	U			2.4	U	2.4	U	160	U	24	U
Phenanthrene	0.031	J	0.18	J			0.5	U	0.5	U	32	U	0.14	J
Phenol	0.69	UJ	0.79	U			0.5	U	0.5	U	32	U	5	U
Pyrene	0.056	J	0.17	J			0.048	J	0.5	U	32	U	0.085	J
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AREA 07 AREA-7 7/9/1991 0-1 ft		AREA 09 AREA-9 7/9/1991 0-1 ft		AREA 1-6 AREA-1-6 12/15/1996 0-1 ft		AREA8-2 AREA-8-2 12/16/1996 0-1 ft		AREA8-3 AREA-8-3 12/16/1996 0-1 ft		BS015SDX BS015 1/21/1997 0-0 ft		BS016SMD BS016 1/21/1997 0-0 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD	0.021	UJ	0.038	UJ			0.005	U	0.0044	U	0.065	U	0.005	U
4,4'-DDE	0.021	UJ	0.038	UJ			0.0014	J	0.00053	J	0.065	U	0.0037	J
4,4'-DDT	0.021	UJ	0.038	UJ			0.0014	J	0.0023	J	0.065	U	0.0016	J
Aldrin	0.016	UJ	0.019	UJ			0.0026	U	0.0023	U	0.033	U	0.000098	J
Alpha-BHC	0.016	UJ	0.019	UJ			0.0026	U	0.0002	J	0.0058	J	0.0026	U
Alpha-Chlordane	0.16	UJ	0.19	UJ			0.0026	U	0.0023	U	0.033	U	0.0026	U
Beta-BHC	0.016	UJ	0.019	UJ			0.00013	J	0.0023	U	0.033	U	0.0026	U
Chlordane (technical)	0.16	UJ	0.19	UJ			0.0026	UJ	0.0023	UJ	0.033	U	0.0026	U
Delta-BHC	0.016	UJ	0.019	UJ			0.0026	U	0.0023	U	0.033	U	0.0026	U
Dieldrin	0.021	UJ	0.038	UJ			0.0017	J	0.0013	J	0.065	U	0.00055	J
Endosulfan I	0.016	UJ	0.019	UJ			0.0026	U	0.0023	U	0.033	U	0.0026	U
Endrin	0.021	UJ	0.038	UJ			0.005	U	0.0044	U	0.065	U	0.005	U
Endrin ketone	0.021	UJ	0.038	UJ			0.005	UJ	0.0044	UJ	0.065	U	0.005	U
Gamma-BHC/Lindane	0.016	UJ	0.019	UJ			0.0026	U	0.0023	U	0.033	U	0.0026	U
Heptachlor epoxide	0.016	UJ	0.019	UJ			0.000078	J	0.0023	U	0.033	U	0.0026	U
Aroclor-1016	0.16	UJ	0.19	UJ										
Aroclor-1260	0.32	UJ	0.38	UJ										
Inorganics (mg/Kg)														
Aluminum	9000		5600								3080		9290	
Antimony	20	UJ	20	U							1.3	U	1	U
Arsenic	**19**	J	**9.8**								**4.4**		**4.7**	
Barium	34		22								17.7	B	5.4	B
Beryllium	1.5	U	1.5	U							0.33	U	0.25	U
Cadmium	1.3		1	U							0.33	U	0.25	U
Calcium	5200		910								258	B	77.4	B
Chromium	85		23				4.5		520		200		6.1	
Chromium, Hexavalent														
Cobalt	6.9		2.1								1	B	0.8	B
Copper	18		22								6.2	B	1.7	B
Iron	16000		9500								3240	*	6420	*
Lead	100	J	210								24.2		7.5	
Magnesium	3400		1200								200	B	197	B
Manganese	210		76								9.3		9.4	
Mercury	0.1	U	0.12								0.15		0.1	U
Nickel	18		7.6								5.1	B	2.5	B
Potassium	1500		350								148	BE	57.4	BE
Selenium	1.6	J	0.5	U							1.5	B	1	U
Silver	1.5	U	1.5	U							1.3	U	1	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AREA 07 AREA-7 7/9/1991 0-1 ft		AREA 09 AREA-9 7/9/1991 0-1 ft		AREA 1-6 AREA-1-6 12/15/1996 0-1 ft		AREA8-2 AREA-8-2 12/16/1996 0-1 ft		AREA8-3 AREA-8-3 12/16/1996 0-1 ft		BS015SDX BS015 1/21/1997 0-0 ft		BS016SMD BS016 1/21/1997 0-0 ft	
Sodium	66		34								197	BE	49.9	BE
Thallium	0.63	J	0.8								2.3	U	1.8	U
Tin														
Vanadium	22		34								9.8	B	11	B
Zinc	150		72								8.3	E	5.6	E
Chloride	40	UJ	56	J										
Cyanide, Available														
Cyanide, Total	2	UJ	2	UJ										
Eh **(mV)**														
Nitrogen, as Ammonia	19		27				215		154					
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	50	J	83	J			290		320					
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BS018PND BS018 1/21/1997 0-0 ft		BS019WMD BS019 1/21/1997 0-0 ft		BS020WMD BS020 1/21/1997 0-0 ft		BS041LSD BS041 8/22/2005 0-0.5 ft		BS042LSD BS042 8/22/2005 0-0.5 ft		BS043LSD BS043 8/22/2005 0-0.5 ft		BS044LSD BS044 8/23/2005 0-0.5 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane														
1,1-Dichloroethane														
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane														
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene														
2,4,4-Trimethyl-2-pentene														
2-Butanone														
Acetic acid, methyl ester														
Acetone														
Benzene														
Formaldehyde														
Methylene chloride														
Naphthalene														
Styrene														
Tetrachloroethene														
Tetrahydrofuran														
Toluene														
Trichloroethene														
Xylenes (m&p)														
Xylenes, Total														
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol	0.44	U	0.49	U	0.48	U	0.79	UJ	0.98	UJ	1.3	U	1.5	UJ
2,4-Dinitrophenol	2.1	U	2.4	U	2.3	U	0.79	UJ	0.98	UJ	1.3	U	1.5	UJ
2-Methylnaphthalene	0.007	J	0.49	U	0.48	U	0.4	UJ	0.49	U	0.63	U	0.75	UJ
2-Methylphenol	0.02	J	0.49	U	0.48	U	0.79	UJ	0.98	UJ	1.3	U	1.5	UJ
3 & 4 Methylphenol							0.79	UJ	0.98	UJ	1.3	U	1.5	UJ
Acenaphthene	0.44	U	0.49	U	0.48	U	0.4	UJ	0.49	U	0.63	U	0.75	UJ
Acenaphthylene	0.02	J	0.008	J	0.48	U	0.4	UJ	0.49	U	0.63	U	0.75	UJ
Acetophenone							0.79	UJ	0.98	U	1.3	U	1.5	UJ
Aniline							4	UJ	4.9	U	6.3	U	7.5	UJ
Anthracene	0.013	J	0.005	J	0.48	U	0.4	UJ	0.49	U	0.63	U	0.75	UJ
Benzaldehyde														
Benzo(a)anthracene	0.031	J	0.012	J	0.48	U	0.4	UJ	0.49	U	0.63	UJ	0.75	UJ
Benzo(a)pyrene	0.034	J	0.011	J	0.48	U	0.4	UJ	0.49	UJ		R	0.75	UJ
Benzo(b)fluoranthene	0.044	J	0.013	J	0.48	U	0.65	J	0.49	UJ	0.46	J	0.75	UJ

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BS018PND BS018 1/21/1997 0-0 ft		BS019WMD BS019 1/21/1997 0-0 ft		BS020WMD BS020 1/21/1997 0-0 ft		BS041LSD BS041 8/22/2005 0-0.5 ft		BS042LSD BS042 8/22/2005 0-0.5 ft		BS043LSD BS043 8/22/2005 0-0.5 ft		BS044LSD BS044 8/23/2005 0-0.5 ft	
Benzo(ghi)perylene	0.03	J	0.49	U	0.48	U	0.4	UJ	0.49	UJ		R	0.75	UJ
Benzo(k)fluoranthene	0.025	J	0.012	J	0.48	U	0.4	UJ	0.49	UJ		R	0.75	UJ
Benzoic Acid	0.59	J	0.36	J	0.24	J	4	UJ	4.9	UJ	1.2	J	7.5	UJ
Benzyl alcohol	0.44	U	0.49	U	0.48	U	1.6	UJ	2	U	2.5	U	3	UJ
Biphenyl														
Bis(2-Ethylhexyl)phthalate	1.7	B	0.32	JB	0.35	JB	0.43	J	0.98	U	2.1	J	6.2	J
Butylbenzylphthalate	0.44	U	0.49	U	0.48	U	0.79	UJ	0.98	U	1.3	UJ	1.5	UJ
Carbazole														
Chrysene	0.049	J	0.016	J	0.48	U	0.4	UJ	0.49	U	0.63	UJ	0.75	UJ
Dibenz(a,h)anthracene	0.44	U	0.49	U	0.48	U	0.4	UJ	0.49	UJ		R	0.75	UJ
Dibenzofuran	0.44	U	0.49	U	0.48	U	0.79	UJ	0.98	U	1.3	U	1.5	UJ
Diethylphthalate	0.015	JB	0.013	JB	0.013	JB	0.79	UJ	0.98	U	1.3	U	1.5	UJ
Dimethylphthalate	0.44	U	0.49	U	0.48	U	0.79	UJ	0.98	U	1.3	U	1.5	UJ
Di-n-butylphthalate	0.013	JB	0.02	JB	0.013	JB	0.79	UJ	0.98	U	1.3	U	1.5	UJ
Di-n-octylphthalate	0.44	U	0.49	U	0.48	U	0.79	UJ	0.98	UJ		R	1.5	UJ
Diphenyl ether														
Diphenylamine														
Fluoranthene	0.067	J	0.026	J	0.011	J	0.38	J	0.3	J	0.34	J	0.75	UJ
Fluorene	0.008	J	0.49	U	0.48	U	0.4	UJ	0.49	U	0.63	U	0.75	UJ
Hexachlorobenzene	0.44	U	0.49	U	0.48	U								
Indeno(1,2,3-cd)pyrene	0.031	J	0.49	U	0.48	U	0.4	UJ	0.49	UJ		R	0.75	UJ
Naphthalene	0.008	J	0.49	U	0.48	U	0.4	UJ	0.49	U	0.63	U	0.75	UJ
N-Nitrosodiphenylamine	0.44	U	0.49	U	0.48	U	0.79	UJ	0.98	U	1.3	U	1.5	UJ
Pentachlorophenol	2.1	U	2.4	U	2.3	U	4	UJ	4.9	U	6.3	U	7.5	UJ
Phenanthrene	0.06	J	0.019	J	0.012	J	0.4	UJ	0.49	U	0.63	U	0.75	UJ
Phenol	0.44	U	0.49	U	0.48	U	0.79	UJ	0.98	UJ	1.3	U	1.5	UJ
Pyrene	0.061	J	0.02	J	0.013	J	0.37	J	0.3	J	0.72	J	0.75	UJ
PAHs (mg/Kg)														
Acenaphthylene							0.65	J	3.9		2.3		1	U
Anthracene							0.063		0.054		0.045		0.048	
Benzo(a)anthracene							0.39		0.32		0.33		0.43	
Benzo(a)pyrene							**0.71**		**0.31**		**0.38**		**0.39**	
Benzo(b)fluoranthene							1.2		0.55		0.51		0.49	
Benzo(ghi)perylene							0.79		0.37		0.36		0.37	
Benzo(k)fluoranthene							0.31		0.26		0.24		0.23	
Chrysene							0.97		0.62		0.54		0.55	
Dibenz(a,h)anthracene							0.3	U	0.3	U	0.066	J	0.41	U
Fluoranthene							2		1.4		1.2		1.3	
Indeno(1,2,3-cd)pyrene							0.8		0.4		0.35		0.33	
Phenanthrene							0.67		0.57		0.49		0.43	

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BS018PND BS018 1/21/1997 0-0 ft		BS019WMD BS019 1/21/1997 0-0 ft		BS020WMD BS020 1/21/1997 0-0 ft		BS041LSD BS041 8/22/2005 0-0.5 ft		BS042LSD BS042 8/22/2005 0-0.5 ft		BS043LSD BS043 8/22/2005 0-0.5 ft		BS044LSD BS044 8/23/2005 0-0.5 ft	
Pyrene							1.5		1		0.9		0.91	
Pesticides/PCBs (mg/Kg)														
4,4'-DDD	0.0068		0.00012	J	0.00035	J	0.024	U	0.029	U	0.037	U	0.039	J
4,4'-DDE	0.011		0.0026	J	0.0021	J	0.024	U	0.029	U	0.037	U	0.044	U
4,4'-DDT	0.027		0.0014	J	0.0073		0.024	U	0.054		0.037	U	0.069	
Aldrin	0.0023	U	0.0024	U	0.0025	U	0.024	U	0.029	U	0.037	U	0.044	U
Alpha-BHC	0.0023	U	0.0024	U	0.0025	U	0.024	U	0.029	U	0.037	U	0.044	U
Alpha-Chlordane	0.00079	J	0.0024	U	0.00034	J								
Beta-BHC	0.0023	U	0.0024	U	0.0025	U	0.024	U	0.029	U	0.037	U	0.044	U
Chlordane (technical)	0.00028	J	0.0024	U	0.0025	U								
Delta-BHC	0.0023	U	0.0024	U	0.0025	U	0.024	U	0.029	U	0.037	U	0.044	U
Dieldrin	0.0025	J	0.00098	J	0.00087	J	0.024	U	0.029	U	0.037	U	0.044	U
Endosulfan I	0.0023	U	0.0024	U	0.0025	U	0.024	U	0.034		0.037	U	0.032	J
Endrin	0.0044	U	0.0046	U	0.0048	U	0.024	U	0.029	U	0.037	U	0.044	U
Endrin ketone	0.0044	U	0.0014	J	0.0048	U	0.024	U	0.029	U	0.037	U	0.044	U
Gamma-BHC/Lindane	0.00011	J	0.0024	U	0.0025	U	0.024	U	0.029	U	0.037	U	0.044	U
Heptachlor epoxide	0.0023	U	0.0024	U	0.00041	J	0.024	U	0.029	U	0.037	U	0.044	U
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	2690		4930		5780		20000		6800		6200		7100	
Antimony	0.97	U	1	U	0.97	U	5.3	U	6.4	U	7.8	U	10	U
Arsenic	**7.5**		**5.8**		**4.4**		**13**		**6.4**		3.9	U	5.1	U
Barium	18.3	B	5.3	B	5.4	B	53		20		13		22	
Beryllium	0.24	U	0.26	U	0.24	U	2.2		0.64	U	0.78	U	1	U
Cadmium	0.24	U	0.26	U	0.24	U	0.73		0.64	U	0.78	U	1	U
Calcium	302	B	85.7	B	97.4	B	8300		6800		5100		2600	
Chromium	5.2		4.2		3.5		1600		82		240		580	
Chromium, Hexavalent							49	U	54	U	80	U	63	U
Cobalt	0.55	B	0.43	B	0.24	U	44		7.3		6.6		5.5	
Copper	3.7	B	2.5	B	2.1	B	79		23		37		43	
Iron	2850	*	7800	*	4150	*	26000		4900		5200		3000	
Lead	18.6		13.7		15.9		40		110		44		46	
Magnesium	168	B	112	B	84	B	1100		740		540		220	
Manganese	7.2		10.7		3.7		970		130		97		15	
Mercury	0.093	U	0.12	U	0.11	U	0.26		0.35		0.49		0.46	
Nickel	2.3	B	1.5	B	1.8	B	50		17		15		24	
Potassium	128	BE	67	BE	46.3	BE	1100	U	1300	U	1700		2000	U
Selenium	0.97	U	1	U	0.97	U	2.7	U	3.2	U	3.9	U	5.1	U
Silver	0.97	U	1	U	0.97	U	2.7	U	3.2	U	3.9	U	5.1	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BS018PND BS018 1/21/1997 0-0 ft		BS019WMD BS019 1/21/1997 0-0 ft		BS020WMD BS020 1/21/1997 0-0 ft		BS041LSD BS041 8/22/2005 0-0.5 ft		BS042LSD BS042 8/22/2005 0-0.5 ft		BS043LSD BS043 8/22/2005 0-0.5 ft		BS044LSD BS044 8/23/2005 0-0.5 ft	
Sodium	110	BE	70.6	BE	53.2	BE	2300		1000		780	U	1000	U
Thallium	1.7	U	1.8	U	1.7	U	2.7	U	3.2	U	3.9	U	5.1	U
Tin														
Vanadium	8.8	B	15		11.3	B	28		39		23		24	
Zinc	4.8	BE	5.9	E	5.1	E	96		18		20	U	26	U
Chloride														
Cyanide, Available							3.8		2	U	2.9	U	2.4	U
Cyanide, Total							9.7		3.7		5.3		7.5	
Eh **(mV)**														
Nitrogen, as Ammonia							400		580		720		1800	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**							11	>	11	>	11	>	11	>
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BS045LSD BS045 8/23/2005 0-0.5 ft		CPDA-5 CPDA-5 12/16/1996 0-1 ft		CPDA-8 CPDA-8 12/16/1996 0-1 ft		LAKE POLY-2 LAKE POLY-2 12/15/1996 0-1 ft		LAKE POLY-3 LAKE POLY-3 12/15/1996 0-1 ft		LP 1 (Lake Poly 1) LP-1 11/4/1999 0-0 ft		LP 2 (Lake Poly 2) LP-2 11/4/1999 0-0 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane			0.007	U	0.007	U	0.009		0.003	J				
1,1-Dichloroethane			0.007	U	0.007	U	0.005	U	0.001	J				
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane			0.007	U	0.007	U	0.005	U	0.001	J				
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene			0.007	UJ	0.007	UJ	0.005	U	0.005	U				
2,4,4-Trimethyl-2-pentene			0.007	U	0.007	U	0.005	U	0.005	U				
2-Butanone			0.013	U	0.014	U	0.011	U	0.004	J				
Acetic acid, methyl ester														
Acetone			0.006	U	0.007	U	0.031	B	0.026	B				
Benzene			0.007	U	0.007	U	0.005	U	0.001	J				
Formaldehyde														
Methylene chloride			0.007	U	0.007	U	0.005	U	0.002	J				
Naphthalene														
Styrene			0.007	U	0.007	U	0.005	U	0.001	J				
Tetrachloroethene			0.007	U	0.007	U	0.005	U	0.005	U				
Tetrahydrofuran														
Toluene			0.007	U	0.007	U	0.0009	J	0.001	J				
Trichloroethene			0.007	U	0.007	U	0.005	U	0.005	U				
Xylenes (m&p)														
Xylenes, Total			0.007	U	0.007	U	0.005	U	0.002	J				
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol	1.5	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
2,4-Dinitrophenol	1.5	UJ	3	U	2	U	1.9	U	1.7	U				
2-Methylnaphthalene	0.75	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
2-Methylphenol	1.5	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
3 & 4 Methylphenol	1.5	UJ												
Acenaphthene	0.75	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
Acenaphthylene	0.75	UJ	0.61	U	0.42	U	0.027	J	0.35	U				
Acetophenone	1.5	UJ												
Aniline	7.5	UJ												
Anthracene	0.75	UJ	0.61	U	0.42	U	0.041	J	0.35	U				
Benzaldehyde														
Benzo(a)anthracene	0.75	UJ	0.61	U	0.42	U	0.13	J	0.008	J				
Benzo(a)pyrene	0.75	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
Benzo(b)fluoranthene	0.75	UJ	0.61	U	0.42	U	0.2	J	0.013	J				

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BS045LSD BS045 8/23/2005 0-0.5 ft		CPDA-5 CPDA-5 12/16/1996 0-1 ft		CPDA-8 CPDA-8 12/16/1996 0-1 ft		LAKE POLY-2 LAKE POLY-2 12/15/1996 0-1 ft		LAKE POLY-3 LAKE POLY-3 12/15/1996 0-1 ft		LP 1 (Lake Poly 1) LP-1 11/4/1999 0-0 ft		LP 2 (Lake Poly 2) LP-2 11/4/1999 0-0 ft	
Benzo(ghi)perylene	0.75	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
Benzo(k)fluoranthene	0.75	UJ	0.61	U	0.42	U	0.17	J	0.019	J				
Benzoic Acid	7.5	UJ	0.29	J	2	U	0.13	J	1.7	U				
Benzyl alcohol	3	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
Biphenyl														
Bis(2-Ethylhexyl)phthalate	9.9		0.22	J	0.72		0.65	B	0.18	JB				
Butylbenzylphthalate	1.5	UJ	0.61	U	0.42	U	0.029	J	0.35	U				
Carbazole														
Chrysene	0.75	UJ	0.61	U	0.42	U	0.16	J	0.016	J				
Dibenz(a,h)anthracene	0.75	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
Dibenzofuran	1.5	UJ	0.61	U	0.42	U	0.016	J	0.35	U				
Diethylphthalate	1.5	UJ	0.61	U	0.42	U	0.019	J	0.35	U				
Dimethylphthalate	1.5	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
Di-n-butylphthalate	1.5	UJ	0.61	U	0.044	U	0.049	JB	0.009	JB				
Di-n-octylphthalate	1.5	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
Diphenyl ether														
Diphenylamine														
Fluoranthene	0.75	UJ	0.61	U	0.42	U	0.3	J	0.022	J				
Fluorene	0.75	UJ	0.61	U	0.42	U	0.02	J	0.35	U				
Hexachlorobenzene			0.61	U	0.42	U	0.39	U	0.35	U				
Indeno(1,2,3-cd)pyrene	0.75	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
Naphthalene	0.75	UJ	0.61	U	0.42	U	0.013	J	0.35	U				
N-Nitrosodiphenylamine	1.5	UJ	0.61	U	0.42	U	0.097	J	0.35	U				
Pentachlorophenol	7.5	UJ	3	U	2	U	1.9	U	1.7	U				
Phenanthrene	0.75	UJ	0.61	U	0.42	U	0.24	J	0.35	U				
Phenol	1.5	UJ	0.61	U	0.42	U	0.39	U	0.35	U				
Pyrene	0.75	UJ	0.61	U	0.42	U	0.3	J	0.017	J				
PAHs (mg/Kg)														
Acenaphthylene	0.97	U												
Anthracene	0.073													
Benzo(a)anthracene	1.1													
Benzo(a)pyrene	**0.58**													
Benzo(b)fluoranthene	0.71													
Benzo(ghi)perylene	0.66													
Benzo(k)fluoranthene	0.34													
Chrysene	0.86													
Dibenz(a,h)anthracene	0.14	J												
Fluoranthene	1.9													
Indeno(1,2,3-cd)pyrene	0.43													
Phenanthrene	0.69													

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BS045LSD BS045 8/23/2005 0-0.5 ft		CPDA-5 CPDA-5 12/16/1996 0-1 ft		CPDA-8 CPDA-8 12/16/1996 0-1 ft		LAKE POLY-2 LAKE POLY-2 12/15/1996 0-1 ft		LAKE POLY-3 LAKE POLY-3 12/15/1996 0-1 ft		LP 1 (Lake Poly 1) LP-1 11/4/1999 0-0 ft		LP 2 (Lake Poly 2) LP-2 11/4/1999 0-0 ft	
Pyrene	1.3													
Pesticides/PCBs (mg/Kg)														
4,4'-DDD	0.16		0.0062	U	0.0042	U	0.0012	J	0.0035	U				
4,4'-DDE	0.044	U	0.0012	J	0.0042	U	0.0018	J	0.0035	U				
4,4'-DDT	0.15		0.0029	J	0.0049	J	0.015		0.0023	J				
Aldrin	0.044	U	0.0032	U	0.0022	U	0.0019	U	0.0018	U				
Alpha-BHC	0.044	U	0.0032	U	0.0022	U	0.0019	U	0.0018	U				
Alpha-Chlordane			0.0032	U	0.0022	U	0.0034		0.0018	U				
Beta-BHC	0.044	U	0.0032	U	0.0022	U	0.0019	U	0.0018	U				
Chlordane (technical)			0.0032	UJ	0.0022	UJ	0.0012	J	0.0018	U				
Delta-BHC	0.044	U	0.0015	J	0.0022	U	0.0019	U	0.0018	U				
Dieldrin	0.044	U	0.002	J	0.0042	U	0.0038	U	0.0035	U				
Endosulfan I	0.044	U	0.0032	U	0.0022	U	0.0019	U	0.0018	U				
Endrin	0.044	U	0.0062	U	0.0042	U	0.0004	J	0.0035	U				
Endrin ketone	0.044	U	0.0062	UJ	0.0042	UJ	0.0038	U	0.0035	U				
Gamma-BHC/Lindane	0.044	U	0.0032	U	0.0061	J	0.0019	U	0.00036	J				
Heptachlor epoxide	0.044	U	0.0032	U	0.0022	U	0.0019	U	0.0018	U				
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	8700				2100		5040		3440					
Antimony	11	U			1.1	U	1.2	UN	1.2	UN				
Arsenic	5.4	U			0.9	U	**4.6**		**3.9**					
Barium	120				4.6	[]	18.8	B	6.5	B				
Beryllium	1.1	U			0.18	U	0.26	B	0.2	B				
Cadmium	1.1	U			0.18	U	0.2	U	0.2	U				
Calcium	2200				21000		762	B	318	B				
Chromium	1500		210		47		54.8	*N	28.9	*N				
Chromium, Hexavalent	95	U												
Cobalt	5.4	U			0.42	[]	3	B	1.5	B				
Copper	55				1.6	[]	20		3.7	B				
Iron	2000				1200		6670		5000					
Lead	53				4.8		183		4.8					
Magnesium	340				290	[]	1450		874	B				
Manganese	17				7.8		90.9		39.8					
Mercury	0.36				0.11	UN	0.14		0.1	U				
Nickel	24				1.5	[]	7.7	B	5.3	B				
Potassium	2100	U			80	[]	380	B	251	B				
Selenium	5.4	U			0.9	UN	1	UN	1	UN				
Silver	5.4	U				R	0.2	U	0.2	U				

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BS045LSD BS045 8/23/2005 0-0.5 ft		CPDA-5 CPDA-5 12/16/1996 0-1 ft		CPDA-8 CPDA-8 12/16/1996 0-1 ft		LAKE POLY-2 LAKE POLY-2 12/15/1996 0-1 ft		LAKE POLY-3 LAKE POLY-3 12/15/1996 0-1 ft		LP 1 (Lake Poly 1) LP-1 11/4/1999 0-0 ft		LP 2 (Lake Poly 2) LP-2 11/4/1999 0-0 ft	
Sodium	1100	U			82	[]	102	B	107	B				
Thallium	5.4	U			1.4	UJ	2.2		1.6	U				
Tin														
Vanadium	34				5.3	[]	10.9		7.2	B				
Zinc	27	U			6		75.5	E	27.1	E				
Chloride														
Cyanide, Available	4.1	U												
Cyanide, Total	8.8													
Eh **(mV)**														
Nitrogen, as Ammonia	920		343		77.7		25.8		42.4					
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate			680		23900		110	U	110	U				
Total Organic Carbon														
Total Organic Carbon **(%)**	11	>												
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-40-OVR LPB-40 12/10/2003 0-2.9 ft		LPB-41-OVR LPB-41 12/10/2003 0-1.5 ft		NW Warehouse NW-WAREHOUSE 11/4/1999 0-0 ft		SE Warehouse SE-WAREHOUSE 11/4/1999 0-0 ft		SS101XX27X SWMU-27-101 11/23/1998 0-2 ft		SS101XX27X SWMU-27-101 11/30/1998 0-2 ft		SS101XX33X SWMU-33-101 11/23/1998 0-2 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane									0.009	U	0.66	U	0.013	U
1,1-Dichloroethane									0.009	U	0.66	U	0.013	U
1,2,4-Trichlorobenzene									0.009	U	0.66	U	0.013	U
1,2,4-Trimethylbenzene									0.025		0.66	U	0.013	U
1,2-Dichlorobenzene									0.009	U	0.66	U	0.013	U
1,2-Dichloroethane									0.009	U	0.66	U	0.013	U
1,3,5-Trimethylbenzene									0.009	U	0.66	U	0.013	U
2,4,4-Trimethyl-1-pentene									0.009	U			0.013	U
2,4,4-Trimethyl-2-pentene									0.009	U			0.013	U
2-Butanone									0.18	U	13	U	0.26	U
Acetic acid, methyl ester														
Acetone									0.18	U	13	U	0.26	U
Benzene									0.009	U	0.66	U	0.013	U
Formaldehyde	0.14		0.12	U										
Methylene chloride									0.009	U	0.66	U	0.013	U
Naphthalene									0.09	U	6.6	U	0.13	U
Styrene									0.009	U	0.66	U	0.013	U
Tetrachloroethene									0.0093		0.66	U	0.013	U
Tetrahydrofuran														
Toluene									0.009	U	0.66	U	0.013	U
Trichloroethene									0.009	U	0.66	U	0.013	U
Xylenes (m&p)									0.009	U	0.66	U	0.013	U
Xylenes, Total									0.009	U	0.66	U	0.013	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol									0.42	U			0.6	U
2,4-Dinitrophenol									2.1	U			3	U
2-Methylnaphthalene									0.42	U			0.6	U
2-Methylphenol									0.42	U			0.6	U
3 & 4 Methylphenol														
Acenaphthene									0.42	U			0.6	U
Acenaphthylene									0.42	U			0.6	U
Acetophenone														
Aniline									2.1	U			3	U
Anthracene									0.42	U			0.6	U
Benzaldehyde														
Benzo(a)anthracene									0.42	U			0.6	U
Benzo(a)pyrene									0.42	U			0.6	U
Benzo(b)fluoranthene									0.42	U			0.6	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-40-OVR LPB-40 12/10/2003 0-2.9 ft		LPB-41-OVR LPB-41 12/10/2003 0-1.5 ft		NW Warehouse NW-WAREHOUSE 11/4/1999 0-0 ft		SE Warehouse SE-WAREHOUSE 11/4/1999 0-0 ft		SS101XX27X SWMU-27-101 11/23/1998 0-2 ft		SS101XX27X SWMU-27-101 11/30/1998 0-2 ft		SS101XX33X SWMU-33-101 11/23/1998 0-2 ft	
Benzo(ghi)perylene									0.42	U			0.6	U
Benzo(k)fluoranthene									0.42	U			0.6	U
Benzoic Acid									2.1	U			3	U
Benzyl alcohol									0.83	U			1.2	U
Biphenyl														
Bis(2-Ethylhexyl)phthalate									1.4				0.6	U
Butylbenzylphthalate									0.42	U			0.6	U
Carbazole														
Chrysene									0.42	U			0.6	U
Dibenz(a,h)anthracene									0.42	U			0.6	U
Dibenzofuran									0.42	U			0.6	U
Diethylphthalate									0.42	U			0.6	U
Dimethylphthalate									0.42	U			0.6	U
Di-n-butylphthalate									0.42	U			0.6	U
Di-n-octylphthalate									0.42	U			0.6	U
Diphenyl ether														
Diphenylamine														
Fluoranthene									0.42	U			0.6	U
Fluorene									0.42	U			0.6	U
Hexachlorobenzene									0.42	U			0.6	U
Indeno(1,2,3-cd)pyrene									0.42	U			0.6	U
Naphthalene									0.42	U			0.6	U
N-Nitrosodiphenylamine									0.42	U			0.6	U
Pentachlorophenol									2.1	U			3	U
Phenanthrene									0.42	U			0.6	U
Phenol									0.42	U			0.6	U
Pyrene									0.42	U			0.6	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-40-OVR LPB-40 12/10/2003 0-2.9 ft		LPB-41-OVR LPB-41 12/10/2003 0-1.5 ft		NW Warehouse NW-WAREHOUSE 11/4/1999 0-0 ft		SE Warehouse SE-WAREHOUSE 11/4/1999 0-0 ft		SS101XX27X SWMU-27-101 11/23/1998 0-2 ft		SS101XX27X SWMU-27-101 11/30/1998 0-2 ft		SS101XX33X SWMU-33-101 11/23/1998 0-2 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum									6200				8600	
Antimony									3	U			5	U
Arsenic									**3**				5	U
Barium									13				14	
Beryllium									0.3	U			0.5	U
Cadmium									0.3	U			0.5	U
Calcium									620				290	
Chromium									260				6.4	
Chromium, Hexavalent														
Cobalt									2				2	U
Copper									8.4				8.2	
Iron									6000				3200	
Lead									14				17	
Magnesium									910				260	
Manganese									62				31	
Mercury									0.06	U			0.08	U
Nickel									4.1				5	U
Potassium									660				240	
Selenium									2	U			2	U
Silver									0.7	U			1	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-40-OVR LPB-40 12/10/2003 0-2.9 ft		LPB-41-OVR LPB-41 12/10/2003 0-1.5 ft		NW Warehouse NW-WAREHOUSE 11/4/1999 0-0 ft		SE Warehouse SE-WAREHOUSE 11/4/1999 0-0 ft		SS101XX27X SWMU-27-101 11/23/1998 0-2 ft		SS101XX27X SWMU-27-101 11/30/1998 0-2 ft		SS101XX33X SWMU-33-101 11/23/1998 0-2 ft	
Sodium									74				140	
Thallium									2	U			2	U
Tin														
Vanadium									13				9	
Zinc									19				12	U
Chloride									26.1				55.1	
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia									52				70	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate									6.8				165	
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine	0.28	UG	0.28	UG										
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SS101XX33X SWMU-33-101 11/30/1998 0-2 ft		SS102XX33X SWMU-33-102 11/23/1998 0-2 ft		SS102XX33X SWMU-33-102 11/30/1998 0-2 ft		SS102XXLPX LP-102 11/24/1998 0-2 ft		SS103XX33X SWMU-33-103 11/23/1998 0-2 ft		SS103XX33X SWMU-33-103 11/30/1998 0-2 ft		SS103XXLPX LP-103 11/24/1998 0-2 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	1	U	0.009	U	0.76	U			0.012	U	0.86	U		
1,1-Dichloroethane	1	U	0.009	U	0.76	U			0.012	U	0.86	U		
1,2,4-Trichlorobenzene	1	U	0.009	U	0.76	U			0.012	U	0.86	U		
1,2,4-Trimethylbenzene	1	U	0.009	U	0.76	U			0.012	U	0.86	U		
1,2-Dichlorobenzene	1	U	0.009	U	0.76	U			0.012	U	0.86	U		
1,2-Dichloroethane	1	U	0.009	U	0.76	U			0.012	U	0.86	U		
1,3,5-Trimethylbenzene	1	U	0.009	U	0.76	U			0.012	U	0.86	U		
2,4,4-Trimethyl-1-pentene			0.009	U					0.012	U				
2,4,4-Trimethyl-2-pentene			0.009	U					0.012	U				
2-Butanone	20	U	0.18	U	15	U			0.23	U	17	U		
Acetic acid, methyl ester														
Acetone	20	U	0.18	U	15	U			0.23	U	17	U		
Benzene	1	U	0.009	U	0.76	U			0.012	U	0.86	U		
Formaldehyde														
Methylene chloride	1	U	0.009	U	0.76	U			0.012	U	0.86	U		
Naphthalene	10	U	0.09	U	7.6	U			0.12	U	8.6	U		
Styrene	1	U	0.009	U	0.76	U			0.012	U	0.86	U		
Tetrachloroethene	1	U	0.015		0.76	U			0.012	U	0.86	U		
Tetrahydrofuran														
Toluene	1	U	0.038		0.76	U			0.012	U	0.86	U		
Trichloroethene	1	U	0.009	U	0.76	U			0.012	U	0.86	U		
Xylenes (m&p)	1	U	0.011		0.76	U			0.012	U	0.86	U		
Xylenes, Total	1	U	0.011		0.76	U			0.012	U	0.86	U		
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol			0.48	U					0.62	U				
2,4-Dinitrophenol			2.4	U					3.1	U				
2-Methylnaphthalene			0.48	U					0.62	U				
2-Methylphenol			0.48	U					0.62	U				
3 & 4 Methylphenol														
Acenaphthene			0.48	U					0.62	U				
Acenaphthylene			0.48	U					0.62	U				
Acetophenone														
Aniline			2.4	U					3.1	U				
Anthracene			0.48	U					0.62	U				
Benzaldehyde														
Benzo(a)anthracene			0.48	U					0.62	U				
Benzo(a)pyrene			0.48	U					0.62	U				
Benzo(b)fluoranthene			0.48	U					0.62	U				

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SS101XX33X SWMU-33-101 11/30/1998 0-2 ft		SS102XX33X SWMU-33-102 11/23/1998 0-2 ft		SS102XX33X SWMU-33-102 11/30/1998 0-2 ft		SS102XXLPX LP-102 11/24/1998 0-2 ft		SS103XX33X SWMU-33-103 11/23/1998 0-2 ft		SS103XX33X SWMU-33-103 11/30/1998 0-2 ft		SS103XXLPX LP-103 11/24/1998 0-2 ft	
Benzo(ghi)perylene			0.48	U					0.62	U				
Benzo(k)fluoranthene			0.48	U					0.62	U				
Benzoic Acid			2.4	U					3.1	U				
Benzyl alcohol			0.95	U					1.2	U				
Biphenyl														
Bis(2-Ethylhexyl)phthalate			0.48	U					0.62	U				
Butylbenzylphthalate			0.48	U					0.62	U				
Carbazole														
Chrysene			0.48	U					0.62	U				
Dibenz(a,h)anthracene			0.48	U					0.62	U				
Dibenzofuran			0.48	U					0.62	U				
Diethylphthalate			0.48	U					0.62	U				
Dimethylphthalate			0.48	U					0.62	U				
Di-n-butylphthalate			0.48	U					0.62	U				
Di-n-octylphthalate			0.48	U					0.62	U				
Diphenyl ether														
Diphenylamine														
Fluoranthene			0.48	U					0.62	U				
Fluorene			0.48	U					0.62	U				
Hexachlorobenzene			0.48	U					0.62	U				
Indeno(1,2,3-cd)pyrene			0.48	U					0.62	U				
Naphthalene			0.48	U					0.62	U				
N-Nitrosodiphenylamine			0.48	U					0.62	U				
Pentachlorophenol			2.4	U					3.1	U				
Phenanthrene			0.48	U					0.62	U				
Phenol			0.48	U					0.62	U				
Pyrene			0.48	U					0.62	U				
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SS101XX33X SWMU-33-101 11/30/1998 0-2 ft		SS102XX33X SWMU-33-102 11/23/1998 0-2 ft		SS102XX33X SWMU-33-102 11/30/1998 0-2 ft		SS102XXLPX LP-102 11/24/1998 0-2 ft		SS103XX33X SWMU-33-103 11/23/1998 0-2 ft		SS103XX33X SWMU-33-103 11/30/1998 0-2 ft		SS103XXLPX LP-103 11/24/1998 0-2 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum			12000						7600					
Antimony			3	U					4	U				
Arsenic			**8.3**						**6**					
Barium			23						13					
Beryllium			0.3	U					0.4	U				
Cadmium			0.3	U					0.4	U				
Calcium			2600						630					
Chromium			10				101		11				13.5	
Chromium, Hexavalent							1.22	T					0.41	T
Cobalt			4.8						2.8					
Copper			12						5.7					
Iron			15000						5600					
Lead			49						18					
Magnesium			1600						900					
Manganese			130						55					
Mercury			0.11						0.07	U				
Nickel			6.1						6.2					
Potassium			390						290					
Selenium			2	U					2	U				
Silver			0.8	U					1	U				

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SS101XX33X SWMU-33-101 11/30/1998 0-2 ft	SS102XX33X SWMU-33-102 11/23/1998 0-2 ft	SS102XX33X SWMU-33-102 11/30/1998 0-2 ft	SS102XXLPX LP-102 11/24/1998 0-2 ft	SS103XX33X SWMU-33-103 11/23/1998 0-2 ft	SS103XX33X SWMU-33-103 11/30/1998 0-2 ft	SS103XXLPX LP-103 11/24/1998 0-2 ft
Sodium		94			150		
Thallium		2 U			2 U		
Tin							
Vanadium		54			13		
Zinc		24			11 U		
Chloride		26.3			176		
Cyanide, Available							
Cyanide, Total							
Eh **(mV)**				298			320
Nitrogen, as Ammonia		61			80		
Oxidation Reduction Potential **(mV)**							
pH **(pH units)**				5.95			4.9
Sulfate		13.4			221		
Total Organic Carbon				10900			8680
Total Organic Carbon **(%)**							
VPH (mg/Kg)							
C9-C10 Aromatics							
Volatile Petroleum Hydrocarbons, Total							
EPH (mg/Kg)							
Benzo(a)pyrene							
Benzo(ghi)perylene							
C11-C22 Aromatics							
C11-C22 Aromatics (unadj.)							
C19-C36 Aliphatics							
C9-C18 Aliphatics							
Extractable Petroleum Hydrocarbons, Total							
Specialty Compounds (mg/Kg)							
Hydrazine							
Acetaldehyde							
Formaldehyde							
Phthalic Acid/Phthalic anhydride							

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SS105XXLPX LP-105 11/24/1998 0-2 ft		SWMU-25 SWMU-25 5/7/1993 0-0 ft		SWMU26 COMP SWMU-26 12/15/1996 0-1 ft		SWMU26-1 SWMU-26-1 12/15/1996 0-1 ft		SWMU26-2 SWMU-26-2 12/15/1996 0-1 ft		SWMU26-3 SWMU-26-3 12/15/1996 0-1 ft		SWMU26-4 SWMU-26-4 12/15/1996 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane			0.005	U			0.005	J	0.006		0.006	U	0.006	
1,1-Dichloroethane			0.005	U			0.006	U	0.006	U	0.006	U	0.006	U
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane			0.005	U			0.006	U	0.006	U	0.006	U	0.006	U
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene			0.01	U			0.006	U	0.006	U	0.006	U	0.006	U
2,4,4-Trimethyl-2-pentene			0.01	U			0.006	U	0.006	U	0.006	U	0.006	U
2-Butanone			0.015	U			0.012	U	0.012	U	0.012	U	0.012	U
Acetic acid, methyl ester														
Acetone			0.015	U			0.012	U	0.011	JB	0.013		0.013	
Benzene			0.005	U			0.006	U	0.006	U	0.006	U	0.006	U
Formaldehyde														
Methylene chloride			0.01	U			0.006	U	0.006	U	0.006	U	0.006	U
Naphthalene														
Styrene			0.005	U			0.006	U	0.006	U	0.006	U	0.006	U
Tetrachloroethene			0.005	U			0.006	U	0.006	U	0.006	U	0.006	U
Tetrahydrofuran														
Toluene			0.005	U			0.006	U	0.006	U	0.006	U	0.006	U
Trichloroethene			0.005	U			0.006	U	0.006	U	0.006	U	0.006	U
Xylenes (m&p)														
Xylenes, Total			0.005	U			0.006	U	0.006	U	0.006	U	0.006	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol			0.33	U	1	U								
2,4-Dinitrophenol			0.82	U	4.9	U								
2-Methylnaphthalene			0.33	U	1	U								
2-Methylphenol			0.33	U	1	U								
3 & 4 Methylphenol														
Acenaphthene			0.33	U	1	U								
Acenaphthylene			0.33	U	0.045	J								
Acetophenone														
Aniline														
Anthracene			0.33	U	1	U								
Benzaldehyde														
Benzo(a)anthracene			0.33	U	1	U								
Benzo(a)pyrene			0.089	J	1	U								
Benzo(b)fluoranthene			0.061	J	1	U								

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SS105XXLPX LP-105 11/24/1998 0-2 ft		SWMU-25 SWMU-25 5/7/1993 0-0 ft		SWMU26 COMP SWMU-26 12/15/1996 0-1 ft		SWMU26-1 SWMU-26-1 12/15/1996 0-1 ft		SWMU26-2 SWMU-26-2 12/15/1996 0-1 ft		SWMU26-3 SWMU-26-3 12/15/1996 0-1 ft		SWMU26-4 SWMU-26-4 12/15/1996 0-1 ft	
Benzo(ghi)perylene			0.33	U	1	U								
Benzo(k)fluoranthene			0.33	U	1	U								
Benzoic Acid			1.6	U	0.79	J								
Benzyl alcohol			0.33	U	1	U								
Biphenyl														
Bis(2-Ethylhexyl)phthalate			2.2		5.2	B								
Butylbenzylphthalate			0.33	U	1	U								
Carbazole														
Chrysene			0.084	J	1	U								
Dibenz(a,h)anthracene			0.33	U	1	U								
Dibenzofuran			0.33	U	1	U								
Diethylphthalate			0.33	U	1	U								
Dimethylphthalate			0.33	U	1	U								
Di-n-butylphthalate			0.33	U	1	U								
Di-n-octylphthalate			0.33	U	1	U								
Diphenyl ether														
Diphenylamine														
Fluoranthene			0.095	J	1	U								
Fluorene			0.33	U	1	U								
Hexachlorobenzene			0.33	U	1	U								
Indeno(1,2,3-cd)pyrene			0.33	U	1	U								
Naphthalene			0.33	U	1	U								
N-Nitrosodiphenylamine			0.33	U	0.3	J								
Pentachlorophenol			0.82	U	4.9	U								
Phenanthrene			0.039	J	1	U								
Phenol			0.33	U	1	U								
Pyrene			0.066	J	1	U								
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SS105XXLPX LP-105 11/24/1998 0-2 ft		SWMU-25 SWMU-25 5/7/1993 0-0 ft		SWMU26 COMP SWMU-26 12/15/1996 0-1 ft		SWMU26-1 SWMU-26-1 12/15/1996 0-1 ft		SWMU26-2 SWMU-26-2 12/15/1996 0-1 ft		SWMU26-3 SWMU-26-3 12/15/1996 0-1 ft		SWMU26-4 SWMU-26-4 12/15/1996 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD			0.0033	U	0.025	U								
4,4'-DDE			0.0033	U	0.025	U								
4,4'-DDT			0.0033	U	0.014	J								
Aldrin			0.0017	UJ	0.003	J								
Alpha-BHC			0.0017	U	0.013	U								
Alpha-Chlordane			0.0017	U	0.013	U								
Beta-BHC			0.0017	U	0.013	U								
Chlordane (technical)			0.0017	U	0.013	U								
Delta-BHC			0.0017	U	0.013	U								
Dieldrin			0.0033	U	0.025	U								
Endosulfan I			0.0017	U	0.013	U								
Endrin			0.0033	U	0.0072	J								
Endrin ketone			0.0033	U	0.025	U								
Gamma-BHC/Lindane			0.0017	U	0.14									
Heptachlor epoxide			0.0017	U	0.013	U								
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum			4700											
Antimony			20	UJ										
Arsenic			**7.9**	J										
Barium			14											
Beryllium			1.5	U										
Cadmium			1	U										
Calcium			670											
Chromium	29.8		19		47.6	E								
Chromium, Hexavalent	0.42	T												
Cobalt			3.1											
Copper			5.6	J										
Iron			7900											
Lead			10	U										
Magnesium			2400											
Manganese			90											
Mercury			0.1	U										
Nickel			12											
Potassium			980											
Selenium				R										
Silver			1.5	U										

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SS105XXLPX LP-105 11/24/1998 0-2 ft		SWMU-25 SWMU-25 5/7/1993 0-0 ft		SWMU26 COMP SWMU-26 12/15/1996 0-1 ft		SWMU26-1 SWMU-26-1 12/15/1996 0-1 ft		SWMU26-2 SWMU-26-2 12/15/1996 0-1 ft		SWMU26-3 SWMU-26-3 12/15/1996 0-1 ft		SWMU26-4 SWMU-26-4 12/15/1996 0-1 ft	
Sodium			80											
Thallium			0.5	U										
Tin														
Vanadium			20											
Zinc			21											
Chloride			40	U										
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**	322													
Nitrogen, as Ammonia			8	U	114									
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**	5.87													
Sulfate			40	U	19400									
Total Organic Carbon	4600													
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SWMU-33 SWMU-33 7/30/1991 0-1 ft		OC-SB-400-0.0/1.0-XXX SB-400 8/26/2009 0-1 ft		OC-SB-401-0.0/1.0-XXX SB-401 8/26/2009 0-1 ft		OC-SB-402-0.0/1.0-XXX SB-402 8/26/2009 0-1 ft		OC-SB-403-0.0/1.0-XXX SB-403 8/26/2009 0-1 ft		OC-SB-405-0.0/1.0-XXX SB-405 8/18/2009 0-1 ft		OC-SB-406-0.0/1.0-XXX SB-406 9/17/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.016	UJ	0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
1,1-Dichloroethane	0.016	UJ	0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
1,2,4-Trichlorobenzene			0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
1,2,4-Trimethylbenzene			0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
1,2-Dichlorobenzene			0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
1,2-Dichloroethane	0.016	UJ	0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
1,3,5-Trimethylbenzene			0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
2,4,4-Trimethyl-1-pentene	0.033	U	0.0046	UJ	0.0051	UJ	0.005	UJ	0.0046	U	0.0047	U	0.012	U
2,4,4-Trimethyl-2-pentene	0.033	U	0.0046	U	0.0051	U	0.005	U	0.0046	U	0.0047	U	0.012	U
2-Butanone	0.05	U	0.023	UJ	0.025	UJ	0.025	UJ	0.023	UJ	0.023	U	0.059	U
Acetic acid, methyl ester			0.046	U	0.051	U	0.05	U	0.046	U	0.047	U	0.12	U
Acetone	0.014	U	0.23	UJ	0.25	UJ	0.25	UJ	0.23	UJ	0.23	UJ	0.068	J
Benzene	0.016	UJ	0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
Formaldehyde														
Methylene chloride	0.032	U	0.0092	U	0.01	U	0.01	U	0.0092	U	0.0093	U	0.024	U
Naphthalene			0.023	U	0.025	U	0.025	U	0.023	U	0.023	U	0.059	U
Styrene	0.016	UJ	0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
Tetrachloroethene	0.001	J	0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
Tetrahydrofuran			0.023	UJ	0.025	UJ	0.025	UJ	0.023	U	0.023	U	0.059	U
Toluene	0.001	J	0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
Trichloroethene	0.016	UJ	0.0023	U	0.0025	U	0.0025	U	0.0023	U	0.0023	U	0.0059	U
Xylenes (m&p)			0.0046	U	0.0051	U	0.005	U	0.0046	U	0.0047	U	0.012	U
Xylenes, Total	0.016	UJ	0.0046	U	0.0051	U	0.005	U	0.0046	U	0.0047	U	0.012	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene			0.034	U	0.035	U	0.035	U	0.035	U	0.035	UJ	0.077	U
2,4-Dimethylphenol	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	UJ	0.077	U
2,4-Dinitrophenol	11	UJ		R		R		R	0.035	U	0.035	UJ	0.077	U
2-Methylnaphthalene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
2-Methylphenol	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
3 & 4 Methylphenol			0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Acenaphthene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Acenaphthylene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Acetophenone			0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.038	JEB
Aniline			0.034	U	0.035	U	0.035	U	0.035	U	0.035	UJ	0.077	U
Anthracene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Benzaldehyde			0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.22	
Benzo(a)anthracene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Benzo(a)pyrene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	UJ	0.035	U	0.077	U
Benzo(b)fluoranthene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	UJ	0.035	U	0.077	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SWMU-33 SWMU-33 7/30/1991 0-1 ft		OC-SB-400-0.0/1.0-XXX SB-400 8/26/2009 0-1 ft		OC-SB-401-0.0/1.0-XXX SB-401 8/26/2009 0-1 ft		OC-SB-402-0.0/1.0-XXX SB-402 8/26/2009 0-1 ft		OC-SB-403-0.0/1.0-XXX SB-403 8/26/2009 0-1 ft		OC-SB-405-0.0/1.0-XXX SB-405 8/18/2009 0-1 ft		OC-SB-406-0.0/1.0-XXX SB-406 9/17/2009 0-1 ft	
Benzo(ghi)perylene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	UJ	0.035	U	0.077	U
Benzo(k)fluoranthene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	UJ	0.035	U	0.077	U
Benzoic Acid	11	UJ		R		R		R	0.18	U	0.17	JEB	0.42	UJ
Benzyl alcohol	2.2	UJ	0.068	U	0.07	U	0.069	U	0.07	U	0.069	U	0.15	U
Biphenyl			0.034	U	0.035	U	0.035	U	0.035	U	0.035	UJ	0.077	U
Bis(2-Ethylhexyl)phthalate	34	J	0.034	U	0.012	JEB	0.13	EB	0.1	EB	0.035	JEB	0.036	JEB
Butylbenzylphthalate	2.2	UJ	0.034	U	0.14		0.36		0.035	U	0.035	U	0.077	U
Carbazole			0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Chrysene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	UJ	0.035	U	0.031	J
Dibenz(a,h)anthracene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	UJ	0.035	U	0.077	U
Dibenzofuran	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Diethylphthalate	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Dimethylphthalate	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Di-n-butylphthalate	0.27	J	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Di-n-octylphthalate	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	UJ	0.035	U	0.077	U
Diphenyl ether			0.034	U	0.035	U	0.035	U	0.035	U	0.035	UJ	0.077	U
Diphenylamine							0.035	U	0.035	U				
Fluoranthene	2.2	UJ	0.034	U	0.035	U	0.011	J	0.035	U	0.035	U	0.043	J
Fluorene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Hexachlorobenzene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Indeno(1,2,3-cd)pyrene	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	UJ	0.035	U	0.038	J
Naphthalene	2.2	UJ	0.082	U	0.084	U	0.083	U	0.084	U	0.083	U	0.18	U
N-Nitrosodiphenylamine	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Pentachlorophenol	2.2	UJ		R		R		R	0.035	U	0.035	U	0.077	U
Phenanthrene	2.2	UJ	0.041	U	0.042	U	0.042	U	0.042	U	0.042	U	0.032	J
Phenol	2.2	UJ	0.034	U	0.035	U	0.035	U	0.035	U	0.035	U	0.077	U
Pyrene		R	0.034	U	0.035	U	0.014	J	0.035	U	0.035	U	0.042	J
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SWMU-33 SWMU-33 7/30/1991 0-1 ft		OC-SB-400-0.0/1.0-XXX SB-400 8/26/2009 0-1 ft		OC-SB-401-0.0/1.0-XXX SB-401 8/26/2009 0-1 ft		OC-SB-402-0.0/1.0-XXX SB-402 8/26/2009 0-1 ft		OC-SB-403-0.0/1.0-XXX SB-403 8/26/2009 0-1 ft		OC-SB-405-0.0/1.0-XXX SB-405 8/18/2009 0-1 ft		OC-SB-406-0.0/1.0-XXX SB-406 9/17/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD	0.1	UJ												
4,4'-DDE	0.1	UJ												
4,4'-DDT	0.1	UJ												
Aldrin	0.052	UJ												
Alpha-BHC	0.052	UJ												
Alpha-Chlordane	0.052	UJ												
Beta-BHC	0.052	UJ												
Chlordane (technical)	0.052	UJ												
Delta-BHC	0.052	UJ												
Dieldrin	0.1	UJ												
Endosulfan I	0.052	UJ												
Endrin	0.1	UJ												
Endrin ketone	0.052	UJ												
Gamma-BHC/Lindane	0.1	UJ												
Heptachlor epoxide	0.052	UJ												
Aroclor-1016	0.98	J												
Aroclor-1260	1	UJ												
Inorganics (mg/Kg)														
Aluminum	59000		5800		5900		5100		10000		4900		24000	
Antimony	79		0.67	UJ	0.68	UJ	0.62	UJ	0.69	UJ	0.6	UJ	1.4	UJ
Arsenic	**18**		**16**		**3.3**		**3.2**		**17**		**5.1**		**15**	
Barium	21		10		32		7.7		30		12		25	
Beryllium	4		0.24	J	0.21	J	0.2	J	0.51		0.2	J	0.63	
Cadmium	5.8		0.12	J	0.074	J	0.074	J	0.31		0.16	J	0.56	J
Calcium	1400		450		350		700		7100		590		930	
Chromium	5000		8.5	J	5.5	J	5.2	J	25		7		20	
Chromium, Hexavalent														
Cobalt	45		2.2		2.7		6.2		6.3		3.2		4.3	
Copper	33		6.7	J	2.7	J	3	J	14		5.9	EB	12	
Iron	100000		8100		5100		5000		16000		7200		23000	
Lead	62		3.9		2.6		3.4		6.4		4.6		34	
Magnesium	550		1400	J	770	J	840	J	3900		1100		1500	
Manganese	140		51		37		39		130		76		70	
Mercury	0.4		0.13	U	0.2	U	0.14	U	0.14	U	0.17	U	0.081	J
Nickel	67		6.2		4.5		5		18		7		13	
Potassium	160		580	J	420	J	360	J	1700		600		1100	
Selenium	5.1	U	0.67	U	0.68	U	0.62	U	0.69	U	0.6	U	1.4	U
Silver	3	U	0.67	U	0.68	U	0.62	U	0.086	J	0.064	J	1.4	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SWMU-33 SWMU-33 7/30/1991 0-1 ft		OC-SB-400-0.0/1.0-XXX SB-400 8/26/2009 0-1 ft		OC-SB-401-0.0/1.0-XXX SB-401 8/26/2009 0-1 ft		OC-SB-402-0.0/1.0-XXX SB-402 8/26/2009 0-1 ft		OC-SB-403-0.0/1.0-XXX SB-403 8/26/2009 0-1 ft		OC-SB-405-0.0/1.0-XXX SB-405 8/18/2009 0-1 ft		OC-SB-406-0.0/1.0-XXX SB-406 9/17/2009 0-1 ft	
Sodium	680		130	U	72	J	50	J	300		120	U	290	U
Thallium	1	U	1.3	U	1.4	U	1.2	U	1.4	U	1.2	U	2.9	U
Tin			3	J	6.8	UJ	6.2	UJ	8.8		2.7	J	6.9	J
Vanadium	37		8.3		6.4		5.9		19		8.4		42	
Zinc	180		10		11		8		29		14		24	
Chloride	560	J	21	U	21	U	21	U	95		21	U	41	U
Cyanide, Available														
Cyanide, Total	5.2	J												
Eh **(mV)**														
Nitrogen, as Ammonia	300		5.7	U	18		16		7.7		22		460	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	2400	J	41	U	84		150		130		42	U	83	U
Total Organic Carbon							3000							
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics			2.7	U										
Volatile Petroleum Hydrocarbons, Total			2.7	U										
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics			4.5											
C11-C22 Aromatics (unadj.)			4.5											
C19-C36 Aliphatics			3.6											
C9-C18 Aliphatics			3.3	U										
Extractable Petroleum Hydrocarbons, Total			8.1											
Specialty Compounds (mg/Kg)														
Hydrazine							0.0021	U	0.0021	U				
Acetaldehyde							0.044	J	0.21	U				
Formaldehyde							0.24		0.28					
Phthalic Acid/Phthalic anhydride							0.036	J	0.077	J				

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-407-0.0/1.0-XXX SB-407 8/26/2009 0-1 ft		OC-SB-408-0.0/1.0-XXX SB-408 8/26/2009 0-1 ft		OC-SB-409-0.0/1.0-XXX SB-409 8/26/2009 0-1 ft		OC-SB-410-0.0/1.0-XXX SB-410 8/27/2009 0-1 ft		OC-SB-411-0.0/1.0-XXX SB-411 8/26/2009 0-1 ft		OC-SB-412-0.0/1.0-XXX SB-412 8/18/2009 0-1 ft		OC-SB-413-0.0/1.0-XXX SB-413 9/17/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
1,1-Dichloroethane	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
1,2,4-Trichlorobenzene	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
1,2,4-Trimethylbenzene	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
1,2-Dichlorobenzene	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
1,2-Dichloroethane	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
1,3,5-Trimethylbenzene	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
2,4,4-Trimethyl-1-pentene	0.006	UJ	0.005	UJ	0.005	U	0.005	U	0.0048	U	0.0054	U	0.0091	U
2,4,4-Trimethyl-2-pentene	0.006	U	0.005	U	0.005	U	0.005	U	0.0048	U	0.0054	U	0.0091	U
2-Butanone	0.03	UJ	0.025	UJ	0.025	UJ	0.025	UJ	0.024	UJ	0.027	U	0.046	U
Acetic acid, methyl ester	0.06	U	0.05	U	0.05	U	0.05	U	0.048	U	0.054	U	0.091	U
Acetone	0.3	UJ	0.25	UJ	0.25	UJ	0.25	UJ	0.24	UJ	0.27	UJ	0.039	J
Benzene	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
Formaldehyde														
Methylene chloride	0.012	U	0.0099	U	0.01	U	0.01	U	0.0047	J	0.011	U	0.018	U
Naphthalene	0.03	U	0.025	U	0.025	U	0.025	U	0.024	U	0.027	U	0.046	U
Styrene	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
Tetrachloroethene	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
Tetrahydrofuran	0.03	UJ	0.025	UJ	0.025	U	0.025	U	0.024	U	0.027	U	0.046	U
Toluene	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
Trichloroethene	0.003	U	0.0025	U	0.0025	U	0.0025	U	0.0024	U	0.0027	U	0.0046	U
Xylenes (m&p)	0.006	U	0.005	U	0.005	U	0.005	U	0.0048	U	0.0054	U	0.0091	U
Xylenes, Total	0.006	U	0.005	U	0.005	U	0.005	U	0.0048	U	0.0054	U	0.0091	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	UJ	0.046	U
2,4-Dimethylphenol	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	UJ	0.046	U
2,4-Dinitrophenol	0.036	UJ	0.037	UJ	0.034	U		R		R	0.034	UJ	0.046	U
2-Methylnaphthalene	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
2-Methylphenol	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
3 & 4 Methylphenol	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
Acenaphthene	0.036	U	0.037	U	0.034	U	1.2		0.036	U	0.034	U	0.046	U
Acenaphthylene	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
Acetophenone	0.043	EB	0.037	U	0.034	U	0.12	JEB	0.036	U	0.034	U	0.046	U
Aniline	0.036	U	0.037	UJ	0.034	U	0.36	UJ	0.036	UJ	0.034	UJ	0.046	UJ
Anthracene	0.036	U	0.037	U	0.034	U	5.3	EB	0.036	U	0.034	U	0.046	U
Benzaldehyde	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.086	
Benzo(a)anthracene	0.018	J	0.011	J	0.034	U	**28**		0.036	U	0.034	U	0.015	J
Benzo(a)pyrene	0.036	U	0.015	J	0.012	J	**19**		0.011	J	0.034	U	0.021	J
Benzo(b)fluoranthene	0.036	U	0.02	J	0.034	U	**23**		0.036	U	0.034	U	0.028	J

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-407-0.0/1.0-XXX SB-407 8/26/2009 0-1 ft		OC-SB-408-0.0/1.0-XXX SB-408 8/26/2009 0-1 ft		OC-SB-409-0.0/1.0-XXX SB-409 8/26/2009 0-1 ft		OC-SB-410-0.0/1.0-XXX SB-410 8/27/2009 0-1 ft		OC-SB-411-0.0/1.0-XXX SB-411 8/26/2009 0-1 ft		OC-SB-412-0.0/1.0-XXX SB-412 8/18/2009 0-1 ft		OC-SB-413-0.0/1.0-XXX SB-413 9/17/2009 0-1 ft	
Benzo(ghi)perylene	0.036	U	0.037	U	0.034	U	9.3		0.036	U	0.034	U	0.024	J
Benzo(k)fluoranthene	0.036	U	0.037	U	0.034	U	12		0.036	U	0.034	U	0.046	U
Benzoic Acid	0.2	JEB		R		R		R		R	0.17	UJ	0.23	UJ
Benzyl alcohol	0.072	U	0.075	U	0.068	U	0.72	U	0.071	U	0.067	U	0.091	U
Biphenyl	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	UJ	0.046	U
Bis(2-Ethylhexyl)phthalate	0.072	EB	0.011	JEB	0.11	EB	0.36	EB	0.33	EB	0.033	JEB	0.022	JEB
Butylbenzylphthalate	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
Carbazole	0.036	U	0.037	U	0.034	U	2.1		0.036	U	0.034	U	0.046	U
Chrysene	0.021	J	0.016	J	0.034	U	26		0.036	U	0.034	U	0.024	J
Dibenz(a,h)anthracene	0.036	U	0.037	U	0.034	U	**4.8**	J	0.036	UJ	0.034	U	0.046	U
Dibenzofuran	0.036	U	0.037	U	0.034	U	0.43		0.036	U	0.034	U	0.046	U
Diethylphthalate	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
Dimethylphthalate	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
Di-n-butylphthalate	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
Di-n-octylphthalate	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
Diphenyl ether	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.021	J	0.046	U
Diphenylamine	0.0023	J			0.034	U	0.36	U	0.036	U	0.0069	J	0.046	U
Fluoranthene	0.039		0.02	J	0.034	U	42		0.036	U	0.034	U	0.037	J
Fluorene	0.036	U	0.037	U	0.034	U	1.4		0.036	U	0.034	U	0.046	U
Hexachlorobenzene	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
Indeno(1,2,3-cd)pyrene	0.036	U	0.037	U	0.034	U	**10**		0.036	U	0.034	U	0.032	J
Naphthalene	0.086	U	0.09	U	0.082	U	0.87	U	0.086	U	0.081	U	0.11	U
N-Nitrosodiphenylamine	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
Pentachlorophenol	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
Phenanthrene	0.032	J	0.012	J	0.041	U	15		0.043	U	0.04	U	0.026	J
Phenol	0.036	U	0.037	U	0.034	U	0.36	U	0.036	U	0.034	U	0.046	U
Pyrene	0.03	J	0.025	J	0.034	U	29		0.036	U	0.034	U	0.043	J
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-407-0.0/1.0-XXX SB-407 8/26/2009 0-1 ft		OC-SB-408-0.0/1.0-XXX SB-408 8/26/2009 0-1 ft		OC-SB-409-0.0/1.0-XXX SB-409 8/26/2009 0-1 ft		OC-SB-410-0.0/1.0-XXX SB-410 8/27/2009 0-1 ft		OC-SB-411-0.0/1.0-XXX SB-411 8/26/2009 0-1 ft		OC-SB-412-0.0/1.0-XXX SB-412 8/18/2009 0-1 ft		OC-SB-413-0.0/1.0-XXX SB-413 9/17/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	7800		5800		5600		6600		4500		3500		17000	
Antimony	0.56	UJ	0.67	UJ	0.56	UJ	0.56	UJ	0.62	UJ	0.57	UJ	1.5	UJ
Arsenic	**4.4**		**3**		**6.1**		**2.9**		**5.4**		**3.3**		**5.2**	
Barium	12		13		12		12		9.3		5.5		6.9	
Beryllium	0.24		0.2	J	0.21	J	0.21	J	0.2	J	0.15	J	0.27	J
Cadmium	0.15	J	0.14	J	0.15	J	0.29		0.12	J	0.066	J	0.14	J
Calcium	420		580		1100		430		1300		540		330	
Chromium	6.9	J	5.1	J	7		30		6.8		22		10	
Chromium, Hexavalent														
Cobalt	1.5		1.3		3.4		2		5.6		1.9		1.1	J
Copper	4.5	J	3.2	J	5.4		8.3		3.8		2.7	EB	5.2	
Iron	6300		4800		7500		5500		5800		4200		7200	
Lead	9.1		7		4.2		5.4		3		1.4	EB	13	
Magnesium	530	J	630	J	1500		1300		1100		850		290	
Manganese	39		42		74		36		52		42		14	
Mercury	0.029	J	0.2	U	0.15	U	0.044	J	0.17	U	0.13	U	0.2	U
Nickel	4.6		4		5.9		6.6		5.3		4.3		3.2	
Potassium	380	J	360	J	610		410		570		530		230	J
Selenium	0.56	U	0.67	U	0.56	U	0.56	U	0.62	U	0.57	U	1.5	U
Silver	0.56	U	0.67	U	0.56	U	0.48	J	0.08	J	0.22	J	1.5	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-407-0.0/1.0-XXX SB-407 8/26/2009 0-1 ft		OC-SB-408-0.0/1.0-XXX SB-408 8/26/2009 0-1 ft		OC-SB-409-0.0/1.0-XXX SB-409 8/26/2009 0-1 ft		OC-SB-410-0.0/1.0-XXX SB-410 8/27/2009 0-1 ft		OC-SB-411-0.0/1.0-XXX SB-411 8/26/2009 0-1 ft		OC-SB-412-0.0/1.0-XXX SB-412 8/18/2009 0-1 ft		OC-SB-413-0.0/1.0-XXX SB-413 9/17/2009 0-1 ft	
Sodium	110	U	26	J	54	J	110	U	110	J	86	J	290	U
Thallium	1.1	U	1.3	U	1.1	U	1.1	U	1.2	U	1.1	U	2.9	U
Tin	2.5	J	6.7	UJ	2.4	J	12		2.4	J	8.8	J	4.1	J
Vanadium	9.4		5.6		10		8.6		6.8		5.2		18	
Zinc	13		52		12		23		9.4		6.9		6.7	J
Chloride	22	U	34		21	U	22	U	35		20	U	26	U
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	86		44		17		50		11		7.1		140	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	44	U	110		41	U	45	U	43	U	40	U	53	U
Total Organic Carbon	22000													
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine	0.0022	U			0.0021	U	0.0022	U	0.0021	U	0.0021	U	0.0027	U
Acetaldehyde	0.048	J			0.2	U	0.22	U	0.21	U	0.2	U	0.044	J
Formaldehyde	0.22				0.33		0.28		0.3		0.18		0.26	
Phthalic Acid/Phthalic anhydride	0.11	U			0.1	U	0.11	U	0.11	U	0.096	U	0.13	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-414-0.0/1.0-XXX SB-414 8/26/2009 0-1 ft		OC-SB-415-0.0/1.0-XXX SB-415 8/20/2009 0-1 ft		OC-SB-416-0.0/1.0-XXX SB-416 8/18/2009 0-1 ft		OC-SB-417-0.0/1.0-XXX SB-417 9/10/2009 0-1 ft		OC-SB-418-0.0/1.0-XXX SB-418 8/27/2009 0-1 ft		OC-SB-419-0.0/1.0-XXX SB-419 8/19/2009 0-1 ft		OC-SB-420-0.0/1.0-XXX SB-420 8/18/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.14	U
1,1-Dichloroethane	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.14	U
1,2,4-Trichlorobenzene	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.14	U
1,2,4-Trimethylbenzene	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.14	U
1,2-Dichlorobenzene	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.073	J
1,2-Dichloroethane	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.14	U
1,3,5-Trimethylbenzene	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.14	U
2,4,4-Trimethyl-1-pentene	0.0051	U	0.0055	UJ	0.0051	U	0.0044	U	0.0049	U	0.0051	UJ	2.1	
2,4,4-Trimethyl-2-pentene	0.0051	U	0.0055	U	0.0051	U	0.0044	U	0.0049	U	0.0051	U	0.54	
2-Butanone	0.026	U	0.028	U	0.025	U	0.022	U	0.025	UJ	0.025	U	1.4	U
Acetic acid, methyl ester	0.051	U	0.055	UJ	0.051	U	0.044	U	0.049	U	0.051	UJ	2.9	U
Acetone	0.26	UJ	0.28	UJ	0.25	UJ	0.22	UJ	0.25	UJ	0.25	UJ	14	UJ
Benzene	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.14	U
Formaldehyde														
Methylene chloride	0.01	U	0.011	U	0.01	U	0.0088	U	0.0055	J	0.01	U	0.57	U
Naphthalene	0.026	U	0.028	U	0.025	U	0.022	U	0.025	U	0.025	U	0.16	J
Styrene	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.31	
Tetrachloroethene	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.14	U
Tetrahydrofuran	0.026	U	0.028	U	0.025	U	0.022	U	0.025	U	0.025	U	1.4	U
Toluene	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.14	U
Trichloroethene	0.0026	U	0.0028	U	0.0025	U	0.0022	U	0.0025	U	0.0025	U	0.14	U
Xylenes (m&p)	0.0051	U	0.0055	U	0.0051	U	0.0044	U	0.0049	U	0.0051	U	0.29	U
Xylenes, Total	0.0051	U	0.0055	U	0.0051	U	0.0044	U	0.0049	U	0.0051	U	0.29	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.035	U	0.035	U	0.034	UJ	0.033	U	0.036	U	0.034	U	0.034	UJ
2,4-Dimethylphenol	0.035	U	0.035	U	0.034	UJ	0.033	U	0.036	U	0.034	UJ	0.61	J
2,4-Dinitrophenol	0.035	UJ	0.035	U	0.034	UJ	0.016	J		R	0.034	UJ		R
2-Methylnaphthalene	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
2-Methylphenol	0.035	U	0.035	UJ	0.034	U	0.033	U	0.036	U	0.034	UJ	3.1	
3 & 4 Methylphenol	0.035	U	0.035	UJ	0.034	U	0.033	U	0.036	U	0.034	UJ	1.5	
Acenaphthene	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Acenaphthylene	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Acetophenone	0.035	U	0.015	JEB	0.034	U	0.033	U	0.036	U	0.034	UJ	0.034	U
Aniline	0.035	UJ	0.035	UJ	0.034	UJ	0.033	UJ	0.036	UJ	0.034	UJ	0.034	UJ
Anthracene	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Benzaldehyde	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Benzo(a)anthracene	0.035	U	0.035	U	0.034	U	0.033	U	0.035	J	0.034	U	0.034	U
Benzo(a)pyrene	0.035	U	0.035	U	0.034	U	0.033	U	0.041		0.034	U	0.034	U
Benzo(b)fluoranthene	0.035	U	0.035	U	0.034	U	0.013	J	0.04		0.034	U	0.034	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-414-0.0/1.0-XXX SB-414 8/26/2009 0-1 ft		OC-SB-415-0.0/1.0-XXX SB-415 8/20/2009 0-1 ft		OC-SB-416-0.0/1.0-XXX SB-416 8/18/2009 0-1 ft		OC-SB-417-0.0/1.0-XXX SB-417 9/10/2009 0-1 ft		OC-SB-418-0.0/1.0-XXX SB-418 8/27/2009 0-1 ft		OC-SB-419-0.0/1.0-XXX SB-419 8/19/2009 0-1 ft		OC-SB-420-0.0/1.0-XXX SB-420 8/18/2009 0-1 ft	
Benzo(ghi)perylene	0.035	U	0.035	U	0.034	U	0.033	U	0.036		0.034	U	0.034	U
Benzo(k)fluoranthene	0.035	U	0.035	U	0.034	U	0.033	U	0.023	J	0.034	U	0.034	U
Benzoic Acid		R	0.17	UJ	0.17	UJ	0.17	U		R	0.17	UJ		R
Benzyl alcohol	0.069	U	0.069	U	0.068	U	0.067	U	0.072	U	0.068	UJ	0.068	U
Biphenyl	0.035	U	0.035	U	0.034	UJ	0.033	U	0.036	U	0.034	U	0.17	J
Bis(2-Ethylhexyl)phthalate	0.035	U	0.035	U	4.5	EB	0.36	U	0.27	EB	0.034	U	1.5	EB
Butylbenzylphthalate	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Carbazole	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Chrysene	0.035	U	0.035	U	0.034	U	0.014	J	0.03	J	0.034	U	0.034	U
Dibenz(a,h)anthracene	0.035	U	0.035	U	0.034	U	0.033	U	0.015	J	0.034	U	0.034	U
Dibenzofuran	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Diethylphthalate	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Dimethylphthalate	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Di-n-butylphthalate	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Di-n-octylphthalate	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Diphenyl ether	0.035	U	0.035	U	0.034	UJ	0.033	U	0.036	U	0.034	U	0.54	J
Diphenylamine					0.034	U					0.034	U	0.41	
Fluoranthene	0.035	U	0.035	U	0.034	U	0.02	J	0.052		0.034	U	0.034	U
Fluorene	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Hexachlorobenzene	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	U	0.034	U
Indeno(1,2,3-cd)pyrene	0.035	U	0.035	U	0.034	U	0.033	U	0.025	J	0.034	U	0.034	U
Naphthalene	0.083	U	0.083	U	0.082	U	0.08	U	0.086	U	0.082	U	0.14	
N-Nitrosodiphenylamine	0.035	U	0.035	U	0.034	U	0.025	JEB	0.036	U	0.034	U	0.044	EB
Pentachlorophenol	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	UJ		R
Phenanthrene	0.042	U	0.042	U	0.041	U	0.04	U	0.015	J	0.041	U	0.041	U
Phenol	0.035	U	0.035	U	0.034	U	0.033	U	0.036	U	0.034	UJ	32	J
Pyrene	0.035	U	0.035	U	0.034	U	0.017	J	0.048		0.011	J	0.034	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-414-0.0/1.0-XXX SB-414 8/26/2009 0-1 ft		OC-SB-415-0.0/1.0-XXX SB-415 8/20/2009 0-1 ft		OC-SB-416-0.0/1.0-XXX SB-416 8/18/2009 0-1 ft		OC-SB-417-0.0/1.0-XXX SB-417 9/10/2009 0-1 ft		OC-SB-418-0.0/1.0-XXX SB-418 8/27/2009 0-1 ft		OC-SB-419-0.0/1.0-XXX SB-419 8/19/2009 0-1 ft		OC-SB-420-0.0/1.0-XXX SB-420 8/18/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	8900		5400		4200		4600		8100		3500		5700	
Antimony	0.61	UJ	0.57	UJ	0.55	UJ	0.67	UJ	0.59	UJ	0.54	UJ	0.57	UJ
Arsenic	**5.9**		**9.5**		**4.8**		**3.4**		**11**		**3.3**		**5**	
Barium	31		8.6		7.9		13		20		8.9		77	
Beryllium	0.28		0.19	J	0.17	J	0.15	J	0.36		0.14	J	0.23	
Cadmium	0.2	J	0.12	J	0.077	J	0.13	J	0.26		0.081	J	0.27	
Calcium	1900		2900		510		1400		1400		3400		28000	
Chromium	26	J	9		7.5		7.9		59		6		15	
Chromium, Hexavalent														
Cobalt	6.6		1.9		2.1		3.8		4.4		2		2.9	
Copper	16	J	4.5		2.7	EB	5.5		7.7		3.4		7.1	EB
Iron	12000		6300		5200		7500		12000		4900		9500	
Lead	3.8		3.2		1.4	EB	3.3		6.4		1.4		12	
Magnesium	3400	J	1200		1200		1700		3100		1100		2000	
Manganese	160		47		46		68		120		59		110	
Mercury	0.15	U	0.19	U	0.17	U	0.17	U	0.19	U	0.12	J	0.061	J
Nickel	16		6.2		5.4		6.6		12		4.9		7.9	
Potassium	1600	J	510		750		700		1300		620		1100	
Selenium	0.61	U	0.57	U	0.55	U	0.67	U	0.59	U	0.54	U	0.57	U
Silver	0.11	J	0.57	U	0.55	U	0.67	U	0.61		0.54	U	0.57	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-414-0.0/1.0-XXX SB-414 8/26/2009 0-1 ft		OC-SB-415-0.0/1.0-XXX SB-415 8/20/2009 0-1 ft		OC-SB-416-0.0/1.0-XXX SB-416 8/18/2009 0-1 ft		OC-SB-417-0.0/1.0-XXX SB-417 9/10/2009 0-1 ft		OC-SB-418-0.0/1.0-XXX SB-418 8/27/2009 0-1 ft		OC-SB-419-0.0/1.0-XXX SB-419 8/19/2009 0-1 ft		OC-SB-420-0.0/1.0-XXX SB-420 8/18/2009 0-1 ft	
Sodium	120	J	46	J	120		130	U	56	J	58	J	280	
Thallium	1.2	U	1.1	U	1.1	U	1.3	U	1.2	U	1.1	U	1.1	U
Tin	9.8	J	3.4	J	2.8	J	6.7	UJ	23		5.4	U	5.8	J
Vanadium	17		7.1		7.3		9.9		16		6.2		9.3	
Zinc	21		12		9		19		20		8.3		34	
Chloride	21	U	21	U	21	U	20	U	22	U	30	J	25	
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	9.7		8.4		6.8		13		16		6.1	U	6.7	U
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	240		67		140		40	U	43	U	43		91	
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine					0.0021	U								
Acetaldehyde					0.2	U			0.21	U	0.2	U	0.2	U
Formaldehyde					0.19				0.35		0.29		0.16	
Phthalic Acid/Phthalic anhydride					0.1	UJ					0.58		29	

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-421-0.0/1.0-XXX SB-421 8/19/2009 0-1 ft		OC-SB-422-0.0/1.0-XXX SB-422 8/25/2009 0-1 ft		OC-SB-423-0.0/1.0-XXX SB-423 8/18/2009 0-1 ft		OC-SB-424-0.0/1.0-XXX SB-424 8/19/2009 0-1 ft		OC-SB-425-0.0/1.0-XXX SB-425 8/19/2009 0-1 ft		OC-SB-426-0.0/1.0-XXX SB-426 8/19/2009 0-1 ft		OC-SB-427-0.0/1.0-XXX SB-427 9/10/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
1,1-Dichloroethane	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
1,2,4-Trichlorobenzene	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
1,2,4-Trimethylbenzene	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
1,2-Dichlorobenzene	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
1,2-Dichloroethane	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
1,3,5-Trimethylbenzene	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
2,4,4-Trimethyl-1-pentene	1.2		0.0044	U	0.0052	U	0.0057	UJ	1.1		0.0044	UJ	0.0054	U
2,4,4-Trimethyl-2-pentene	0.61		0.0044	U	0.0052	U	0.0057	U	0.44		0.0044	U	0.0054	U
2-Butanone	1.5	U	0.022	U	0.026	U	0.029	U	1.3	U	0.022	U	0.027	U
Acetic acid, methyl ester	2.9	U	0.044	UJ	0.052	U	0.057	UJ	2.7	U	0.044	UJ	0.054	U
Acetone	15	UJ	0.22	UJ	0.26	UJ	0.29	UJ	13	UJ	0.22	UJ	0.27	UJ
Benzene	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
Formaldehyde														
Methylene chloride	0.58	U	0.0088	U	0.01	U	0.011	U	0.54	U	0.0088	U	0.011	U
Naphthalene	1.5	U	0.022	U	0.026	U	0.029	U	1.3	U	0.022	U	0.027	U
Styrene	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
Tetrachloroethene	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
Tetrahydrofuran	1.5	U	0.022	U	0.026	U	0.029	U	1.3	U	0.022	U	0.027	U
Toluene	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
Trichloroethene	0.15	U	0.0022	U	0.0026	U	0.0029	U	0.13	U	0.0022	U	0.0027	U
Xylenes (m&p)	0.29	U	0.0044	U	0.0052	U	0.0057	U	0.27	U	0.0044	U	0.0054	U
Xylenes, Total	0.29	U	0.0044	U	0.0052	U	0.0057	U	0.27	U	0.0044	U	0.0054	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.35	UJ	0.034	U	0.035	UJ	0.034	U	0.17	UJ	0.069	U	0.036	U
2,4-Dimethylphenol	0.35	UJ	0.034	U	0.035	UJ	0.034	U	0.17	UJ	0.069	U	0.036	U
2,4-Dinitrophenol	0.35	UJ	0.034	UJ	0.035	UJ	0.034	UJ		R	0.069	U	0.036	U
2-Methylnaphthalene	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
2-Methylphenol	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	UJ	0.036	U
3 & 4 Methylphenol	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	UJ	0.036	U
Acenaphthene	0.12	J	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Acenaphthylene	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Acetophenone	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	UJ	0.036	U
Aniline	0.69	J	0.034	UJ	0.035	UJ	0.034	UJ	0.15	J	0.069	UJ	0.016	J
Anthracene	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Benzaldehyde	0.35	U	0.034	U	0.035	U	0.016	J	0.17	UJ	0.069	U	0.015	J
Benzo(a)anthracene	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Benzo(a)pyrene	0.35	U	0.034	U	0.035	U	0.088		0.17	UJ	0.069	U	0.012	J
Benzo(b)fluoranthene	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.018	J

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-421-0.0/1.0-XXX SB-421 8/19/2009 0-1 ft		OC-SB-422-0.0/1.0-XXX SB-422 8/25/2009 0-1 ft		OC-SB-423-0.0/1.0-XXX SB-423 8/18/2009 0-1 ft		OC-SB-424-0.0/1.0-XXX SB-424 8/19/2009 0-1 ft		OC-SB-425-0.0/1.0-XXX SB-425 8/19/2009 0-1 ft		OC-SB-426-0.0/1.0-XXX SB-426 8/19/2009 0-1 ft		OC-SB-427-0.0/1.0-XXX SB-427 9/10/2009 0-1 ft	
Benzo(ghi)perylene	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Benzo(k)fluoranthene	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Benzoic Acid	1.7	UJ		R	0.17	UJ	0.13	JEB	0.85	UJ	0.35	UJ	0.18	U
Benzyl alcohol	0.7	U	0.069	U	0.07	U	0.068	U	0.34	UJ	0.14	U	0.072	U
Biphenyl	0.39	J	0.034	U	0.035	UJ	0.034	U	0.17	UJ	0.069	U	0.023	J
Bis(2-Ethylhexyl)phthalate	21	EB	0.048	EB	0.63	EB	0.031	JEB	4.3	JEB	8.3	JEB	13	JEB
Butylbenzylphthalate	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Carbazole	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Chrysene	0.35	U	0.034	U	0.035	U	0.011	J	0.17	UJ	0.069	U	0.022	J
Dibenz(a,h)anthracene	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Dibenzofuran	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Diethylphthalate	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Dimethylphthalate	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Di-n-butylphthalate	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Di-n-octylphthalate	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Diphenyl ether	1.7	J	0.034	U	0.018	J	0.034	U	0.17	UJ	0.069	U	0.051	
Diphenylamine	5		0.034	U			0.034	U	0.19		0.0061	J	0.049	
Fluoranthene	0.35	U	0.011	J	0.035	U	0.014	J	0.17	UJ	0.069	U	0.033	J
Fluorene	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Hexachlorobenzene	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Indeno(1,2,3-cd)pyrene	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Naphthalene	0.83	U	0.082	U	0.084	U	0.081	U	0.41	UJ	0.17	U	0.086	U
N-Nitrosodiphenylamine	0.75	EB	0.034	U	0.035	U	0.034	U	0.47	EB	0.049	JEB	0.18	EB
Pentachlorophenol	0.35	U	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Phenanthrene	0.42	U	0.041	U	0.042	U	0.041	U	0.2	UJ	0.083	U	0.022	J
Phenol	0.13	J	0.034	U	0.035	U	0.034	U	0.17	UJ	0.069	U	0.036	U
Pyrene	0.35	U	0.034	U	0.035	U	0.016	J	0.17	UJ	0.069	U	0.03	J
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-421-0.0/1.0-XXX SB-421 8/19/2009 0-1 ft		OC-SB-422-0.0/1.0-XXX SB-422 8/25/2009 0-1 ft		OC-SB-423-0.0/1.0-XXX SB-423 8/18/2009 0-1 ft		OC-SB-424-0.0/1.0-XXX SB-424 8/19/2009 0-1 ft		OC-SB-425-0.0/1.0-XXX SB-425 8/19/2009 0-1 ft		OC-SB-426-0.0/1.0-XXX SB-426 8/19/2009 0-1 ft		OC-SB-427-0.0/1.0-XXX SB-427 9/10/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	6500		9400		4100		10000		7000		6100		5300	
Antimony	0.57	UJ	0.63	UJ	0.53	UJ	0.53	UJ	0.57	UJ	0.59	UJ	0.59	UJ
Arsenic	**4.1**		**16**		**4.3**		**15**		**4.2**		**10**		**5.1**	
Barium	14		25		8.3		39		13		16		9.3	
Beryllium	0.17	J	0.46		0.17	J	0.39		0.18	J	0.24		0.17	J
Cadmium	0.25		0.28		0.091	J	0.22		0.2	J	0.29		0.11	J
Calcium	1100		1700		730		1800		1000		3400		770	
Chromium	34		24	J	15		24		19		180		12	J
Chromium, Hexavalent														
Cobalt	2.5		5.9		2.2		7.4		3.5		4		2.3	
Copper	6.5		12	J	4.3	EB	14		10		11		7.9	J
Iron	6500		15000		5300		15000		9700		12000		6600	
Lead	10		7.2		2.8		5.5		13		6.1		8.7	
Magnesium	1600		3300	J	1100		4100		2000		2000		1400	
Manganese	70		130		68		210		79		89		40	
Mercury	0.05	J	0.18	U	0.18	U	0.18	U	0.16	U	0.15	U	0.19	U
Nickel	10		15		4.9		20		10		11		6.8	
Potassium	720		1500	J	580		2800		710		760		580	J
Selenium	0.57	U	0.63	U	0.53	U	0.53	U	0.57	U	0.59	U	0.59	U
Silver	0.42	J	0.63	U	0.087	J	0.53	U	0.068	J	2.6		0.59	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-421-0.0/1.0-XXX SB-421 8/19/2009 0-1 ft		OC-SB-422-0.0/1.0-XXX SB-422 8/25/2009 0-1 ft		OC-SB-423-0.0/1.0-XXX SB-423 8/18/2009 0-1 ft		OC-SB-424-0.0/1.0-XXX SB-424 8/19/2009 0-1 ft		OC-SB-425-0.0/1.0-XXX SB-425 8/19/2009 0-1 ft		OC-SB-426-0.0/1.0-XXX SB-426 8/19/2009 0-1 ft		OC-SB-427-0.0/1.0-XXX SB-427 9/10/2009 0-1 ft	
Sodium	110	U	230		20	J	32	J	15	J	120	U	120	U
Thallium	1.1	U	1.3	U	0.11	J	1.1	U	1.1	U	1.2	U	1.2	U
Tin	14	J	8.8	J	5.8	J	8.9	J	7.4	J	80	J	4.3	J
Vanadium	12		19		7.4		21		19		13		19	
Zinc	100		24		9.9		28		36		38		14	
Chloride	19	U	39		20	U	20	U	20	U	21	U	22	U
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	23		25		16		19		45		25		51	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	39	U	89		41	U	41	U	40	U	41	U	43	U
Total Organic Carbon	27000										4400			
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics	2.9	U											2.7	U
Volatile Petroleum Hydrocarbons, Total	2.9	U											2.7	U
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics	390												13	
C11-C22 Aromatics (unadj.)	**13000**												57	
C19-C36 Aliphatics	350	U											21	
C9-C18 Aliphatics	350	U											3.5	U
Extractable Petroleum Hydrocarbons, Total	390												34	
Specialty Compounds (mg/Kg)														
Hydrazine	0.0021	U	0.0021	U			0.0021	U			0.00081	J	0.0021	U
Acetaldehyde	0.21	U	0.043	J	0.21	U	0.21	U	0.2	U	0.2	U	0.21	UJ
Formaldehyde	0.1	J	0.33		0.14		0.48		0.1	U	0.14		0.21	
Phthalic Acid/Phthalic anhydride	0.1	U	0.28				0.1	U	0.097	U	0.029	J	0.11	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-428-0.0/1.0-XXX SB-428 9/10/2009 0-1 ft		OC-SB-430-0.0/1.0-XXX SB-430 8/25/2009 0-1 ft		OC-SB-431-0.0/1.0-XXX SB-431 8/20/2009 0-1 ft		OC-SB-432-0.0/1.0-XXX SB-432 8/20/2009 0-1 ft		OC-SB-433-0.0/1.0-XXX SB-433 8/24/2009 0-1 ft		OC-SB-434-0.0/1.0-XXX SB-434 9/10/2009 0-1 ft		OC-SB-435-0.0/1.0-XXX SB-435 9/17/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0023	U	0.02	U
1,1-Dichloroethane	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0023	U	0.02	U
1,2,4-Trichlorobenzene	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0023	U	0.02	U
1,2,4-Trimethylbenzene	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0023	U	0.02	U
1,2-Dichlorobenzene	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0023	U	0.02	U
1,2-Dichloroethane	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0023	U	0.02	U
1,3,5-Trimethylbenzene	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0023	U	0.02	U
2,4,4-Trimethyl-1-pentene	0.0044	U	0.0054	U	0.0046	UJ	0.32	UJ	0.0055	U	0.0047	U	0.039	U
2,4,4-Trimethyl-2-pentene	0.0044	U	0.0054	U	0.0046	U	0.32	U	0.0055	U	0.0047	U	0.039	U
2-Butanone	0.022	U	0.027	U	0.023	U	1.6	U	0.027	U	0.023	U	0.2	U
Acetic acid, methyl ester	0.044	U	0.054	U	0.046	UJ	7.2	J	0.055	U	0.047	U	0.39	U
Acetone	0.22	UJ	0.27	UJ	0.23	UJ	16	UJ	0.27	UJ	0.23	UJ	2	UJ
Benzene	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0023	U	0.02	U
Formaldehyde														
Methylene chloride	0.0087	U	0.011	U	0.0092	U	0.65	U	0.0084	U	0.0093	U	0.079	U
Naphthalene	0.022	U	0.027	U	0.023	U	1.6	U	0.027	U	0.023	U	0.2	U
Styrene	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0023	U	0.02	U
Tetrachloroethene	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0023	U	0.02	U
Tetrahydrofuran	0.026	U	0.027	U	0.023	U	1.6	U	0.027	U	0.023	U	0.2	U
Toluene	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0016	J	0.02	U
Trichloroethene	0.0022	U	0.0027	U	0.0023	U	0.16	U	0.0027	U	0.0023	U	0.02	U
Xylenes (m&p)	0.0044	U	0.0054	U	0.0046	U	0.32	U	0.0055	U	0.0047	U	0.039	U
Xylenes, Total	0.0044	U	0.0054	U	0.0046	U	0.32	U	0.0055	U	0.0047	U	0.039	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
2,4-Dimethylphenol	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
2,4-Dinitrophenol	0.35	U	0.034	UJ	0.035	U	0.35	U	0.035	UJ	0.35	U	1.9	U
2-Methylnaphthalene	0.35	U	0.034	U	0.035	U	0.35	U	0.011	J	0.35	U	1.9	U
2-Methylphenol	0.35	U	0.034	U	0.035	UJ	0.35	U	0.035	U	0.35	U	1.9	U
3 & 4 Methylphenol	0.35	U	0.034	U	0.035	UJ	0.35	U	0.035	U	0.35	U	1.9	U
Acenaphthene	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Acenaphthylene	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Acetophenone	0.35	U	0.034	U	0.035	UJ	0.35	U	0.035	U	0.35	U	1.9	U
Aniline	0.35	UJ	0.034	UJ	0.035	UJ	0.35	U	0.035	U	0.12	J	1.9	UJ
Anthracene	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Benzaldehyde	0.35	U	0.034	U	0.035	U	0.35	U	0.035	UJ	0.35	U	1.9	
Benzo(a)anthracene	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.12	J	1.9	U
Benzo(a)pyrene	0.13	J	0.034	UJ	0.035	U	0.35	U	0.035	U	0.17	J	1.9	U
Benzo(b)fluoranthene	0.22	J	0.034	UJ	0.035	U	0.35	U	0.035	U	0.24	J	1.9	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-428-0.0/1.0-XXX SB-428 9/10/2009 0-1 ft		OC-SB-430-0.0/1.0-XXX SB-430 8/25/2009 0-1 ft		OC-SB-431-0.0/1.0-XXX SB-431 8/20/2009 0-1 ft		OC-SB-432-0.0/1.0-XXX SB-432 8/20/2009 0-1 ft		OC-SB-433-0.0/1.0-XXX SB-433 8/24/2009 0-1 ft		OC-SB-434-0.0/1.0-XXX SB-434 9/10/2009 0-1 ft		OC-SB-435-0.0/1.0-XXX SB-435 9/17/2009 0-1 ft	
Benzo(ghi)perylene	0.14	J	0.034	UJ	0.035	U	0.35	U	0.035	U	0.12	J	1.9	U
Benzo(k)fluoranthene	0.35	U	0.034	UJ	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Benzoic Acid	1.7	U		R	0.17	UJ		R		R	1.7	U	8.1	JEB
Benzyl alcohol	0.69	U	0.067	U	0.07	U	0.7	U	0.071	U	0.69	U	3.8	U
Biphenyl	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Bis(2-Ethylhexyl)phthalate	4.7	JEB	0.018	JEB	0.035	U	6.6	EB	0.47	EB	9.1	U	1.4	JEB
Butylbenzylphthalate	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Carbazole	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Chrysene	0.21	J	0.034	U	0.035	U	0.35	U	0.035	U	0.25	J	1.9	U
Dibenz(a,h)anthracene	0.35	U	0.034	UJ	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Dibenzofuran	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Diethylphthalate	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Dimethylphthalate	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Di-n-butylphthalate	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Di-n-octylphthalate	0.35	U	0.034	UJ	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Diphenyl ether	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Diphenylamine	0.26	J	0.034	U			0.066				0.25	J	1.9	U
Fluoranthene	0.35		0.034	U	0.035	U	0.35	U	0.035	U	0.51		1.9	U
Fluorene	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Hexachlorobenzene	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Indeno(1,2,3-cd)pyrene	0.12	J	0.034	UJ	0.035	U	0.35	U	0.035	U	0.14	J	1.9	U
Naphthalene	0.83	U	0.081	U	0.084	U	0.84	U	0.024	J	0.83	U	4.5	U
N-Nitrosodiphenylamine	1	EB	0.034	U	0.035	U	0.35	U	0.041	EB	0.3	JEB	1.9	U
Pentachlorophenol	0.35	U	0.034	U	0.035	U	0.35	U	0.035	U	0.35	U	1.9	U
Phenanthrene	0.23	J	0.04	U	0.042	U	0.42	U	0.011	J	0.34	J	2.3	U
Phenol	0.35	U	0.034	U	0.035	U	0.26	J	0.035	U	0.35	U	1.9	U
Pyrene	0.31	J	0.034	U	0.035	U	0.35	U	0.02	J	0.42		1.9	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-428-0.0/1.0-XXX SB-428 9/10/2009 0-1 ft		OC-SB-430-0.0/1.0-XXX SB-430 8/25/2009 0-1 ft		OC-SB-431-0.0/1.0-XXX SB-431 8/20/2009 0-1 ft		OC-SB-432-0.0/1.0-XXX SB-432 8/20/2009 0-1 ft		OC-SB-433-0.0/1.0-XXX SB-433 8/24/2009 0-1 ft		OC-SB-434-0.0/1.0-XXX SB-434 9/10/2009 0-1 ft		OC-SB-435-0.0/1.0-XXX SB-435 9/17/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	8700		6100		12000		8500		6500		9000		4700	
Antimony	0.7	UJ	0.55	UJ	0.62	UJ	0.73	J	0.59	UJ	0.54	UJ	3.3	UJ
Arsenic	**2.9**		**6.3**		**6.3**		**8.8**		**5.1**		**7.1**		2.2	J
Barium	19		30		29		85	J	9.5		36		87	
Beryllium	0.24	J	0.17	J	0.39		0.24	J	0.21	J	0.54		0.4	J
Cadmium	0.23	J	0.16	J	0.36		0.64		0.11	J	0.32		0.84	J
Calcium	4600		1600		1800		27000		630		2200		6500	
Chromium	20	J	24	J	13		44		11		30		40	
Chromium, Hexavalent														
Cobalt	7.9		5.3		10		4.5		2		6.4		3.8	
Copper	15	J	12	J	17		71		5.8		14		23	
Iron	16000		9500		23000		18000		6700		17000		5200	
Lead	7.1		2.3		1.1		17	J	3.8		10		76	
Magnesium	4500		2800	J	6000		3300	J	1000	J	3600		370	
Manganese	170		110		170		140		41		410		44	
Mercury	0.14	U	0.17	U	0.19	U	0.16	U	0.19	U	0.12	J	0.35	J
Nickel	14		19		16		20	J	5.8		26		12	
Potassium	820	J	2400	J	1400		1800	J	540	J	1900		340	J
Selenium	0.7	U	0.55	U	0.62	U	0.62	U	0.59	U	0.54	U	3.6	
Silver	0.7	U	0.064	J	0.62	U	0.32	J	0.59	U	0.54	U	3.3	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-428-0.0/1.0-XXX SB-428 9/10/2009 0-1 ft		OC-SB-430-0.0/1.0-XXX SB-430 8/25/2009 0-1 ft		OC-SB-431-0.0/1.0-XXX SB-431 8/20/2009 0-1 ft		OC-SB-432-0.0/1.0-XXX SB-432 8/20/2009 0-1 ft		OC-SB-433-0.0/1.0-XXX SB-433 8/24/2009 0-1 ft		OC-SB-434-0.0/1.0-XXX SB-434 9/10/2009 0-1 ft		OC-SB-435-0.0/1.0-XXX SB-435 9/17/2009 0-1 ft	
Sodium	140	U	46	J	60	J	120	U	120	U	22	J	160	J
Thallium	1.4	U	0.09	JEB	1.2	U	0.13	J	1.2	U	1.1	U	6.5	U
Tin	6.8	J	8.9	J	3.9	J	17	J	4.2	J	11	J	18	J
Vanadium	34		15		27		18		17		74		24	
Zinc	27		15		14		250		16		41		140	
Chloride	21	U	21	U	21	U	90		21	U	21	U	180	
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	21		11		6.6	U	170	EB	26		2100		1200	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	42	U	41	U	43	U	280		43	U	42	U	210	U
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics	2.3	U					3.4	J						
Volatile Petroleum Hydrocarbons, Total	2.3	UJ					3.4	J						
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics	100						1900							
C11-C22 Aromatics (unadj.)	190						1900							
C19-C36 Aliphatics	98						77							
C9-C18 Aliphatics	34	U					35	U						
Extractable Petroleum Hydrocarbons, Total	200						2000							
Specialty Compounds (mg/Kg)														
Hydrazine			0.002	U	0.0022	U	0.24				0.2		0.0104	U
Acetaldehyde	0.21	UJ	0.039	J			0.12	J			0.21	U	0.2	J
Formaldehyde	0.23		0.19				0.21				1.3		0.86	
Phthalic Acid/Phthalic anhydride	0.1	U	0.1	U			2.1				0.1	U	0.56	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-436-0.0/1.0-XXX SB-436 8/20/2009 0-1 ft		OC-SB-437-0.0/1.0-XXX SB-437 8/21/2009 0-1 ft		OC-SB-438-0.0/1.0-XXX SB-438 8/24/2009 0-1 ft		OC-SB-439-0.0-1.0-XXX SB-439 8/24/2009 0-1 ft		OC-SB-440-0.0/1.0-XXX SB-440 8/24/2009 0-1 ft		OC-SB-441-0.0/1.0-XXX SB-441 8/24/2009 0-1 ft		OC-SB-442-0.0/1.0-XXX SB-442 8/31/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
1,1-Dichloroethane	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
1,2,4-Trichlorobenzene	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
1,2,4-Trimethylbenzene	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
1,2-Dichlorobenzene	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
1,2-Dichloroethane	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
1,3,5-Trimethylbenzene	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
2,4,4-Trimethyl-1-pentene	0.0055	UJ	0.0049	U	0.0054	U	0.0053	U	0.0045	U	0.0049	U	0.0052	U
2,4,4-Trimethyl-2-pentene	0.0055	U	0.0049	U	0.0054	U	0.0053	U	0.0045	U	0.0049	U	0.0052	U
2-Butanone	0.027	U	0.025	U	0.027	U	0.027	U	0.022	U	0.024	U	0.026	U
Acetic acid, methyl ester	0.055	UJ	0.049	U	0.054	U	0.053	U	0.045	U	0.049	U	0.052	UJ
Acetone	0.27	UJ	0.25	UJ	0.27	UJ	0.27	UJ	0.22	UJ	0.24	UJ	0.26	UJ
Benzene	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
Formaldehyde														
Methylene chloride	0.011	U	0.0098	U	0.011	U	0.011	U	0.009	U	0.0097	U	0.01	U
Naphthalene	0.027	U	0.025	U	0.027	U	0.027	U	0.022	U	0.024	U	0.026	U
Styrene	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
Tetrachloroethene	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
Tetrahydrofuran	0.027	U	0.025	U	0.027	U	0.027	U	0.022	U	0.024	U	0.026	U
Toluene	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
Trichloroethene	0.0027	U	0.0025	U	0.0027	U	0.0027	U	0.0022	U	0.0024	U	0.0026	U
Xylenes (m&p)	0.0055	U	0.0049	U	0.0054	U	0.0053	U	0.0045	U	0.0049	U	0.0052	U
Xylenes, Total	0.0055	U	0.0049	U	0.0054	U	0.0053	U	0.0045	U	0.0049	U	0.0052	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
2,4-Dimethylphenol	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
2,4-Dinitrophenol	0.035	U	0.035	U	0.035	UJ		R		R		R	0.35	U
2-Methylnaphthalene	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
2-Methylphenol	0.035	UJ	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
3 & 4 Methylphenol	0.035	UJ	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Acenaphthene	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Acenaphthylene	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Acetophenone	0.011	JEB	0.035	U	0.016	JEB	0.075	U	0.034	U	0.069	U	0.35	U
Aniline	0.035	UJ	0.035	U	0.035	UJ	0.075	U	0.034	U	0.069	U	0.35	UJ
Anthracene	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Benzaldehyde	0.035	U	0.035	U	0.035	UJ	0.075	U	0.034	U	0.069	U	0.35	U
Benzo(a)anthracene	0.035	J	0.035	U	0.035	U	0.075	U	0.017	J	0.057	J	0.35	U
Benzo(a)pyrene	0.069		0.078		0.035	U	0.075	U	0.021	J	0.067	J	0.35	U
Benzo(b)fluoranthene	0.036		0.035	U	0.035	U	0.075	U	0.023	J	0.11		0.35	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-436-0.0/1.0-XXX SB-436 8/20/2009 0-1 ft		OC-SB-437-0.0/1.0-XXX SB-437 8/21/2009 0-1 ft		OC-SB-438-0.0/1.0-XXX SB-438 8/24/2009 0-1 ft		OC-SB-439-0.0-1.0-XXX SB-439 8/24/2009 0-1 ft		OC-SB-440-0.0/1.0-XXX SB-440 8/24/2009 0-1 ft		OC-SB-441-0.0/1.0-XXX SB-441 8/24/2009 0-1 ft		OC-SB-442-0.0/1.0-XXX SB-442 8/31/2009 0-1 ft	
Benzo(ghi)perylene	0.023	J	0.035	U	0.035	U	0.075	U	0.014	J	0.091		0.35	U
Benzo(k)fluoranthene	0.038		0.035	U	0.035	U	0.075	U	0.011	J	0.045	J	0.35	U
Benzoic Acid	0.18	UJ		R		R		R		R		R	1.8	UJ
Benzyl alcohol	0.07	U	0.07	U	0.07	U	0.15	U	0.068	U	0.14	U	0.7	U
Biphenyl	0.035	U	0.035	U	0.035	U	0.12		0.034	U	0.035	J	0.35	U
Bis(2-Ethylhexyl)phthalate	0.16	U	0.19	EB	0.028	JEB	0.053	JEB	0.038	EB	1.3	EB	2.1	EB
Butylbenzylphthalate	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Carbazole	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Chrysene	0.038		0.035	U	0.035	U	0.024	J	0.016	J	0.096		0.35	U
Dibenz(a,h)anthracene	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.027	J	0.35	U
Dibenzofuran	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Diethylphthalate	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Dimethylphthalate	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Di-n-butylphthalate	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Di-n-octylphthalate	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Diphenyl ether	0.035	U	0.035	U	0.035	U	0.55		0.034	U	0.14		0.19	J
Diphenylamine			0.035	U									0.26	J
Fluoranthene	0.051		0.01	J	0.035	U	0.024	J	0.028	J	0.1		0.35	U
Fluorene	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Hexachlorobenzene	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Indeno(1,2,3-cd)pyrene	0.02	J	0.021	J	0.035	U	0.075	U	0.015	J	0.065	J	0.35	U
Naphthalene	0.084	U	0.084	U	0.084	U	0.18	U	0.082	U	0.16	U	0.84	U
N-Nitrosodiphenylamine	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.038	JEB	0.25	JEB
Pentachlorophenol	0.035	U	0.035	U	0.035	U	0.075	U	0.034	U	0.069	U	0.35	U
Phenanthrene	0.021	J	0.042	U	0.042	U	0.091	U	0.012	J	0.047	J	0.42	U
Phenol	0.035	U	0.014	J	0.035	U	0.075	U	0.034	U	0.024	J	0.35	U
Pyrene	0.065		0.012	J	0.035	U	0.033	J	0.035		0.14		0.35	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-436-0.0/1.0-XXX SB-436 8/20/2009 0-1 ft		OC-SB-437-0.0/1.0-XXX SB-437 8/21/2009 0-1 ft		OC-SB-438-0.0/1.0-XXX SB-438 8/24/2009 0-1 ft		OC-SB-439-0.0-1.0-XXX SB-439 8/24/2009 0-1 ft		OC-SB-440-0.0/1.0-XXX SB-440 8/24/2009 0-1 ft		OC-SB-441-0.0/1.0-XXX SB-441 8/24/2009 0-1 ft		OC-SB-442-0.0/1.0-XXX SB-442 8/31/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	1900		7000		6700		3100		7500		6400		5700	
Antimony	0.56	UJ	0.64	UJ	0.61	UJ	0.63	UJ	0.58	UJ	0.61	UJ	0.69	UJ
Arsenic	**3.7**		**5.4**		**16**		2.3		**10**		**8.2**		**6.3**	
Barium	28		25	J	11		27		24		11		15	
Beryllium	0.029	J	0.23	J	0.26		0.18	J	0.27		0.24	J	0.16	J
Cadmium	0.14	J	0.42		0.15	J	1.4		0.2	J	0.22	J	0.17	J
Calcium	1100		4200		1000		4000		1300		780		1100	
Chromium	110		21		10		800		21		29		22	
Chromium, Hexavalent														
Cobalt	1.7		2.9		2.5		12		5.7		3.1		3.2	
Copper	7.1		14		7		100		9.7		41		6.8	
Iron	4300		7600		9300		12000		12000		9400		9500	
Lead	6.6		39	J	4.4		18		4.4		15		8	
Magnesium	430		1600	J	1700	J	1600	J	3100	J	1500	J	2000	
Manganese	37		79		60		250		140		67		83	
Mercury	0.17	U	0.19	U	0.15	U	0.085	J	0.16	U	0.18	U	0.13	U
Nickel	3.9		7.6	JJ	6.8		76		19		20		13	
Potassium	700		870	J	830	J	400	J	1500	J	610	J	1200	
Selenium	0.56	U	0.64	U	0.61	U	0.63	U	0.58	U	0.61	U	0.69	U
Silver	1.9		0.19	J	0.61	U	15		0.58	U	0.11	J	0.11	J

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-436-0.0/1.0-XXX SB-436 8/20/2009 0-1 ft		OC-SB-437-0.0/1.0-XXX SB-437 8/21/2009 0-1 ft		OC-SB-438-0.0/1.0-XXX SB-438 8/24/2009 0-1 ft		OC-SB-439-0.0-1.0-XXX SB-439 8/24/2009 0-1 ft		OC-SB-440-0.0/1.0-XXX SB-440 8/24/2009 0-1 ft		OC-SB-441-0.0/1.0-XXX SB-441 8/24/2009 0-1 ft		OC-SB-442-0.0/1.0-XXX SB-442 8/31/2009 0-1 ft	
Sodium	40	J	51	J	59	J	22	J	120	U	120	U	140	U
Thallium	1.1	U	1.3	UJ	1.2	U	0.35	U	1.2	U	1.2	U	1.4	U
Tin	48	J	8.4	J	3.7	J	400	J	7.9	J	12	J	8	J
Vanadium	3.6		11		10		60		19		110		15	
Zinc	9.6		44		12		97		21		28		19	
Chloride	21	U	21	U	21	U	23	U	21	U	21	U	21	U
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	59		21	EB	6.8	U	8.1		11		20		33	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	43	U	83		43	U	46	U	41	U	41	U	43	U
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics									2.4	UJ	2.6	U		
Volatile Petroleum Hydrocarbons, Total									2.4	UJ	2.6	U		
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics									8.1		18			
C11-C22 Aromatics (unadj.)									8.9		190			
C19-C36 Aliphatics									3.8		33			
C9-C18 Aliphatics									3.4	U	3.6			
Extractable Petroleum Hydrocarbons, Total									12		55			
Specialty Compounds (mg/Kg)														
Hydrazine	0.0016	J	0.0022	U									0.0021	U
Acetaldehyde			0.21	U									0.035	J
Formaldehyde			0.27										0.28	
Phthalic Acid/Phthalic anhydride			0.11										0.11	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-443-0.0/1.0-XXX SB-443 8/20/2009 0-1 ft		OC-SB-444-0.0/1.0-XXX SB-444 8/27/2009 0-1 ft		OC-SB-445-0.0/1.0-XXX SB-445 8/21/2009 0-1 ft		OC-SB-446-0.0/1.0-XXX SB-446 8/25/2009 0-1 ft		OC-SB-447-0.0/1.0-XXX SB-447 8/31/2009 0-1 ft		OC-SB-448-0.0/1.0-XXX SB-448 8/25/2009 0-1 ft		OC-SB-449-0.0/1.0-XXX SB-449 8/27/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
1,1-Dichloroethane	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
1,2,4-Trichlorobenzene	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
1,2,4-Trimethylbenzene	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
1,2-Dichlorobenzene	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
1,2-Dichloroethane	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
1,3,5-Trimethylbenzene	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
2,4,4-Trimethyl-1-pentene	0.0049	U	0.0048	U	0.0049	U	0.0054	U	0.006	U	0.0051	U	0.0061	U
2,4,4-Trimethyl-2-pentene	0.0049	U	0.0048	U	0.0049	U	0.0054	U	0.006	U	0.0051	U	0.0061	U
2-Butanone	0.024	U	0.024	U	0.024	U	0.027	U	0.03	U	0.026	U	0.03	U
Acetic acid, methyl ester	0.049	U	0.048	U	0.049	U	0.054	U	0.06	UJ	0.051	U	0.061	U
Acetone	0.24	UJ	0.24	UJ	0.24	UJ	0.27	UJ	0.3	UJ	0.26	UJ	0.3	UJ
Benzene	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
Formaldehyde														
Methylene chloride	0.0098	U	0.0095	U	0.0097	U	0.011	U	0.012	U	0.01	U	0.012	U
Naphthalene	0.024	U	0.024	U	0.024	U	0.027	U	0.03	U	0.026	U	0.03	U
Styrene	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
Tetrachloroethene	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
Tetrahydrofuran	0.024	U	0.024	U	0.024	U	0.027	U	0.03	U	0.026	U	0.03	U
Toluene	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
Trichloroethene	0.0024	U	0.0024	U	0.0024	U	0.0027	U	0.003	U	0.0026	U	0.003	U
Xylenes (m&p)	0.0049	U	0.0048	U	0.0049	U	0.0054	U	0.006	U	0.0051	U	0.0061	U
Xylenes, Total	0.0049	U	0.0048	U	0.0049	U	0.0054	U	0.006	U	0.0051	U	0.0061	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.34	U	0.34	U	0.033	U	0.035	U	0.62		0.035	U	0.035	U
2,4-Dimethylphenol	0.34	U	0.34	U	0.033	U	0.035	U	0.39	U	0.035	U	0.035	U
2,4-Dinitrophenol	0.34	U		R	0.033	U		R	0.39	U	0.035	UJ		R
2-Methylnaphthalene	0.34	U	0.34	U	0.033	U	0.035	U	0.71		0.035	U	0.035	U
2-Methylphenol	0.34	U	0.34	U	0.033	U	0.035	U	0.39	U	0.035	U	0.035	U
3 & 4 Methylphenol	0.34	U	0.34	U	0.033	U	0.035	U	0.39	U	0.035	U	0.035	U
Acenaphthene	0.34	U	0.34	U	0.033	U	0.035	U	4.8		0.035	U	0.035	U
Acenaphthylene	0.34	U	0.34	U	0.033	U	0.035	U	0.21	J	0.035	U	0.035	U
Acetophenone	0.16	JEB	0.34	U	0.033	U	0.035	U	0.39	U	0.035	U	0.035	U
Aniline	0.34	UJ	0.34	UJ	0.033	U	0.035	U	0.39	UJ	0.035	UJ	0.035	UJ
Anthracene	0.34	U	0.34	U	0.033	U	0.035	U	9.1	EB	0.035	U	0.035	U
Benzaldehyde	0.34	U	0.34	U	0.033	U	0.035	U	0.39	U	0.035	UJ	0.035	U
Benzo(a)anthracene	0.34	U	0.34	U	0.033	U	0.017	J	**28**	J	0.035	U	0.035	U
Benzo(a)pyrene	0.34	U	0.34	U	0.033	U	0.016	J	**21**	J	0.035	U	0.035	U
Benzo(b)fluoranthene	0.34	U	0.34	U	0.033	U	0.035	U	**29**	J	0.035	U	0.035	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-443-0.0/1.0-XXX SB-443 8/20/2009 0-1 ft		OC-SB-444-0.0/1.0-XXX SB-444 8/27/2009 0-1 ft		OC-SB-445-0.0/1.0-XXX SB-445 8/21/2009 0-1 ft		OC-SB-446-0.0/1.0-XXX SB-446 8/25/2009 0-1 ft		OC-SB-447-0.0/1.0-XXX SB-447 8/31/2009 0-1 ft		OC-SB-448-0.0/1.0-XXX SB-448 8/25/2009 0-1 ft		OC-SB-449-0.0/1.0-XXX SB-449 8/27/2009 0-1 ft	
Benzo(ghi)perylene	0.34	U	0.34	U	0.033	U	0.022	J	16	J	0.035	U	0.035	U
Benzo(k)fluoranthene	0.34	U	0.34	U	0.033	U	0.035	U	11	J	0.035	U	0.035	U
Benzoic Acid		R		R		R		R	1.9	UJ		R		R
Benzyl alcohol	0.69	U	0.69	U	0.066	U	0.07	U	0.78	U	0.07	U	0.071	U
Biphenyl	0.34	U	0.34	U	0.033	U	0.035	U	0.57		0.023	J	0.035	U
Bis(2-Ethylhexyl)phthalate	4.8	EB	4.3	EB	1.7	EB	0.43	EB	2	JEB	0.69	EB	0.022	JEB
Butylbenzylphthalate	0.34	U	0.34	U	0.033	U	0.035	U	0.39	UJ	0.035	U	0.035	U
Carbazole	0.34	UJ	0.34	U	0.033	U	0.035	U	5.4		0.035	U	0.035	U
Chrysene	0.34	U	0.34	U	0.033	U	0.022	J	26	J	0.035	U	0.035	U
Dibenz(a,h)anthracene	0.34	U	0.34	UJ	0.033	U	0.035	U	**4.4**	J	0.035	U	0.035	UJ
Dibenzofuran	0.34	U	0.34	U	0.033	U	0.035	U	1.7		0.035	U	0.035	U
Diethylphthalate	0.34	U	0.34	U	0.033	U	0.035	U	0.39	U	0.035	U	0.035	U
Dimethylphthalate	0.34	U	0.34	U	0.033	U	0.035	U	0.39	U	0.035	U	0.035	U
Di-n-butylphthalate	0.34	U	0.34	U	0.033	U	0.035	U	0.39	U	0.043	U	0.035	U
Di-n-octylphthalate	0.34	U	0.34	U	0.033	U	0.035	U	0.39	UJ	0.035	U	0.035	U
Diphenyl ether	0.34	U	0.34	U	0.033	U	0.035	U	1.7		0.093		0.035	U
Diphenylamine	0.34	U	0.34	U	0.033	U	0.035	U			0.063		0.035	U
Fluoranthene	0.34	U	0.34	U	0.033	U	0.027	J	73		0.011	J	0.035	U
Fluorene	0.34	U	0.34	U	0.033	U	0.035	U	3.5		0.035	U	0.035	U
Hexachlorobenzene	0.34	U	0.34	U	0.033	U	0.018	J	0.39	U	0.035	U	0.035	U
Indeno(1,2,3-cd)pyrene	0.34	U	0.34	U	0.033	U	0.021	J	**14**	J	0.035	U	0.035	U
Naphthalene	0.83	U	0.82	U	0.08	U	0.084	U	0.96		0.084	U	0.085	U
N-Nitrosodiphenylamine	0.34	U	0.34	U	0.033	U	0.035	U	0.39	U	0.026	JEB	0.035	U
Pentachlorophenol	0.34	U	0.34	U	0.033	U	0.035	U	0.39	U	0.035	U	0.035	U
Phenanthrene	0.41	U	0.41	U	0.04	U	0.015	J	35		0.042	U	0.043	U
Phenol	0.34	U	0.34	U	0.033	U	0.035	U	0.39	U	0.035	U	0.035	U
Pyrene	0.34	U	0.34	U	0.033	U	0.036		3.9	UJ	0.018	J	0.035	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-443-0.0/1.0-XXX SB-443 8/20/2009 0-1 ft		OC-SB-444-0.0/1.0-XXX SB-444 8/27/2009 0-1 ft		OC-SB-445-0.0/1.0-XXX SB-445 8/21/2009 0-1 ft		OC-SB-446-0.0/1.0-XXX SB-446 8/25/2009 0-1 ft		OC-SB-447-0.0/1.0-XXX SB-447 8/31/2009 0-1 ft		OC-SB-448-0.0/1.0-XXX SB-448 8/25/2009 0-1 ft		OC-SB-449-0.0/1.0-XXX SB-449 8/27/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016													0.1	U
Aroclor-1260													0.1	U
Inorganics (mg/Kg)														
Aluminum	4200		3100		6300		1000		5900		5100		7700	
Antimony	0.68	UJ	0.68	UJ	0.56	UJ	0.43	J	0.92	J	0.63	UJ	0.6	UJ
Arsenic	**4.5**		2.3		**3.3**		1.3		**8.6**		**4.6**		**3.2**	
Barium	12	J	13		26	J	16		110		12		6.6	
Beryllium	0.15	J	0.11	J	0.25		0.037	J	0.26	J	0.18	J	0.22	J
Cadmium	0.24	J	0.096	J	0.24		0.12	J	2.6		0.14	J	0.084	J
Calcium	3500		440		2500		2900		16000		690		220	
Chromium	57		170		11		12		100		110		6.7	
Chromium, Hexavalent														
Cobalt	2.6		2		5.3		0.9		12		2		1.6	
Copper	19		4.9		14		5.8		150		4.2		2.7	
Iron	11000		6000		11000		2900		55000		6500		5700	
Lead	3	J	2.1		5	J	97		140		4.8		2.1	
Magnesium	1200	J	1200		2900	J	410	J	4800		1200	J	740	
Manganese	79		43		160		25		340		53		29	
Mercury	0.14	U	0.17	U	0.45		0.18		0.83		0.3		0.19	U
Nickel	10	J	5.5		9.9	J	7.6		71		8.1		5.1	
Potassium	700	J	650		1100	J	370	J	900		510	J	380	
Selenium	0.68	U	0.68	U	0.56	U	0.63	U	1.4	U	0.63	U	0.6	U
Silver	0.83		3.1		0.56	U	0.61	J	0.6	J	1.8		0.6	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-443-0.0/1.0-XXX SB-443 8/20/2009 0-1 ft		OC-SB-444-0.0/1.0-XXX SB-444 8/27/2009 0-1 ft		OC-SB-445-0.0/1.0-XXX SB-445 8/21/2009 0-1 ft		OC-SB-446-0.0/1.0-XXX SB-446 8/25/2009 0-1 ft		OC-SB-447-0.0/1.0-XXX SB-447 8/31/2009 0-1 ft		OC-SB-448-0.0/1.0-XXX SB-448 8/25/2009 0-1 ft		OC-SB-449-0.0/1.0-XXX SB-449 8/27/2009 0-1 ft	
Sodium	75	J	28	J	76	J	470		87	J	130	U	120	U
Thallium	1.4	UJ	1.4	U	1.1	UJ	1.3	U	2.8	U	1.3	U	1.2	U
Tin	24	J	72	J	3.7	J	5.6	J	41	J	50	J	6	UJ
Vanadium	8.1		8.3		16		26		240		8.1		6.6	
Zinc	16		9.5		34		15		650		22		15	
Chloride	20	U	20	U	20	U	21	U	23	U	21	U	21	U
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	9.9	EB	23		6.3	U	6.8	U	80		170		24	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	41	U	40	U	41	U	120	EB	45	U	42	U	43	U
Total Organic Carbon									29000		5000			
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics									3.6	U				
Volatile Petroleum Hydrocarbons, Total									3.6	U				
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics									190					
C11-C22 Aromatics (unadj.)									460					
C19-C36 Aliphatics									68					
C9-C18 Aliphatics									38	U				
Extractable Petroleum Hydrocarbons, Total									250					
Specialty Compounds (mg/Kg)														
Hydrazine	0.14		0.0021	U	0.002	U	0.0018	J			0.039		0.0022	U
Acetaldehyde			0.033	J	0.2	U	0.045	J			0.038	J	0.032	J
Formaldehyde			0.13		0.24		0.39				0.37		0.11	
Phthalic Acid/Phthalic anhydride	0.022	J	0.1	U	0.097	U	0.051	J			0.1	U	0.11	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-450-0.0/1.0-XXX SB-450 9/9/2009 0 1 ft		OC-SB-451-0.0/1.0-XXX SB-451 8/28/2009 0-1 ft		OC-SB-452-0.0/1.0-XXX SB-452 8/31/2009 0-1 ft		OC-SB-453-0.0/1.0-XXX SB-453 9/17/2009 0-1 ft		OC-SB-454-0.0/1.0-XXX SB-454 8/27/2009 0-1 ft		OC-SB-455-0.0/1.0-XXX SB-455 8/28/2009 0-1 ft		OC-SB-456-0.0/1.0-XXX SB-456 9/11/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
1,1-Dichloroethane	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
1,2,4-Trichlorobenzene	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
1,2,4-Trimethylbenzene	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
1,2-Dichlorobenzene	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
1,2-Dichloroethane	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
1,3,5-Trimethylbenzene	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
2,4,4-Trimethyl-1-pentene	0.005	U	0.0052	U	0.0055	U	0.038	U	0.0055	U			0.0054	U
2,4,4-Trimethyl-2-pentene	0.005	U	0.0052	U	0.0055	U	0.038	U	0.0055	U			0.0054	U
2-Butanone	0.025	U	0.026	U	0.027	U	0.19	U	0.027	U			0.027	U
Acetic acid, methyl ester	0.05	U	0.052	U	0.055	UJ	0.38	U	0.055	U			0.054	U
Acetone	0.25	UJ	0.26	UJ	0.27	UJ	1.9	UJ	0.27	UJ			0.27	UJ
Benzene	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
Formaldehyde														
Methylene chloride	0.01	U	0.01	U	0.011	U	0.076	U	0.011	U			0.011	U
Naphthalene	0.025	U	0.026	U	0.027	U	0.19	U	0.027	U			0.027	U
Styrene	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
Tetrachloroethene	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
Tetrahydrofuran	0.025	U	0.026	U	0.0083	J	0.19	U	0.027	U			0.029	U
Toluene	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
Trichloroethene	0.0025	U	0.0026	U	0.0027	U	0.019	U	0.0027	U			0.0027	U
Xylenes (m&p)	0.005	U	0.0052	U	0.0055	U	0.038	U	0.0055	U			0.0054	U
Xylenes, Total	0.005	U	0.0052	U	0.0055	U	0.038	U	0.0055	U			0.0054	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
2,4-Dimethylphenol	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
2,4-Dinitrophenol	0.35	U		R	0.034	U	17	U	0.034	U			0.034	U
2-Methylnaphthalene	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
2-Methylphenol	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
3 & 4 Methylphenol	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Acenaphthene	0.35	U	0.16	J	0.034	U	17	U	0.034	U			0.034	U
Acenaphthylene	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Acetophenone	0.35	U	0.34	U	0.023	JEB	17	U	0.034	U			0.034	U
Aniline	0.35	UJ	0.34	UJ	0.034	UJ	17	UJ	0.034	UJ			0.034	UJ
Anthracene	0.23	JEB	0.48	EB	0.034	U	17	U	0.034	U			0.034	U
Benzaldehyde	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Benzo(a)anthracene	0.8		1.5		0.027	J	17	U	0.034	U			0.034	U
Benzo(a)pyrene	**0.74**		**1.3**		0.019	J	17	U	0.034	U			0.034	U
Benzo(b)fluoranthene	0.98		1.5		0.027	J	17	U	0.034	U			0.034	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-450-0.0/1.0-XXX SB-450 9/9/2009 0 1 ft		OC-SB-451-0.0/1.0-XXX SB-451 8/28/2009 0-1 ft		OC-SB-452-0.0/1.0-XXX SB-452 8/31/2009 0-1 ft		OC-SB-453-0.0/1.0-XXX SB-453 9/17/2009 0-1 ft		OC-SB-454-0.0/1.0-XXX SB-454 8/27/2009 0-1 ft		OC-SB-455-0.0/1.0-XXX SB-455 8/28/2009 0-1 ft		OC-SB-456-0.0/1.0-XXX SB-456 9/11/2009 0-1 ft	
Benzo(ghi)perylene	0.42		0.83		0.034	U	17	U	0.034	U			0.034	U
Benzo(k)fluoranthene	0.43		0.87		0.014	J	17	U	0.034	U			0.034	U
Benzoic Acid	1.7	U		R	0.17	UJ	34	JEB	0.17	UJ			0.17	U
Benzyl alcohol	0.7	U	0.68	U	0.068	U	35	U	0.069	U			0.067	U
Biphenyl	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Bis(2-Ethylhexyl)phthalate	0.48	U	0.2	JEB	0.26	JEB	17	JEB	0.034	U			2.7	JEB
Butylbenzylphthalate	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Carbazole	0.11	J	0.24	J	0.034	U	17	U	0.034	U			0.034	U
Chrysene	0.85		1.3		0.034	J	17	U	0.034	U			0.034	U
Dibenz(a,h)anthracene	0.15	J	**0.29**	J	0.034	U	17	U	0.034	U			0.034	U
Dibenzofuran	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Diethylphthalate	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Dimethylphthalate	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Di-n-butylphthalate	0.38	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Di-n-octylphthalate	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Diphenyl ether	0.35	U	0.23	J	0.011	J	17	U	0.034	U			0.034	U
Diphenylamine	0.35	U	0.34	U	0.048	J	17	U					0.026	J
Fluoranthene	1.7		3.3		0.056	J	17	U	0.034	U			0.034	U
Fluorene	0.35	U	0.15	J	0.034	U	17	U	0.034	U			0.034	U
Hexachlorobenzene	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Indeno(1,2,3-cd)pyrene	0.43		0.85		0.011	J	17	U	0.034	U			0.034	U
Naphthalene	0.84	U	0.81	U	0.082	U	41	U	0.082	U			0.081	U
N-Nitrosodiphenylamine	0.35	U	0.34	U	0.015	JEB	17	U	0.034	U			0.057	JEB
Pentachlorophenol	0.35	U	0.34	U	0.045		17	U	0.034	U			0.034	U
Phenanthrene	0.87		1.8		0.025	J	21	U	0.041	U			0.04	U
Phenol	0.35	U	0.34	U	0.034	U	17	U	0.034	U			0.034	U
Pyrene	1.5		2.8		0.047	J	17	U	0.034	U			0.034	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-450-0.0/1.0-XXX SB-450 9/9/2009 0 1 ft		OC-SB-451-0.0/1.0-XXX SB-451 8/28/2009 0-1 ft		OC-SB-452-0.0/1.0-XXX SB-452 8/31/2009 0-1 ft		OC-SB-453-0.0/1.0-XXX SB-453 9/17/2009 0-1 ft		OC-SB-454-0.0/1.0-XXX SB-454 8/27/2009 0-1 ft		OC-SB-455-0.0/1.0-XXX SB-455 8/28/2009 0-1 ft		OC-SB-456-0.0/1.0-XXX SB-456 9/11/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	7800		6400		4400		5000		2000				4400	
Antimony	0.63	UJ	0.65	UJ	0.66	UJ	2.8	UJ	0.63	UJ			0.64	UJ
Arsenic	**5.3**		**56**		**5.7**		1.7	J	1.8				**3.7**	
Barium	42		30		12		55		5.1				9.2	
Beryllium	0.33		0.32		0.17	J	0.42	J	0.069	J			0.17	J
Cadmium	0.42		0.43		0.23	J	0.94	J	0.067	J			0.072	J
Calcium	3400		3400		1200		5400		350				500	
Chromium	21		25		18		18		19				33	J
Chromium, Hexavalent													2.1	J
Cobalt	6.9		4.7		2.5		2.7	J	1.2				2	
Copper	18		16		7.3		14		2.8				3.3	J
Iron	15000		14000		7400		5700		4200				5300	
Lead	30		44		11		42		1.3				2.6	
Magnesium	3100		2100		1200		350		850				1200	
Manganese	180		120		65		18		30				48	
Mercury	0.25		0.32		0.11	J	0.76	U	0.19	U			0.17	U
Nickel	14		13		9.4		8.5		3.5				6	
Potassium	2400		1100		630		300	J	460				520	J
Selenium	0.63	U	0.65	U	0.66	U	2	J	0.63	U			0.64	U
Silver	0.63	U	0.65	U	0.13	J	2.8	U	0.19	J			0.35	J

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-450-0.0/1.0-XXX SB-450 9/9/2009 0 1 ft		OC-SB-451-0.0/1.0-XXX SB-451 8/28/2009 0-1 ft		OC-SB-452-0.0/1.0-XXX SB-452 8/31/2009 0-1 ft		OC-SB-453-0.0/1.0-XXX SB-453 9/17/2009 0-1 ft		OC-SB-454-0.0/1.0-XXX SB-454 8/27/2009 0-1 ft		OC-SB-455-0.0/1.0-XXX SB-455 8/28/2009 0-1 ft		OC-SB-456-0.0/1.0-XXX SB-456 9/11/2009 0-1 ft	
Sodium	36	J	24	J	130	U	590		18	J			130	U
Thallium	1.3	U	1.3	U	1.3	U	5.5	U	1.3	U			1.3	U
Tin	7.2	J	23	J	6.4	J	8	J	7.3	J			13	J
Vanadium	24		23		13		16		5.6				7.6	
Zinc	100		77		33		100		8.8				10	
Chloride	21	U	19	U	21	U	550		20	U			38	
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	51		40		35		730		11		72		15	J
Oxidation Reduction Potential **(mV)**													480	
pH **(pH units)**													5.04	
Sulfate	42	U	38	U	41	U	180	U	40	U			41	U
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine	0.0021	U	0.002	U	0.0021	U	0.0104	U					0.00065	J
Acetaldehyde	0.21	U	0.046	J	0.2	U	1.1	U					0.21	UJ
Formaldehyde	0.35		0.31		0.19		0.64						0.19	
Phthalic Acid/Phthalic anhydride	0.1	U	0.1	U	0.1	U	0.51	U					0.1	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-457-0.0/1.0-XXX SB-457 9/11/2009 0-1 ft		OC-SB-458-0.0/1.0-XXX SB-458 8/31/2009 0-1 ft		OC-SB-459-0.0/1.0-XXX SB-459 9/3/2009 0 1 ft		OC-SB-460-0.0/1.0-XXX SB-460 9/1/2009 0-1 ft		OC-SB-461-0.0/1.0-XXX SB-461 9/3/2009 0-1 ft		OC-SB-462-0.0/1.0-XXX SB-462 9/3/2009 0-1 ft		OC-SB-463-0.0/1.0-XXX SB-463 9/1/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
1,1-Dichloroethane	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
1,2,4-Trichlorobenzene	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
1,2,4-Trimethylbenzene	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
1,2-Dichlorobenzene	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
1,2-Dichloroethane	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
1,3,5-Trimethylbenzene	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
2,4,4-Trimethyl-1-pentene	0.005	U	0.0052	U	0.42	J	0.0055	U			0.0047	U	0.0049	U
2,4,4-Trimethyl-2-pentene	0.005	U	0.0052	U	0.19	J	0.0055	U			0.0047	U	0.0049	U
2-Butanone	0.025	U	0.026	U	1.3	U	0.028	U			0.023	U	0.024	U
Acetic acid, methyl ester	0.05	U	0.052	UJ	2.5	UJ	0.055	UJ			0.047	U	0.049	U
Acetone	0.25	UJ	0.26	UJ	13	UJ	0.28	UJ			0.23	UJ	0.24	UJ
Benzene	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
Formaldehyde														
Methylene chloride	0.0099	U	0.01	U	0.5	U	0.011	U			0.0093	U	0.0098	U
Naphthalene	0.025	U	0.026	U	1.3	U	0.028	U			0.023	U	0.024	U
Styrene	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
Tetrachloroethene	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
Tetrahydrofuran	0.025	U	0.026	U	1.3	U	0.007	J			0.023	U	0.024	U
Toluene	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
Trichloroethene	0.0025	U	0.0026	U	0.13	U	0.0028	U			0.0023	U	0.0024	U
Xylenes (m&p)	0.005	U	0.0052	U	0.25	U	0.0055	U			0.0047	U	0.0049	U
Xylenes, Total	0.005	U	0.0052	U	0.25	U	0.0055	U			0.0047	U	0.0049	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
2,4-Dimethylphenol	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
2,4-Dinitrophenol	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
2-Methylnaphthalene	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
2-Methylphenol	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
3 & 4 Methylphenol	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Acenaphthene	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Acenaphthylene	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Acetophenone	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Aniline	0.34	UJ	0.036	U		R	0.036	U			0.034	UJ	0.034	UJ
Anthracene	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Benzaldehyde	0.34	U	0.021	J		R	0.023	J			0.034	U	0.034	U
Benzo(a)anthracene	0.34	U	0.036	U		R	0.015	J			0.034	U	0.034	U
Benzo(a)pyrene	0.34	U	0.036	U		R	0.015	J			0.034	U	0.034	U
Benzo(b)fluoranthene	0.34	U	0.036	U		R	0.021	J			0.034	U	0.034	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-457-0.0/1.0-XXX SB-457 9/11/2009 0-1 ft		OC-SB-458-0.0/1.0-XXX SB-458 8/31/2009 0-1 ft		OC-SB-459-0.0/1.0-XXX SB-459 9/3/2009 0 1 ft		OC-SB-460-0.0/1.0-XXX SB-460 9/1/2009 0-1 ft		OC-SB-461-0.0/1.0-XXX SB-461 9/3/2009 0-1 ft		OC-SB-462-0.0/1.0-XXX SB-462 9/3/2009 0-1 ft		OC-SB-463-0.0/1.0-XXX SB-463 9/1/2009 0-1 ft	
Benzo(ghi)perylene	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Benzo(k)fluoranthene	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Benzoic Acid	1.7	U	0.18	U		R	0.18	U			0.17	UJ	0.17	U
Benzyl alcohol	0.69	U	0.072	U		R	0.072	U			0.068	U	0.068	U
Biphenyl	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Bis(2-Ethylhexyl)phthalate	0.39	EB	0.31	EB	8.3	JEB	0.86	EB			0.21	EB	0.05	EB
Butylbenzylphthalate	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Carbazole	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Chrysene	0.34	U	0.014	J		R	0.023	J			0.034	U	0.034	U
Dibenz(a,h)anthracene	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Dibenzofuran	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Diethylphthalate	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Dimethylphthalate	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Di-n-butylphthalate	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Di-n-octylphthalate	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Diphenyl ether	0.34	U	0.063			R	0.036	U			0.034	U	0.034	U
Diphenylamine	0.34	U	0.036	U		R								
Fluoranthene	0.34	U	0.02	J		R	0.035	J			0.034	U	0.034	U
Fluorene	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Hexachlorobenzene	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Indeno(1,2,3-cd)pyrene	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Naphthalene	0.83	U	0.086	U		R	0.086	U			0.082	U	0.082	U
N-Nitrosodiphenylamine	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Pentachlorophenol	0.34	U	0.036	U		R	0.036	U			0.034	U	0.034	U
Phenanthrene	0.41	U	0.012	J		R	0.022	J			0.041	U	0.041	U
Phenol	0.34	U	0.036	U		R	0.066				0.034	U	0.034	U
Pyrene	0.34	U	0.022	J		R	0.033	J			0.034	U	0.034	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-457-0.0/1.0-XXX SB-457 9/11/2009 0-1 ft		OC-SB-458-0.0/1.0-XXX SB-458 8/31/2009 0-1 ft		OC-SB-459-0.0/1.0-XXX SB-459 9/3/2009 0 1 ft		OC-SB-460-0.0/1.0-XXX SB-460 9/1/2009 0-1 ft		OC-SB-461-0.0/1.0-XXX SB-461 9/3/2009 0-1 ft		OC-SB-462-0.0/1.0-XXX SB-462 9/3/2009 0-1 ft		OC-SB-463-0.0/1.0-XXX SB-463 9/1/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016					0.1	U			0.1	U				
Aroclor-1260					0.1	U			0.1	U				
Inorganics (mg/Kg)														
Aluminum	5300		7200		8400		3500				7700		5000	
Antimony	0.62	UJ	0.67	UJ	0.56	UJ	0.57	UJ			0.61	UJ	0.67	UJ
Arsenic	**3.7**		**5.5**		**5.6**		**6.3**				**13**		**6.8**	
Barium	7.6		10		11		11				34		11	
Beryllium	0.19	J	0.22	J	0.26		0.14	J			0.28		0.18	J
Cadmium	0.069	J	0.16	J	0.14	J	0.077	J			0.17	J	0.11	J
Calcium	380		440		810		550				1000		600	
Chromium	64	J	19		12		22				11		14	J
Chromium, Hexavalent	**6.8**													
Cobalt	1.5		2.3		3.2		1.2				3.9		2.9	
Copper	2.5	J	4.7		5.1		6.9				8.3		4.1	
Iron	5000		8000		8500		6400				12000		7000	
Lead	3.5		5.8		4.7		7.6				4.3		2.4	
Magnesium	730		1600		1200		640				2000		1000	
Manganese	32		55		74		25				190		54	
Mercury	0.12	J	0.045	J	0.14	U	0.17	U			0.13	U	0.14	U
Nickel	4.5		7.4		6.5		3.4				8.4		5	
Potassium	320	J	500		650		560				1100		660	
Selenium	0.62	U	0.67	U	0.56	U	0.57	U			0.61	U	0.67	U
Silver	0.96		0.096	J	0.56	U	0.21	J			0.61	U	0.13	J

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-457-0.0/1.0-XXX SB-457 9/11/2009 0-1 ft		OC-SB-458-0.0/1.0-XXX SB-458 8/31/2009 0-1 ft		OC-SB-459-0.0/1.0-XXX SB-459 9/3/2009 0 1 ft		OC-SB-460-0.0/1.0-XXX SB-460 9/1/2009 0-1 ft		OC-SB-461-0.0/1.0-XXX SB-461 9/3/2009 0-1 ft		OC-SB-462-0.0/1.0-XXX SB-462 9/3/2009 0-1 ft		OC-SB-463-0.0/1.0-XXX SB-463 9/1/2009 0-1 ft	
Sodium	2200		130	U	110	U	33	J			120	U	22	J
Thallium	1.2	U	1.3	U	1.1	U	1.1	U			1.2	U	1.3	U
Tin	26	J	6.7	J	4.4	J	8.2	J			3.7	J	5	J
Vanadium	6.6		15		11		9.3				12		7.6	
Zinc	9.7		15		16		6.6				14		11	
Chloride	21	U	21	U	20	U	22	U			19	U	21	U
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	79	J	31		19		41				7		11	J
Oxidation Reduction Potential **(mV)**	470													
pH **(pH units)**	6.31													
Sulfate	5000		49		40	U	60				37	U	54	
Total Organic Carbon					4300									
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine	0.0021	U	0.0022	U	0.0021	U							0.0021	U
Acetaldehyde	0.21	UJ	0.22	U	0.22	UJ								
Formaldehyde	0.23		0.15		0.25									
Phthalic Acid/Phthalic anhydride	0.1	U	0.11	U	0.1	U								

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-464-0.0/1.0-XXX SB-464 9/1/2009 0-1 ft		OC-SB-465-0.0/1.0-XXX SB-465 9/2/2009 0-1 ft		OC-SB-466-0.0/1.0-XXX SB-466 9/8/2009 0-1 ft		OC-SB-467-0.0/1.0-XXX SB-467 9/2/2009 0-1 ft		OC-SB-468-0.0/1.0-XXX SB-468 9/2/2009 0-1 ft		OC-SB-469-0.0/1.0-XXX SB-469 9/8/2009 0-1 ft		OC-SB-470-0.0/1.0-XXX SB-470 9/4/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
1,1-Dichloroethane	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
1,2,4-Trichlorobenzene	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
1,2,4-Trimethylbenzene	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
1,2-Dichlorobenzene	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
1,2-Dichloroethane	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
1,3,5-Trimethylbenzene	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
2,4,4-Trimethyl-1-pentene	0.0052	U	0.0054	U	0.0051	U			0.0053	U	0.005	U	0.005	U
2,4,4-Trimethyl-2-pentene	0.0052	U	0.0054	U	0.0051	U			0.0053	U	0.005	U	0.005	U
2-Butanone	0.026	U	0.027	U	0.025	U			0.026	U	0.025	U	0.025	U
Acetic acid, methyl ester	0.052	U	0.054	U	0.051	U			0.053	U	0.05	U	0.05	U
Acetone	0.26	UJ	0.27	UJ	0.25	UJ			0.019	J	0.25	UJ	0.25	UJ
Benzene	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
Formaldehyde														
Methylene chloride	0.01	U	0.011	U	0.01	U			0.011	U	0.0099	U	0.0099	U
Naphthalene	0.026	U	0.027	U	0.025	U			0.026	U	0.025	U	0.025	U
Styrene	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
Tetrachloroethene	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
Tetrahydrofuran	0.026	U	0.027	U	0.025	U			0.026	U	0.025	U	0.009	J
Toluene	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
Trichloroethene	0.0026	U	0.0027	U	0.0025	U			0.0026	U	0.0025	U	0.0025	U
Xylenes (m&p)	0.0052	U	0.0054	U	0.0051	U			0.0053	U	0.005	U	0.005	U
Xylenes, Total	0.0052	U	0.0054	U	0.0051	U			0.0053	U	0.005	U	0.005	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
2,4-Dimethylphenol	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
2,4-Dinitrophenol	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
2-Methylnaphthalene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
2-Methylphenol	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
3 & 4 Methylphenol	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Acenaphthene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Acenaphthylene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Acetophenone	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Aniline	0.035	UJ	0.035	U	0.34	UJ			0.038	UJ	0.35	UJ	0.037	UJ
Anthracene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Benzaldehyde	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Benzo(a)anthracene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Benzo(a)pyrene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Benzo(b)fluoranthene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-464-0.0/1.0-XXX SB-464 9/1/2009 0-1 ft		OC-SB-465-0.0/1.0-XXX SB-465 9/2/2009 0-1 ft		OC-SB-466-0.0/1.0-XXX SB-466 9/8/2009 0-1 ft		OC-SB-467-0.0/1.0-XXX SB-467 9/2/2009 0-1 ft		OC-SB-468-0.0/1.0-XXX SB-468 9/2/2009 0-1 ft		OC-SB-469-0.0/1.0-XXX SB-469 9/8/2009 0-1 ft		OC-SB-470-0.0/1.0-XXX SB-470 9/4/2009 0-1 ft	
Benzo(ghi)perylene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Benzo(k)fluoranthene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Benzoic Acid	0.17	U	0.17	U	1.7	U			0.19	U	1.7	U	0.18	U
Benzyl alcohol	0.07	U	0.07	U	0.68	U			0.077	U	0.69	U	0.074	U
Biphenyl	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Bis(2-Ethylhexyl)phthalate	0.087	EB	0.11	U	0.96	U			0.086	EB	1.7	U	0.13	U
Butylbenzylphthalate	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Carbazole	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Chrysene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Dibenz(a,h)anthracene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Dibenzofuran	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Diethylphthalate	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Dimethylphthalate	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Di-n-butylphthalate	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Di-n-octylphthalate	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Diphenyl ether	0.035	U	0.26		0.34	U			0.038	U	0.35	U	0.037	U
Diphenylamine	0.035	U	0.035	U					0.019	J				
Fluoranthene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Fluorene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Hexachlorobenzene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Indeno(1,2,3-cd)pyrene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Naphthalene	0.084	U	0.084	U	0.82	U			0.092	U	0.83	U	0.088	U
N-Nitrosodiphenylamine	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Pentachlorophenol	0.035	U	0.035	U	0.34	U			0.032	J	0.35	U	0.037	U
Phenanthrene	0.042	U	0.042	U	0.41	U			0.046	U	0.42	U	0.044	U
Phenol	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
Pyrene	0.035	U	0.035	U	0.34	U			0.038	U	0.35	U	0.037	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-464-0.0/1.0-XXX SB-464 9/1/2009 0-1 ft		OC-SB-465-0.0/1.0-XXX SB-465 9/2/2009 0-1 ft		OC-SB-466-0.0/1.0-XXX SB-466 9/8/2009 0-1 ft		OC-SB-467-0.0/1.0-XXX SB-467 9/2/2009 0-1 ft		OC-SB-468-0.0/1.0-XXX SB-468 9/2/2009 0-1 ft		OC-SB-469-0.0/1.0-XXX SB-469 9/8/2009 0-1 ft		OC-SB-470-0.0/1.0-XXX SB-470 9/4/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016							0.1	U						
Aroclor-1260							0.1	U						
Inorganics (mg/Kg)														
Aluminum	5700		1500		3700				8700		5800		6300	
Antimony	0.59	UJ	0.62	UJ	0.61	UJ			0.62	UJ	0.58	UJ	0.63	UJ
Arsenic	**3.7**		2.2		**3.7**				**5.1**		**4**		**4.2**	
Barium	9.2		5.9		7.5				10		8.1		18	
Beryllium	0.14	J	0.053	J	0.14	J			0.24	J	0.19	J	0.26	
Cadmium	0.095	J	0.099	J	0.17	J			0.094	J	0.27		0.31	
Calcium	720		530		700				3100		950		9500	
Chromium	20	J	5.9	J	7.4				11	J	25		96	
Chromium, Hexavalent											2.1	U	**6.8**	
Cobalt	2		1.1		1.5				1.8		2.5		2.7	
Copper	3.4		2.5		3.3				2.7		4		5.5	
Iron	6900		3600		5400				5500		6200		7000	
Lead	3		1.2		4.1				3.9		3.9		4.7	
Magnesium	1200		640		830				980		1500		1700	
Manganese	53		26		41				48		62		110	
Mercury	0.15	U	0.074	J	0.17	U			0.17	U	0.16	U	0.031	J
Nickel	7.6		3.7		4.4				5.2		6.7		8.1	
Potassium	960		460		480				510		810		1500	
Selenium	0.59	U	0.62	U	0.61	U			0.62	U	0.58	U	0.63	U
Silver	0.17	J	0.62	U	0.61	U			0.62	U	0.58	U	1.4	

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-464-0.0/1.0-XXX SB-464 9/1/2009 0-1 ft		OC-SB-465-0.0/1.0-XXX SB-465 9/2/2009 0-1 ft		OC-SB-466-0.0/1.0-XXX SB-466 9/8/2009 0-1 ft		OC-SB-467-0.0/1.0-XXX SB-467 9/2/2009 0-1 ft		OC-SB-468-0.0/1.0-XXX SB-468 9/2/2009 0-1 ft		OC-SB-469-0.0/1.0-XXX SB-469 9/8/2009 0-1 ft		OC-SB-470-0.0/1.0-XXX SB-470 9/4/2009 0-1 ft	
Sodium	31	J	120	U	120	U			53	J	120	U	130	U
Thallium	1.2	U	1.2	U	1.2	U			1.2	U	1.2	U	1.3	U
Tin	7	J	6.2	UJ	6.1	UJ			3.7	J	9.4	J	42	J
Vanadium	8.3		4.6		5.8				8.9		8.6		9.9	
Zinc	14		8.6		130				12		22		41	
Chloride	21	U	21	U	21	U			23	U	21	U	22	U
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	11	J	6.7	UJ	14				55	J	17		7.2	U
Oxidation Reduction Potential **(mV)**											380		380	
pH **(pH units)**											7.94	H	8.16	H
Sulfate	42	U	41	U	41	U			79		95		82	
Total Organic Carbon			1100		2600									
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine	0.0037		0.007						0.27					
Acetaldehyde	0.21	U	0.21	U					0.23	U				
Formaldehyde	0.27		0.23						0.29					
Phthalic Acid/Phthalic anhydride	0.1	U	0.099	U					0.11	U				

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-471-0.0/1.0-XXX SB-471 9/2/2009 0 1 ft		OC-SB-472-0.0/1.0-XXX SB-472 9/4/2009 0-1 ft		OC-SB-473-0.0/1.0-XXX SB-473 9/18/2009 0-1 ft		OC-SB-474-0.0/1.0-XXX SB-474 11/18/2010 0-1 ft		OC-SB-475-0.0/1.0-XXX SB-475 11/18/2010 0-1 ft		OC-SB-476-0.0/1.0-XXX SB-476 11/18/2010 0-1 ft		OC-SB-477-0.0/1.0-XXX SB-477 11/18/2010 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0025	U	0.0028	U	0.0036	U	0.0031	U	0.0028	U	0.0041	U	0.0032	U
1,1-Dichloroethane	0.0025	U	0.0028	U	0.0036	U	0.0031	U	0.0028	U	0.0041	U	0.0032	U
1,2,4-Trichlorobenzene	0.0025	U	0.0028	U	0.0036	U	0.0031	U	0.0028	U	0.0041	U	0.0032	U
1,2,4-Trimethylbenzene	0.0025	U	0.0028	U	0.0036	U	0.0031	UJ	0.0028	UJ	0.0041	UJ	0.0032	UJ
1,2-Dichlorobenzene	0.0025	U	0.0028	U	0.0036	U	0.0031	U	0.0028	U	0.0041	U	0.0032	U
1,2-Dichloroethane	0.0025	U	0.0028	U	0.0036	U	0.0031	U	0.0028	U	0.0041	U	0.0032	U
1,3,5-Trimethylbenzene	0.0025	U	0.0028	U	0.0036	U	0.0031	U	0.0028	U	0.0041	U	0.0032	U
2,4,4-Trimethyl-1-pentene	0.0049	U	0.0056	U	0.0073	U	0.0063	U	0.0057	U	0.0083	U	0.0064	U
2,4,4-Trimethyl-2-pentene	0.0049	U	0.0056	U	0.0073	U	0.0063	U	0.0057	U	0.0083	U	0.0064	U
2-Butanone	0.025	U	0.028	U	0.036	U	0.031	UJ	0.028	UJ	0.041	UJ	0.032	U
Acetic acid, methyl ester	0.049	U	0.056	U	0.073	U	0.063	U	0.057	U	0.083	U	0.064	U
Acetone	0.25	UJ	0.28	UJ	0.36	UJ	0.023	J	0.021	J	0.04	J	0.32	UJ
Benzene	0.0025	U	0.0028	U	0.0036	U	0.0031	U	0.0028	U	0.0041	U	0.0032	U
Formaldehyde														
Methylene chloride	0.0099	U	0.011	U	0.015	U	0.013	U	0.011	U	0.017	U	0.013	U
Naphthalene	0.025	U	0.028	U	0.036	U	0.031	U	0.028	U	0.041	U	0.032	U
Styrene	0.0025	U	0.0028	U	0.0036	U	0.0031	U	0.0028	U	0.0041	U	0.0032	U
Tetrachloroethene	0.0025	U	0.0028	U	0.0036	U	0.0031	U	0.0028	U	0.0041	U	0.0032	U
Tetrahydrofuran	0.025	U	0.028	U	0.036	U	0.031	UJ	0.028	UJ	0.041	UJ	0.032	UJ
Toluene	0.0025	U	0.0028	U	0.0036	U	0.0031	U	0.0028	U	0.0041	U	0.0032	U
Trichloroethene	0.0025	U	0.0028	U	0.0036	U	0.0031	U	0.0028	U	0.0041	U	0.0032	U
Xylenes (m&p)	0.0049	U	0.0056	U	0.0073	U	0.0063	U	0.0057	U	0.0083	U	0.0064	U
Xylenes, Total	0.0049	U	0.0056	U	0.0073	U	0.0063	U	0.0057	U	0.0083	U	0.0064	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
2,4-Dimethylphenol	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
2,4-Dinitrophenol	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	UJ
2-Methylnaphthalene	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
2-Methylphenol	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
3 & 4 Methylphenol	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Acenaphthene	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Acenaphthylene	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Acetophenone	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Aniline	0.035	U	0.035	UJ	0.41	UJ	0.038	UJ	0.036	UJ	0.037	UJ	0.18	UJ
Anthracene	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Benzaldehyde	0.017	J	0.035	U	0.41	U	0.32		0.036	U	0.23		0.18	U
Benzo(a)anthracene	0.035	U	0.016	J	0.41	U	0.038	U	0.036	U	0.11		0.18	U
Benzo(a)pyrene	0.035	U	0.016	J	0.41	U	0.038	U	0.036	U	0.077		0.18	U
Benzo(b)fluoranthene	0.035	U	0.038	J	0.41	U	0.038	U	0.036	U	0.17		0.18	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-471-0.0/1.0-XXX SB-471 9/2/2009 0 1 ft		OC-SB-472-0.0/1.0-XXX SB-472 9/4/2009 0-1 ft		OC-SB-473-0.0/1.0-XXX SB-473 9/18/2009 0-1 ft		OC-SB-474-0.0/1.0-XXX SB-474 11/18/2010 0-1 ft		OC-SB-475-0.0/1.0-XXX SB-475 11/18/2010 0-1 ft		OC-SB-476-0.0/1.0-XXX SB-476 11/18/2010 0-1 ft		OC-SB-477-0.0/1.0-XXX SB-477 11/18/2010 0-1 ft	
Benzo(ghi)perylene	0.035	U	0.015	J	0.41	U	0.038	U	0.036	U	0.058		0.18	U
Benzo(k)fluoranthene	0.035	U	0.013	J	0.41	U	0.038	U	0.036	U	0.075		0.18	U
Benzoic Acid	0.035	JEB	0.18	U	2	U	0.19	UJ	0.13	J	1.9	J	0.91	UJ
Benzyl alcohol	0.071	U	0.071	U	0.81	U	0.34		0.072	U	0.074	U	0.36	U
Biphenyl	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Bis(2-Ethylhexyl)phthalate	0.18	U	0.11	UJ	0.41	U	2		0.57		0.59		2.7	
Butylbenzylphthalate	0.035	U	0.035	UJ	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Carbazole	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Chrysene	0.035	U	0.021	J	0.41	U	0.038	U	0.036	U	0.15		0.18	U
Dibenz(a,h)anthracene	0.035	U	0.035	UJ	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Dibenzofuran	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Diethylphthalate	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Dimethylphthalate	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Di-n-butylphthalate	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Di-n-octylphthalate	0.035	U	0.035	UJ	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Diphenyl ether	0.035	U	0.035	U	0.41	U	0.025	J	0.036	U	0.037	U	0.18	U
Diphenylamine	0.035	U	0.035	U	0.41	U								
Fluoranthene	0.013	J	0.022	J	0.41	U	0.038	U	0.022	J	0.24		0.18	U
Fluorene	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Hexachlorobenzene	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Indeno(1,2,3-cd)pyrene	0.035	U	0.015	J	0.41	U	0.038	U	0.036	U	0.063		0.14	J
Naphthalene	0.085	U	0.085	U	0.98	U	0.092	U	0.086	U	0.089	U	0.44	U
N-Nitrosodiphenylamine	0.035	U	0.035	U	0.41	U	0.026	J	0.032	J	0.037	U	0.18	U
Pentachlorophenol	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Phenanthrene	0.043	U	0.042	U	0.49	U	0.046	U	0.043	U	0.029	J	0.22	U
Phenol	0.035	U	0.035	U	0.41	U	0.038	U	0.036	U	0.037	U	0.18	U
Pyrene	0.011	J	0.02	J	0.41	U	0.038	U	0.036	U	0.2		0.18	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-471-0.0/1.0-XXX SB-471 9/2/2009 0 1 ft		OC-SB-472-0.0/1.0-XXX SB-472 9/4/2009 0-1 ft		OC-SB-473-0.0/1.0-XXX SB-473 9/18/2009 0-1 ft		OC-SB-474-0.0/1.0-XXX SB-474 11/18/2010 0-1 ft		OC-SB-475-0.0/1.0-XXX SB-475 11/18/2010 0-1 ft		OC-SB-476-0.0/1.0-XXX SB-476 11/18/2010 0-1 ft		OC-SB-477-0.0/1.0-XXX SB-477 11/18/2010 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016			0.11	U										
Aroclor-1260			0.11	U										
Inorganics (mg/Kg)														
Aluminum	6600		7900		1700									
Antimony	0.62	UJ	0.56	UJ	0.61	UJ								
Arsenic	**5.7**		**3.8**		2.1									
Barium	9.6		28		9.6									
Beryllium	0.2	J	0.31		0.06	J								
Cadmium	0.13	J	0.19	J	0.099	J								
Calcium	1700		1300		270									
Chromium	14	J	8.8		2.6									
Chromium, Hexavalent					2.4	U								
Cobalt	2.1		3.4		0.41	J								
Copper	5.6		9.4		1.9									
Iron	7600		9000		1900									
Lead	5.4		28		8									
Magnesium	1100		1600		39									
Manganese	43		100		5.1									
Mercury	0.028	JEB	0.16		0.16	U								
Nickel	5.5		6.1		2.3									
Potassium	520		1400		290									
Selenium	0.62	U	0.56	U	0.61	U								
Silver	0.62	U	0.56	U	0.61	U								

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-471-0.0/1.0-XXX SB-471 9/2/2009 0 1 ft		OC-SB-472-0.0/1.0-XXX SB-472 9/4/2009 0-1 ft		OC-SB-473-0.0/1.0-XXX SB-473 9/18/2009 0-1 ft		OC-SB-474-0.0/1.0-XXX SB-474 11/18/2010 0-1 ft		OC-SB-475-0.0/1.0-XXX SB-475 11/18/2010 0-1 ft		OC-SB-476-0.0/1.0-XXX SB-476 11/18/2010 0-1 ft		OC-SB-477-0.0/1.0-XXX SB-477 11/18/2010 0-1 ft	
Sodium	120	U	110	U	23	J								
Thallium	1.2	U	1.1	U	1.2	U								
Tin	5	J	2.9	J	1	J								
Vanadium	9.6		12		10									
Zinc	21		22		3.5									
Chloride	22	U	20	U	19	U								
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	6.8	UJ	6	U	94									
Oxidation Reduction Potential **(mV)**					550									
pH **(pH units)**					4.01									
Sulfate	44	U	40	U	39	U								
Total Organic Carbon					35000									
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics							2.7	U	2.9	U	3.3	U	3	U
Volatile Petroleum Hydrocarbons, Total							2.7	U	2.9	U	3.3	U	3	U
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics							15		14		9.9		39	
C11-C22 Aromatics (unadj.)							15		14		9.9		39	
C19-C36 Aliphatics							3.8	U	3.6	U	7.9		4.3	
C9-C18 Aliphatics							3.8	U	3.6	U	3.6	U	3.6	U
Extractable Petroleum Hydrocarbons, Total							15		14		18		43	
Specialty Compounds (mg/Kg)														
Hydrazine	0.00098	J	0.0022	U	0.0024	U								
Acetaldehyde	0.22	U	0.21	U	0.24	U								
Formaldehyde	0.21		0.26		0.22	J								
Phthalic Acid/Phthalic anhydride	0.1	U	0.11	U	0.12	UJ								

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-478-0.0/1.0-XXX SB-478 11/18/2010 0-1 ft		OC-SB-479-0.0/1.0-XXX SB-479 11/16/2010 0-1 ft		OC-SB-480-0.0/1.0-XXX SB-480 11/16/2010 0-1 ft		OC-SB-481-0.0/1.0-XXX SB-481 11/17/2010 0-1 ft		OC-SB-485-0.0/1.0-XXX SB-485 11/15/2010 0-1 ft		OC-SB-488-0.0/1.0-XXX SB-488 11/15/2010 0-1 ft		OC-SB-490-0.0/1.0-XXX SB-490 11/16/2010 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0038	U	0.0031	U	0.0025	U	0.0024	U	0.003	U	0.0025	U	0.0024	U
1,1-Dichloroethane	0.0038	U	0.0031	U	0.0025	U	0.0024	U	0.003	U	0.0025	U	0.0024	U
1,2,4-Trichlorobenzene	0.0038	U	0.0031	U	0.0025	U	0.0024	U	0.003	U	0.0025	U	0.0024	U
1,2,4-Trimethylbenzene	0.0038	UJ	0.0031	UJ	0.0025	UJ	0.0024	UJ	0.003	UJ	0.0025	UJ	0.0024	UJ
1,2-Dichlorobenzene	0.0038	U	0.0031	U	0.0025	U	0.0024	U	0.003	U	0.0025	U	0.0024	U
1,2-Dichloroethane	0.0038	U	0.0031	U	0.0025	U	0.0024	U	0.003	U	0.0025	U	0.0024	U
1,3,5-Trimethylbenzene	0.0038	U	0.0031	U	0.0025	U	0.0024	U	0.003	U	0.0025	U	0.0024	U
2,4,4-Trimethyl-1-pentene	0.0077	U	0.0061	U	0.005	U	0.0049	U	0.0059	U	0.0049	U	0.0049	U
2,4,4-Trimethyl-2-pentene	0.0077	U	0.0061	U	0.005	U	0.0049	U	0.0059	U	0.0049	U	0.0049	U
2-Butanone	0.038	U	0.031	UJ	0.025	UJ	0.024	UJ	0.03	U	0.025	U	0.024	U
Acetic acid, methyl ester	0.077	U	0.061	U	0.05	U	0.049	U	0.059	UJ	0.049	UJ	0.049	UJ
Acetone	0.38	UJ	0.31	UJ	0.25	UJ	0.24	UJ	0.3	UJ	0.25	UJ	0.24	UJ
Benzene	0.0038	U	0.0031	U	0.0025	U	0.0024	U	0.003	U	0.0025	U	0.0024	U
Formaldehyde														
Methylene chloride	0.015	U	0.012	U	0.01	U	0.0098	U	0.012	U	0.0099	U	0.0097	U
Naphthalene	0.038	U	0.031	U	0.025	U	0.024	U	0.03	U	0.025	U	0.024	U
Styrene	0.0038	U	0.0031	U	0.0025	U	0.0024	U	0.003	U	0.0025	U	0.0024	U
Tetrachloroethene	0.0038	U	0.0031	U	0.0025	U	0.0024	U	0.003	U	0.0025	U	0.0024	U
Tetrahydrofuran	0.038	UJ	0.031	UJ	0.025	UJ	0.024	UJ	0.03	UJ	0.025	UJ	0.024	UJ
Toluene	0.0038	U	0.0031	U	0.0025	U	0.0024	U	0.003	U	0.0025	U	0.0024	U
Trichloroethene	0.0038	U	0.0031	U	0.0025	U	0.0024	U	0.003	U	0.0025	U	0.0024	U
Xylenes (m&p)	0.0077	U	0.0061	U	0.005	U	0.0049	U	0.0059	U	0.0049	U	0.0049	U
Xylenes, Total	0.0077	U	0.0061	U	0.005	U	0.0049	U	0.0059	U	0.0049	U	0.0049	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.023	J	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
2,4-Dimethylphenol	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
2,4-Dinitrophenol	0.042	U	0.037	UJ	0.18	UJ	0.035	UJ	0.036	UJ	0.034	UJ	0.035	UJ
2-Methylnaphthalene	0.037	J	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
2-Methylphenol	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
3 & 4 Methylphenol	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Acenaphthene	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Acenaphthylene	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Acetophenone	0.042	U	0.037	U	0.18	U	0.035	U	0.036		0.034	U	0.035	U
Aniline	0.042	UJ	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Anthracene	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Benzaldehyde	0.037	J	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Benzo(a)anthracene	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Benzo(a)pyrene	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Benzo(b)fluoranthene	0.038	J	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-478-0.0/1.0-XXX SB-478 11/18/2010 0-1 ft		OC-SB-479-0.0/1.0-XXX SB-479 11/16/2010 0-1 ft		OC-SB-480-0.0/1.0-XXX SB-480 11/16/2010 0-1 ft		OC-SB-481-0.0/1.0-XXX SB-481 11/17/2010 0-1 ft		OC-SB-485-0.0/1.0-XXX SB-485 11/15/2010 0-1 ft		OC-SB-488-0.0/1.0-XXX SB-488 11/15/2010 0-1 ft		OC-SB-490-0.0/1.0-XXX SB-490 11/16/2010 0-1 ft	
Benzo(ghi)perylene	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Benzo(k)fluoranthene	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Benzoic Acid	0.25	J	0.058	J	0.88	U	0.025	J	0.18	J	0.044	J	0.033	J
Benzyl alcohol	0.083	U	0.074	U	0.35	U	0.071	U	0.073	U	0.068	U	0.07	U
Biphenyl	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Bis(2-Ethylhexyl)phthalate	3.2		0.037	U	0.21		0.035	U	0.026	J	0.034	U	0.035	U
Butylbenzylphthalate	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Carbazole	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Chrysene	0.037	J	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Dibenz(a,h)anthracene	0.042	U	0.037	UJ	0.18	UJ	0.035	UJ	0.036	U	0.034	U	0.035	U
Dibenzofuran	0.026	J	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Diethylphthalate	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Dimethylphthalate	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Di-n-butylphthalate	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Di-n-octylphthalate	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Diphenyl ether	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Diphenylamine														
Fluoranthene	0.05		0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Fluorene	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Hexachlorobenzene	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Indeno(1,2,3-cd)pyrene	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Naphthalene	0.057	J	0.089	U	0.42	U	0.085	U	0.074	J	0.081	U	0.084	U
N-Nitrosodiphenylamine	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Pentachlorophenol	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Phenanthrene	0.066		0.044	U	0.21	U	0.042	U	0.044	U	0.041	U	0.042	U
Phenol	0.042	U	0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
Pyrene	0.048		0.037	U	0.18	U	0.035	U	0.036	U	0.034	U	0.035	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-478-0.0/1.0-XXX SB-478 11/18/2010 0-1 ft		OC-SB-479-0.0/1.0-XXX SB-479 11/16/2010 0-1 ft		OC-SB-480-0.0/1.0-XXX SB-480 11/16/2010 0-1 ft		OC-SB-481-0.0/1.0-XXX SB-481 11/17/2010 0-1 ft		OC-SB-485-0.0/1.0-XXX SB-485 11/15/2010 0-1 ft		OC-SB-488-0.0/1.0-XXX SB-488 11/15/2010 0-1 ft		OC-SB-490-0.0/1.0-XXX SB-490 11/16/2010 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent														
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Selenium														
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-478-0.0/1.0-XXX SB-478 11/18/2010 0-1 ft		OC-SB-479-0.0/1.0-XXX SB-479 11/16/2010 0-1 ft		OC-SB-480-0.0/1.0-XXX SB-480 11/16/2010 0-1 ft		OC-SB-481-0.0/1.0-XXX SB-481 11/17/2010 0-1 ft		OC-SB-485-0.0/1.0-XXX SB-485 11/15/2010 0-1 ft		OC-SB-488-0.0/1.0-XXX SB-488 11/15/2010 0-1 ft		OC-SB-490-0.0/1.0-XXX SB-490 11/16/2010 0-1 ft	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics	4	U	2.4	U	2.3	U	2.6	U	2.5	U	2.7	U	2.4	U
Volatile Petroleum Hydrocarbons, Total	4	U	2.4	U	2.3	U	2.6	U	2.5	U	2.7	U	2.4	U
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics	10		3.7	U	25		3.4	U	6.6		3.4	U	3.5	U
C11-C22 Aromatics (unadj.)	10		3.7	UJ	25		3.4	U	6.6		3.4	U	3.5	U
C19-C36 Aliphatics	7.5		3.7	U	4.5		3.4	U	10		3.4	U	3.5	U
C9-C18 Aliphatics	4.1	U	3.7	UJ	3.5	U	3.4	U	3.6	U	3.4	U	3.5	U
Extractable Petroleum Hydrocarbons, Total	18		3.7	UJ	30		3.4	U	17		3.4	U	3.5	U
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-494-0.0/1.0-XXX SB-494 11/16/2010 0-1 ft		OC-SB-495-0.0/1.0-XXX SB-495 11/16/2010 0-1 ft		OC-SB-496-0.0/1.0-XXX SB-496 11/16/2010 0-1 ft		OC-SB-497-0.0/1.0-XXX SB-497 11/17/2010 0-1 ft		OC-SB-503-0.0/1.0-XXX SB-503 12/10/2012 0-1 ft		OC-SB-504-0.0/1.0-XXX SB-504 12/11/2012 0-1 ft		OC-SB-505-0.0/1.0-XXX SB-505 12/11/2012 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0023	U	0.0032	U	0.0037	U	0.13	U						
1,1-Dichloroethane	0.0023	U	0.0032	U	0.0037	U	0.13	U						
1,2,4-Trichlorobenzene	0.0023	U	0.0032	U	0.0037	U	0.13	U						
1,2,4-Trimethylbenzene	0.0023	UJ	0.0032	UJ	0.0037	UJ	0.13	UJ						
1,2-Dichlorobenzene	0.0023	U	0.0032	U	0.0037	U	0.13	U						
1,2-Dichloroethane	0.0023	U	0.0032	U	0.0037	U	0.13	U						
1,3,5-Trimethylbenzene	0.0023	U	0.0032	U	0.0037	U	0.13	U						
2,4,4-Trimethyl-1-pentene	0.0046	U	0.0065	U	0.0075	U	0.27	U						
2,4,4-Trimethyl-2-pentene	0.0046	U	0.0065	U	0.0075	U	0.27	U						
2-Butanone	0.023	U	0.032	U	0.037	U	1.3	U						
Acetic acid, methyl ester	0.046	UJ	0.065	UJ	0.075	UJ	2.7	U						
Acetone	0.23	UJ	0.32	UJ	0.37	UJ	13	UJ						
Benzene	0.0023	U	0.0032	U	0.0037	U	0.13	U						
Formaldehyde														
Methylene chloride	0.0091	U	0.013	U	0.015	U	0.53	U						
Naphthalene	0.023	U	0.032	U	0.037	U	1.3	U						
Styrene	0.0023	U	0.0032	U	0.0037	U	0.13	U						
Tetrachloroethene	0.0023	U	0.0032	U	0.0037	U	0.13	U						
Tetrahydrofuran	0.023	UJ	0.032	UJ	0.037	UJ	1.3	UJ						
Toluene	0.0023	U	0.0032	U	0.0037	U	0.13	U						
Trichloroethene	0.0023	U	0.0032	U	0.0037	U	0.13	U						
Xylenes (m&p)	0.0046	U	0.0065	U	0.0075	U	0.27	U						
Xylenes, Total	0.0046	U	0.0065	U	0.0075	U	0.27	U						
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.035	U	0.023	J	0.038	U	0.071	U						
2,4-Dimethylphenol	0.035	U	0.041	U	0.038	U	0.071	U						
2,4-Dinitrophenol	0.035	UJ	0.041	UJ	0.038	UJ	0.071	UJ						
2-Methylnaphthalene	0.035	U	0.026	J	0.038	U	0.071	U						
2-Methylphenol	0.035	U	0.041	U	0.038	U	0.071	U						
3 & 4 Methylphenol	0.035	U	0.041	U	0.038	U	0.071	U						
Acenaphthene	0.035	U	0.041	U	0.038	U	0.071	U						
Acenaphthylene	0.035	U	0.041	U	0.038	U	0.071	U						
Acetophenone	0.035	U	0.041	U	0.038	U	0.071	U						
Aniline	0.035	U	0.041	U	0.038	U	0.071	UJ						
Anthracene	0.035	U	0.041	U	0.038	U	0.071	U						
Benzaldehyde	0.15		0.28		0.035	J	0.071	U						
Benzo(a)anthracene	0.035	U	0.073		0.023	J	0.071	U						
Benzo(a)pyrene	0.035	U	0.033	J	0.038	U	0.071	U						
Benzo(b)fluoranthene	0.035	U	0.07		0.028	J	0.071	U						

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-494-0.0/1.0-XXX SB-494 11/16/2010 0-1 ft		OC-SB-495-0.0/1.0-XXX SB-495 11/16/2010 0-1 ft		OC-SB-496-0.0/1.0-XXX SB-496 11/16/2010 0-1 ft		OC-SB-497-0.0/1.0-XXX SB-497 11/17/2010 0-1 ft		OC-SB-503-0.0/1.0-XXX SB-503 12/10/2012 0-1 ft		OC-SB-504-0.0/1.0-XXX SB-504 12/11/2012 0-1 ft		OC-SB-505-0.0/1.0-XXX SB-505 12/11/2012 0-1 ft	
Benzo(ghi)perylene	0.035	U	0.025	J	0.038	U	0.071	U						
Benzo(k)fluoranthene	0.035	U	0.041	U	0.038	U	0.071	U						
Benzoic Acid	0.079	J	0.62	J	0.28	J	0.35	UJ						
Benzyl alcohol	0.07	U	0.082	U	0.076	U	0.14	U						
Biphenyl	0.035	U	0.041	U	0.038	U	0.071	U						
Bis(2-Ethylhexyl)phthalate	0.035	U	0.031	J	0.065		0.67							
Butylbenzylphthalate	0.035	U	0.041	U	0.038	U	0.071	U						
Carbazole	0.035	U	0.041	U	0.038	U	0.071	U						
Chrysene	0.035	U	0.029	J	0.038	U	0.071	U						
Dibenz(a,h)anthracene	0.035	U	0.041	U	0.038	U	0.071	U						
Dibenzofuran	0.035	U	0.041	U	0.038	U	0.071	U						
Diethylphthalate	0.035	U	0.041	U	0.038	U	0.071	U						
Dimethylphthalate	0.035	U	0.041	U	0.038	U	0.071	U						
Di-n-butylphthalate	0.035	U	0.041	U	0.038	U	0.071	U						
Di-n-octylphthalate	0.035	U	0.041	U	0.038	U	0.071	U						
Diphenyl ether	0.035	U	0.041	U	0.038	U	0.071	U						
Diphenylamine														
Fluoranthene	0.035	U	0.061		0.027	J	0.071	U						
Fluorene	0.035	U	0.041	U	0.038	U	0.071	U						
Hexachlorobenzene	0.035	U	0.041	U	0.038	U	0.071	U						
Indeno(1,2,3-cd)pyrene	0.035	U	0.022	J	0.038	U	0.071	U						
Naphthalene	0.084	U	0.042	J	0.091	U	0.17	U						
N-Nitrosodiphenylamine	0.035	U	0.041	U	0.038	U	0.071	U						
Pentachlorophenol	0.035	U	0.041	U	0.038	U	0.071	U						
Phenanthrene	0.042	U	0.086		0.024	J	0.085	U						
Phenol	0.035	U	0.041	U	0.038	U	0.071	U						
Pyrene	0.035	U	0.15		0.045		0.071	U						
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-494-0.0/1.0-XXX SB-494 11/16/2010 0-1 ft		OC-SB-495-0.0/1.0-XXX SB-495 11/16/2010 0-1 ft		OC-SB-496-0.0/1.0-XXX SB-496 11/16/2010 0-1 ft		OC-SB-497-0.0/1.0-XXX SB-497 11/17/2010 0-1 ft		OC-SB-503-0.0/1.0-XXX SB-503 12/10/2012 0-1 ft		OC-SB-504-0.0/1.0-XXX SB-504 12/11/2012 0-1 ft		OC-SB-505-0.0/1.0-XXX SB-505 12/11/2012 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent									2.9	U	0.29	J	0.34	J
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Selenium														
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-494-0.0/1.0-XXX SB-494 11/16/2010 0-1 ft		OC-SB-495-0.0/1.0-XXX SB-495 11/16/2010 0-1 ft		OC-SB-496-0.0/1.0-XXX SB-496 11/16/2010 0-1 ft		OC-SB-497-0.0/1.0-XXX SB-497 11/17/2010 0-1 ft		OC-SB-503-0.0/1.0-XXX SB-503 12/10/2012 0-1 ft		OC-SB-504-0.0/1.0-XXX SB-504 12/11/2012 0-1 ft		OC-SB-505-0.0/1.0-XXX SB-505 12/11/2012 0-1 ft	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**									91		36		49	
pH **(pH units)**									5.04		7.18		4.99	
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics	2	U	3.1	U	3	U	2.5	U						
Volatile Petroleum Hydrocarbons, Total	2	U	3.1	U	3	U	2.5	U						
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics	3.4	U	8.4		4.7		33							
C11-C22 Aromatics (unadj.)	3.4	U	8.4		4.7		33							
C19-C36 Aliphatics	3.4	U	4.9		3.8	U	3.5	U						
C9-C18 Aliphatics	3.4	U	4.1	U	3.8	U	10							
Extractable Petroleum Hydrocarbons, Total	3.4	U	13		4.7		43							
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-506-0.0/1.0-XXX SB-506 12/10/2012 0-1 ft		OC-SB-507-0.0/1.0-XXX SB-507 12/10/2012 0-1 ft		OC-SB-508-0.0/1.0-XXX SB-508 12/11/2012 0-1 ft		OC-SB-509-0.0/1.0-XXX SB-509 12/14/2012 0-1 ft		OC-SB-510-0.0/1.0-XXX SB-510 12/13/2012 0-1 ft		OC-SB-511-0.0/1.0-XXX SB-511 12/10/2012 0-1 ft		OC-SB-512-0.0/1.0-XXX SB-512 12/10/2012 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane														
1,1-Dichloroethane														
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane														
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene														
2,4,4-Trimethyl-2-pentene														
2-Butanone														
Acetic acid, methyl ester														
Acetone														
Benzene														
Formaldehyde														
Methylene chloride														
Naphthalene														
Styrene														
Tetrachloroethene														
Tetrahydrofuran														
Toluene														
Trichloroethene														
Xylenes (m&p)														
Xylenes, Total														
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol														
2,4-Dinitrophenol														
2-Methylnaphthalene														
2-Methylphenol														
3 & 4 Methylphenol														
Acenaphthene														
Acenaphthylene														
Acetophenone														
Aniline														
Anthracene														
Benzaldehyde														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-506-0.0/1.0-XXX SB-506 12/10/2012 0-1 ft		OC-SB-507-0.0/1.0-XXX SB-507 12/10/2012 0-1 ft		OC-SB-508-0.0/1.0-XXX SB-508 12/11/2012 0-1 ft		OC-SB-509-0.0/1.0-XXX SB-509 12/14/2012 0-1 ft		OC-SB-510-0.0/1.0-XXX SB-510 12/13/2012 0-1 ft		OC-SB-511-0.0/1.0-XXX SB-511 12/10/2012 0-1 ft		OC-SB-512-0.0/1.0-XXX SB-512 12/10/2012 0-1 ft	
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Benzoic Acid														
Benzyl alcohol														
Biphenyl														
Bis(2-Ethylhexyl)phthalate														
Butylbenzylphthalate														
Carbazole														
Chrysene														
Dibenz(a,h)anthracene														
Dibenzofuran														
Diethylphthalate														
Dimethylphthalate														
Di-n-butylphthalate														
Di-n-octylphthalate														
Diphenyl ether														
Diphenylamine														
Fluoranthene														
Fluorene														
Hexachlorobenzene														
Indeno(1,2,3-cd)pyrene														
Naphthalene														
N-Nitrosodiphenylamine														
Pentachlorophenol														
Phenanthrene														
Phenol														
Pyrene														
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-506-0.0/1.0-XXX SB-506 12/10/2012 0-1 ft		OC-SB-507-0.0/1.0-XXX SB-507 12/10/2012 0-1 ft		OC-SB-508-0.0/1.0-XXX SB-508 12/11/2012 0-1 ft		OC-SB-509-0.0/1.0-XXX SB-509 12/14/2012 0-1 ft		OC-SB-510-0.0/1.0-XXX SB-510 12/13/2012 0-1 ft		OC-SB-511-0.0/1.0-XXX SB-511 12/10/2012 0-1 ft		OC-SB-512-0.0/1.0-XXX SB-512 12/10/2012 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent	**11**		1.3		3	UJ	27	UJ	**10**	J	0.45		**6.2**	
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Selenium														
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-506-0.0/1.0-XXX SB-506 12/10/2012 0-1 ft		OC-SB-507-0.0/1.0-XXX SB-507 12/10/2012 0-1 ft		OC-SB-508-0.0/1.0-XXX SB-508 12/11/2012 0-1 ft		OC-SB-509-0.0/1.0-XXX SB-509 12/14/2012 0-1 ft		OC-SB-510-0.0/1.0-XXX SB-510 12/13/2012 0-1 ft		OC-SB-511-0.0/1.0-XXX SB-511 12/10/2012 0-1 ft		OC-SB-512-0.0/1.0-XXX SB-512 12/10/2012 0-1 ft	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**	40		23		30		9		83		19		23	
pH **(pH units)**	5.34		6.12		5.51		5.88		5.36		6.05		5.7	
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene			1	U										
Benzo(ghi)perylene			1	U										
C11-C22 Aromatics			3.6	U										
C11-C22 Aromatics (unadj.)			10	U										
C19-C36 Aliphatics			10	U										
C9-C18 Aliphatics			10	U										
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-513-0.0/1.0-XXX SB-513 12/12/2012 0-1 ft		OC-SB-514-0.0/1.0-XXX SB-514 12/12/2012 0-1 ft		OC-SB-517-0.0/1.0-XXX SB-517 12/12/2012 0-1 ft		OC-SB-518-0.0/1.0-XXX SB-518 12/14/2012 0-1 ft		OC-SB-519-0.0/1.0-XXX SB-519 12/14/2012 0-1 ft		OC-SB-520-0.0/1.0-XXX SB-520 12/13/2012 0-1 ft		OC-SB-521-0.0/1.0-XXX SB-521 12/14/2012 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane														
1,1-Dichloroethane														
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane														
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene			0.046	J	0.73		0.019				0.0048	UJ		
2,4,4-Trimethyl-2-pentene			0.32	U	0.26	J	0.017				0.0048	U		
2-Butanone														
Acetic acid, methyl ester														
Acetone														
Benzene														
Formaldehyde														
Methylene chloride														
Naphthalene														
Styrene														
Tetrachloroethene														
Tetrahydrofuran														
Toluene														
Trichloroethene														
Xylenes (m&p)														
Xylenes, Total														
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene			0.043	U	0.036	U	23	U	0.05	U	0.055			
2,4-Dimethylphenol			0.043	U	0.036	UJ	23	U	0.05	U	0.039	UJ		
2,4-Dinitrophenol			0.043	UJ		R	23	UJ	0.05	UJ		R		
2-Methylnaphthalene			0.043	U	0.036	U	23	U	0.05	U	0.08			
2-Methylphenol			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
3 & 4 Methylphenol			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
Acenaphthene			0.043	U	0.036	U	23	U	0.05	U	0.1			
Acenaphthylene			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
Acetophenone			0.043	U	0.036	U	23	U	0.02	J	0.039	U		
Aniline			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
Anthracene			0.043	U	0.036	U	23	U	0.094		0.29			
Benzaldehyde			0.043	U	0.036	U	23	U	0.16		0.013	J		
Benzo(a)anthracene			0.043	U	0.036	U	23	U	0.12		0.43			
Benzo(a)pyrene			0.043	U	0.036	U	23	U	0.03	J	**0.36**			
Benzo(b)fluoranthene			0.043	U	0.036	U	23	U	0.05	U	0.46			

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-513-0.0/1.0-XXX SB-513 12/12/2012 0-1 ft		OC-SB-514-0.0/1.0-XXX SB-514 12/12/2012 0-1 ft		OC-SB-517-0.0/1.0-XXX SB-517 12/12/2012 0-1 ft		OC-SB-518-0.0/1.0-XXX SB-518 12/14/2012 0-1 ft		OC-SB-519-0.0/1.0-XXX SB-519 12/14/2012 0-1 ft		OC-SB-520-0.0/1.0-XXX SB-520 12/13/2012 0-1 ft		OC-SB-521-0.0/1.0-XXX SB-521 12/14/2012 0-1 ft	
Benzo(ghi)perylene			0.043	U	0.036	U	23	U	0.015	J	0.14			
Benzo(k)fluoranthene			0.043	U	0.036	U	23	U	0.05	U	0.19			
Benzoic Acid			0.22	U	0.18	UJ	110	U	0.25	U	0.2	U		
Benzyl alcohol			0.086	U		R	46	U	0.1	U		R		
Biphenyl			0.043	U	0.036	U	23	U	0.032	J	0.024	J		
Bis(2-Ethylhexyl)phthalate			0.33		12		**340**		4.9		0.097	J		
Butylbenzylphthalate			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
Carbazole			0.043	U	0.036	U	23	U	0.05	U	0.096			
Chrysene			0.043	U	0.036	U	23	U	0.1		0.34			
Dibenz(a,h)anthracene			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
Dibenzofuran			0.043	U	0.036	U	23	U	0.05	U	0.13			
Diethylphthalate			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
Dimethylphthalate			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
Di-n-butylphthalate			0.22	U	0.18	U	110	U	0.25	U	0.2	U		
Di-n-octylphthalate			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
Diphenyl ether			0.043	U	0.036	U	23	U	0.12		0.039	U		
Diphenylamine														
Fluoranthene			0.043	U	0.036	U	23	U	0.22		0.86	J		
Fluorene			0.043	U	0.036	U	23	U	0.05	U	0.16			
Hexachlorobenzene			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
Indeno(1,2,3-cd)pyrene			0.043	U	0.036	U	23	U	0.05	U	0.13			
Naphthalene			0.043	U	0.036	U	23	U	0.05	U	0.2			
N-Nitrosodiphenylamine			0.043	U	0.036	U	23	U	0.11		0.039	UJ		
Pentachlorophenol			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
Phenanthrene			0.043	U	0.036	U	23	U	0.096		1.1	J		
Phenol			0.043	U	0.036	U	23	U	0.05	U	0.039	U		
Pyrene			0.02	J	0.036	U	23	U	0.17		0.69			
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-513-0.0/1.0-XXX SB-513 12/12/2012 0-1 ft		OC-SB-514-0.0/1.0-XXX SB-514 12/12/2012 0-1 ft		OC-SB-517-0.0/1.0-XXX SB-517 12/12/2012 0-1 ft		OC-SB-518-0.0/1.0-XXX SB-518 12/14/2012 0-1 ft		OC-SB-519-0.0/1.0-XXX SB-519 12/14/2012 0-1 ft		OC-SB-520-0.0/1.0-XXX SB-520 12/13/2012 0-1 ft		OC-SB-521-0.0/1.0-XXX SB-521 12/14/2012 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent	0.23	UJ	0.54	J	1.2	J	28	UJ	30	UJ				R
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Selenium														
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-513-0.0/1.0-XXX SB-513 12/12/2012 0-1 ft		OC-SB-514-0.0/1.0-XXX SB-514 12/12/2012 0-1 ft		OC-SB-517-0.0/1.0-XXX SB-517 12/12/2012 0-1 ft		OC-SB-518-0.0/1.0-XXX SB-518 12/14/2012 0-1 ft		OC-SB-519-0.0/1.0-XXX SB-519 12/14/2012 0-1 ft		OC-SB-520-0.0/1.0-XXX SB-520 12/13/2012 0-1 ft		OC-SB-521-0.0/1.0-XXX SB-521 12/14/2012 0-1 ft	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**	45		57		42		10		17				84	
pH **(pH units)**	7.3		4.72		4.82		6.47		5.94				3.8	
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene			1.3	U	1	U								
Benzo(ghi)perylene			1.3	U	1	U								
C11-C22 Aromatics			4.3	U	3.6	U								
C11-C22 Aromatics (unadj.)			13	U	10	U								
C19-C36 Aliphatics			13	U	10	U								
C9-C18 Aliphatics			13	U	10	U								
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-522-0.0/1.0-XXX SB-522 12/13/2012 0-1 ft		OC-SB-523-0.0/1.0-XXX SB-523 12/12/2012 0-1 ft		OC-SB-524-0.0/1.0-XXX SB-524 12/12/2012 0-1 ft		OC-SB-525-0.0/1.0-XXX SB-525 12/13/2012 0-1 ft		OC-SB-532-0.0/1.0-XXX SB-532 12/13/2012 0-1 ft		OC-SB-533-0.0/1.0-XXX SB-533 12/13/2012 0-1 ft		OC-SB-534-0.0/1.0-XXX SB-534 12/13/2012 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane														
1,1-Dichloroethane														
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane														
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene														
2,4,4-Trimethyl-2-pentene														
2-Butanone														
Acetic acid, methyl ester														
Acetone														
Benzene														
Formaldehyde														
Methylene chloride														
Naphthalene														
Styrene														
Tetrachloroethene														
Tetrahydrofuran														
Toluene														
Trichloroethene														
Xylenes (m&p)														
Xylenes, Total														
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.04	U												
2,4-Dimethylphenol	0.04	UJ												
2,4-Dinitrophenol		R												
2-Methylnaphthalene	0.04	U												
2-Methylphenol	0.04	U												
3 & 4 Methylphenol	0.04	U												
Acenaphthene	0.04	U												
Acenaphthylene	0.04	U												
Acetophenone	0.013	J												
Aniline	0.04	U												
Anthracene	0.088													
Benzaldehyde	0.12													
Benzo(a)anthracene	0.075													
Benzo(a)pyrene	0.082													
Benzo(b)fluoranthene	0.14													

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-522-0.0/1.0-XXX SB-522 12/13/2012 0-1 ft		OC-SB-523-0.0/1.0-XXX SB-523 12/12/2012 0-1 ft		OC-SB-524-0.0/1.0-XXX SB-524 12/12/2012 0-1 ft		OC-SB-525-0.0/1.0-XXX SB-525 12/13/2012 0-1 ft		OC-SB-532-0.0/1.0-XXX SB-532 12/13/2012 0-1 ft		OC-SB-533-0.0/1.0-XXX SB-533 12/13/2012 0-1 ft		OC-SB-534-0.0/1.0-XXX SB-534 12/13/2012 0-1 ft	
Benzo(ghi)perylene	0.034	J												
Benzo(k)fluoranthene	0.056													
Benzoic Acid	0.2	U												
Benzyl alcohol		R												
Biphenyl	0.04	U												
Bis(2-Ethylhexyl)phthalate	0.15	J												
Butylbenzylphthalate	0.04	U												
Carbazole	0.04	U												
Chrysene	0.097													
Dibenz(a,h)anthracene	0.04	U												
Dibenzofuran	0.04	U												
Diethylphthalate	0.04	U												
Dimethylphthalate	0.04	U												
Di-n-butylphthalate	0.2	U												
Di-n-octylphthalate	0.04	U												
Diphenyl ether	0.04	U												
Diphenylamine														
Fluoranthene	0.18													
Fluorene	0.04	U												
Hexachlorobenzene	0.04	U												
Indeno(1,2,3-cd)pyrene	0.034	J												
Naphthalene	0.04	U												
N-Nitrosodiphenylamine	0.02	J												
Pentachlorophenol	0.04	U												
Phenanthrene	0.09													
Phenol	0.04	U												
Pyrene	0.13													
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-522-0.0/1.0-XXX SB-522 12/13/2012 0-1 ft		OC-SB-523-0.0/1.0-XXX SB-523 12/12/2012 0-1 ft		OC-SB-524-0.0/1.0-XXX SB-524 12/12/2012 0-1 ft		OC-SB-525-0.0/1.0-XXX SB-525 12/13/2012 0-1 ft		OC-SB-532-0.0/1.0-XXX SB-532 12/13/2012 0-1 ft		OC-SB-533-0.0/1.0-XXX SB-533 12/13/2012 0-1 ft		OC-SB-534-0.0/1.0-XXX SB-534 12/13/2012 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent	0.25	UJ	0.39	J	0.31	J	0.52	J						
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Selenium														
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-522-0.0/1.0-XXX SB-522 12/13/2012 0-1 ft		OC-SB-523-0.0/1.0-XXX SB-523 12/12/2012 0-1 ft		OC-SB-524-0.0/1.0-XXX SB-524 12/12/2012 0-1 ft		OC-SB-525-0.0/1.0-XXX SB-525 12/13/2012 0-1 ft		OC-SB-532-0.0/1.0-XXX SB-532 12/13/2012 0-1 ft		OC-SB-533-0.0/1.0-XXX SB-533 12/13/2012 0-1 ft		OC-SB-534-0.0/1.0-XXX SB-534 12/13/2012 0-1 ft	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**	31		14		7		14							
pH **(pH units)**	6.6		6.55		7.37		6.96							
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene									1	U	1	U	1.1	U
Benzo(ghi)perylene									1	U	1	U	1.1	U
C11-C22 Aromatics									28		3.5	U	31	
C11-C22 Aromatics (unadj.)									28		10	U	31	
C19-C36 Aliphatics									14		10	U	23	
C9-C18 Aliphatics									10	U	10	U	11	U
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-536-0.0/1.0-XXX SB-536 6/17/2013 0-1 ft		OC-SB-537-0.0/1.0-XXX SB-537 6/17/2013 0-1 ft		OC-SS-400-0.0/1.0-XXX SS-400 9/14/2009 0-1 ft		OC-SS-401-0.1/1.0-XXX SS-401 9/14/2009 0-1 ft		OC-SS-402-0.0/1.0-XXX SS-402 9/14/2009 0-1 ft		OC-SS-403-0.0/1.0-XXX SS-403 9/14/2009 0-1 ft		OC-SS-404-0.0/1.0-XXX SS-404 9/14/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane					0.0048	U	0.0025	U	0.0052	U			0.0027	U
1,1-Dichloroethane					0.0048	U	0.0025	U	0.0052	U			0.0027	U
1,2,4-Trichlorobenzene					0.0048	U	0.0025	U	0.0052	U			0.0027	U
1,2,4-Trimethylbenzene					0.0048	U	0.0025	U	0.0052	U			0.0027	U
1,2-Dichlorobenzene					0.0048	U	0.0025	U	0.0052	U			0.0027	U
1,2-Dichloroethane					0.0048	U	0.0025	U	0.0052	U			0.0027	U
1,3,5-Trimethylbenzene					0.0048	U	0.0025	U	0.0052	U			0.0027	U
2,4,4-Trimethyl-1-pentene					0.0096	U	0.005	U	0.01	U			0.0054	U
2,4,4-Trimethyl-2-pentene					0.0096	U	0.005	U	0.01	U			0.0054	U
2-Butanone					0.048	U	0.025	U	0.052	U			0.027	U
Acetic acid, methyl ester					0.096	U	0.05	U	0.1	U			0.054	U
Acetone					0.48	UJ	0.25	UJ	0.52	UJ			0.27	UJ
Benzene					0.0048	U	0.0025	U	0.0052	U			0.0027	U
Formaldehyde														
Methylene chloride					0.019	U	0.01	U	0.021	U			0.011	U
Naphthalene					0.048	U	0.025	U	0.052	U			0.027	U
Styrene					0.0048	U	0.0025	U	0.0052	U			0.0027	U
Tetrachloroethene					0.0048	U	0.0025	U	0.0052	U			0.0027	U
Tetrahydrofuran					0.048	U	0.025	U	0.052	U			0.027	U
Toluene					0.0048	U	0.0025	U	0.0052	U			0.0027	U
Trichloroethene					0.0048	U	0.0025	U	0.0052	U			0.0027	U
Xylenes (m&p)					0.0096	U	0.005	U	0.01	U			0.0054	U
Xylenes, Total					0.0096	U	0.005	U	0.01	U			0.0054	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene					0.43	U	0.35	U	0.44	U			0.35	U
2,4-Dimethylphenol					0.43	U	0.35	U	0.44	U			0.35	U
2,4-Dinitrophenol					0.43	U	0.35	U	0.44	U			0.35	U
2-Methylnaphthalene					0.43	U	0.35	U	0.44	U			0.35	U
2-Methylphenol					0.43	U	0.35	U	0.44	U			0.35	U
3 & 4 Methylphenol					0.43	U	0.35	U	0.44	U			0.35	U
Acenaphthene					0.43	U	0.35	U	0.44	U			0.22	J
Acenaphthylene					0.43	U	0.16	J	0.44	U			0.35	U
Acetophenone					0.43	U	0.35	U	0.44	U			0.35	U
Aniline					0.43	UJ	0.35	UJ	0.44	UJ			0.35	UJ
Anthracene					0.43	U	0.35	U	0.44	U			0.28	JEB
Benzaldehyde					0.43	U	0.35	U	0.29	J			0.35	U
Benzo(a)anthracene					0.13	J	0.54		0.44	U			1	
Benzo(a)pyrene					0.17	J	**0.94**		0.44	U			**0.96**	
Benzo(b)fluoranthene					0.19	J	0.57		0.15	J			0.74	

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-536-0.0/1.0-XXX SB-536 6/17/2013 0-1 ft		OC-SB-537-0.0/1.0-XXX SB-537 6/17/2013 0-1 ft		OC-SS-400-0.0/1.0-XXX SS-400 9/14/2009 0-1 ft		OC-SS-401-0.1/1.0-XXX SS-401 9/14/2009 0-1 ft		OC-SS-402-0.0/1.0-XXX SS-402 9/14/2009 0-1 ft		OC-SS-403-0.0/1.0-XXX SS-403 9/14/2009 0-1 ft		OC-SS-404-0.0/1.0-XXX SS-404 9/14/2009 0-1 ft	
Benzo(ghi)perylene					0.17	J	0.77		0.44	U			0.67	
Benzo(k)fluoranthene					0.19	J	0.66		0.44	U			1	
Benzoic Acid					2.2	U	1.8	U	2.2	U			1.8	U
Benzyl alcohol					0.87	U	0.71	U	0.88	U			0.71	U
Biphenyl					0.43	U	0.35	U	0.44	U			0.35	U
Bis(2-Ethylhexyl)phthalate					0.43	U	0.35	U	0.44	U			2.4	EB
Butylbenzylphthalate					0.43	U	0.35	U	0.44	U			0.13	J
Carbazole					0.43	U	0.35	U	0.44	U			0.32	J
Chrysene					0.24	J	0.73		0.16	J			1.1	
Dibenz(a,h)anthracene					**0.31**	J	**0.5**		0.44	U			**0.39**	
Dibenzofuran					0.43	U	0.35	U	0.44	U			0.14	J
Diethylphthalate					0.43	U	0.35	U	0.44	U			0.35	U
Dimethylphthalate					0.43	U	0.35	U	0.44	U			0.35	U
Di-n-butylphthalate					0.43	U	0.35	U	0.44	U			0.35	U
Di-n-octylphthalate					0.43	U	0.35	U	0.44	U			0.35	U
Diphenyl ether					0.43	U	0.35	U	0.44	U			0.35	U
Diphenylamine														
Fluoranthene					0.39	J	0.92		0.27	J			2.7	
Fluorene					0.43	U	0.35	U	0.44	U			0.19	J
Hexachlorobenzene					0.43	U	0.35	U	0.44	U			0.35	U
Indeno(1,2,3-cd)pyrene					0.17	J	0.73	J	0.44	U			0.65	J
Naphthalene					1	U	0.85	U	1.1	U			0.13	J
N-Nitrosodiphenylamine					0.43	U	0.35	U	0.44	U			0.35	U
Pentachlorophenol					0.43	U	0.35	U	0.44	U			0.35	U
Phenanthrene					0.28	J	0.64		0.18	J			2.6	
Phenol					0.43	U	0.35	U	0.44	U			0.35	U
Pyrene					0.38	J	1.2		0.21	J			2.5	
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-536-0.0/1.0-XXX SB-536 6/17/2013 0-1 ft		OC-SB-537-0.0/1.0-XXX SB-537 6/17/2013 0-1 ft		OC-SS-400-0.0/1.0-XXX SS-400 9/14/2009 0-1 ft		OC-SS-401-0.1/1.0-XXX SS-401 9/14/2009 0-1 ft		OC-SS-402-0.0/1.0-XXX SS-402 9/14/2009 0-1 ft		OC-SS-403-0.0/1.0-XXX SS-403 9/14/2009 0-1 ft		OC-SS-404-0.0/1.0-XXX SS-404 9/14/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016	0.0001	U	0.000094	U							1	U	0.51	U
Aroclor-1260	**1.5**		0.065	J							**13**		**4.8**	
Inorganics (mg/Kg)														
Aluminum					3600		6600		12000				5100	
Antimony					0.86	UJ	0.61	UJ	0.82	UJ			0.71	UJ
Arsenic					**8.9**		**12**		**8.2**				**3.9**	
Barium					13	J	16	J	27	J			17	J
Beryllium					0.1	J	0.19	J	0.32	J			0.23	J
Cadmium					0.69		0.16	J	0.49				0.63	
Calcium					1300		890		1200				1600	
Chromium					15		11		15				13	
Chromium, Hexavalent														
Cobalt					2.9		2.8		3.2				2.7	
Copper					35		12		20				24	
Iron					36000		8800		18000				8600	
Lead					53	J	30	J	48	J			27	J
Magnesium					170		1600		820				1300	
Manganese					100		68		60				110	
Mercury					0.12	J	0.2	UJ	0.16	J			0.46	J
Nickel					11		8.8		9.6				7.5	
Potassium					360		710		370				820	
Selenium					0.86	U	0.61	U	0.82	U			0.71	U
Silver					0.86	U	0.61	U	0.12	J			0.71	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-536-0.0/1.0-XXX SB-536 6/17/2013 0-1 ft		OC-SB-537-0.0/1.0-XXX SB-537 6/17/2013 0-1 ft		OC-SS-400-0.0/1.0-XXX SS-400 9/14/2009 0-1 ft		OC-SS-401-0.1/1.0-XXX SS-401 9/14/2009 0-1 ft		OC-SS-402-0.0/1.0-XXX SS-402 9/14/2009 0-1 ft		OC-SS-403-0.0/1.0-XXX SS-403 9/14/2009 0-1 ft		OC-SS-404-0.0/1.0-XXX SS-404 9/14/2009 0-1 ft	
Sodium					170	U	21	J	39	J			140	U
Thallium					1.7	U	1.2	U	1.6	U			1.4	U
Tin					5.3	J	3.6	J	5	J			4.7	J
Vanadium					19		17		44				11	
Zinc					19		19		32				200	
Chloride					26	U	21	U	27	U			21	U
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia					240		83		270				50	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate					52	U	42	U	54	U			43	U
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-405-0.0/1.0-XXX SS-405 9/14/2009 0-1 ft		OC-SS-406-0.0/1.0-XXX SS-406 9/15/2009 0-1 ft		OC-SS-407-0.0/1.0-XXX SS-407 9/15/2009 0-1 ft		OC-SS-408-0.0/1.0-XXX SS-408 9/15/2009 0-1 ft		OC-SS-409-0.0/1.0-XXX SS-409 9/15/2009 0-1 ft		OC-SS-410-0.0/1.0-XXX SS-410 9/15/2009 0-1 ft		OC-SS-411-0.0/1.0-XXX SS-411 9/15/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
1,1-Dichloroethane	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
1,2,4-Trichlorobenzene	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
1,2,4-Trimethylbenzene	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
1,2-Dichlorobenzene	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
1,2-Dichloroethane	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
1,3,5-Trimethylbenzene	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
2,4,4-Trimethyl-1-pentene	0.005	U	0.0075	U	0.0074	U	0.0048	U	0.0049	U			0.02	U
2,4,4-Trimethyl-2-pentene	0.005	U	0.0075	U	0.0074	U	0.0048	U	0.0049	U			0.02	U
2-Butanone	0.025	U	0.037	U	0.037	U	0.024	U	0.025	U			0.099	U
Acetic acid, methyl ester	0.05	U	0.075	U	0.074	U	0.048	U	0.049	U			0.2	U
Acetone	0.25	UJ	0.37	UJ	0.37	UJ	0.24	UJ	0.25	UJ			0.99	UJ
Benzene	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
Formaldehyde														
Methylene chloride	0.01	U	0.015	U	0.015	U	0.0096	U	0.0099	U			0.04	U
Naphthalene	0.025	U	0.037	U	0.037	U	0.024	U	0.025	U			0.099	U
Styrene	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
Tetrachloroethene	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
Tetrahydrofuran	0.025	U	0.037	U	0.037	U	0.024	U	0.025	U			0.099	U
Toluene	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
Trichloroethene	0.0025	U	0.0037	U	0.0037	U	0.0024	U	0.0025	U			0.0099	U
Xylenes (m&p)	0.005	U	0.0075	U	0.0074	U	0.0048	U	0.0049	U			0.02	U
Xylenes, Total	0.005	U	0.0075	U	0.0074	U	0.0048	U	0.0049	U			0.02	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
2,4-Dimethylphenol	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
2,4-Dinitrophenol	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
2-Methylnaphthalene	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
2-Methylphenol	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
3 & 4 Methylphenol	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Acenaphthene	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Acenaphthylene	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Acetophenone	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Aniline	0.35	UJ	0.44	UJ	0.37	UJ	0.39	UJ	0.34	UJ			4	UJ
Anthracene	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Benzaldehyde	0.35	U	0.41	J	0.37	U	0.39	U	0.34	U			4	U
Benzo(a)anthracene	0.35	U	0.44	U	0.37	U	0.12	J	0.34	U			4	U
Benzo(a)pyrene	0.35	U	0.44	U	0.37	U	0.13	J	0.34	U			4	U
Benzo(b)fluoranthene	0.35	U	0.44	U	0.11	J	0.12	J	0.34	U			4	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-405-0.0/1.0-XXX SS-405 9/14/2009 0-1 ft		OC-SS-406-0.0/1.0-XXX SS-406 9/15/2009 0-1 ft		OC-SS-407-0.0/1.0-XXX SS-407 9/15/2009 0-1 ft		OC-SS-408-0.0/1.0-XXX SS-408 9/15/2009 0-1 ft		OC-SS-409-0.0/1.0-XXX SS-409 9/15/2009 0-1 ft		OC-SS-410-0.0/1.0-XXX SS-410 9/15/2009 0-1 ft		OC-SS-411-0.0/1.0-XXX SS-411 9/15/2009 0-1 ft	
Benzo(ghi)perylene	0.35	U	0.44	U	0.37	U	0.15	J	0.34	U			4	U
Benzo(k)fluoranthene	0.35	U	0.44	U	0.37	U	0.14	J	0.34	U			4	U
Benzoic Acid	1.7	U	2.2	U	1.8	U	2	U	1.7	U			5.5	JEB
Benzyl alcohol	0.7	U	0.89	U	0.74	U	0.79	U	0.68	U			8.1	U
Biphenyl	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Bis(2-Ethylhexyl)phthalate	0.58	U	0.44	U	1.4	U	2.5	EB	2.2	EB			4	U
Butylbenzylphthalate	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Carbazole	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Chrysene	0.35	U	0.15	J	0.14	J	0.17	J	0.34	U			4	U
Dibenz(a,h)anthracene	0.35	U	**0.28**	J	0.37	U	0.39	U	0.21	J			4	U
Dibenzofuran	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Diethylphthalate	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Dimethylphthalate	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Di-n-butylphthalate	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Di-n-octylphthalate	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Diphenyl ether	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Diphenylamine														
Fluoranthene	0.35	U	0.23	J	0.21	J	0.24	J	0.34	U			4	U
Fluorene	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Hexachlorobenzene	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Indeno(1,2,3-cd)pyrene	0.35	U	0.44	U	0.37	U	0.16	J	0.34	U			4	U
Naphthalene	0.83	U	1.1	U	0.88	U	0.95	U	0.82	U			9.7	U
N-Nitrosodiphenylamine	0.35	U	0.44	U	0.37	U	0.39	JEB	0.33	JEB			4	U
Pentachlorophenol	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Phenanthrene	0.42	U	0.16	J	0.44	U	0.16	J	0.41	U			4.8	U
Phenol	0.35	U	0.44	U	0.37	U	0.39	U	0.34	U			4	U
Pyrene	0.35	U	0.19	J	0.19	J	0.26	J	0.34	U			4	U
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-405-0.0/1.0-XXX SS-405 9/14/2009 0-1 ft		OC-SS-406-0.0/1.0-XXX SS-406 9/15/2009 0-1 ft		OC-SS-407-0.0/1.0-XXX SS-407 9/15/2009 0-1 ft		OC-SS-408-0.0/1.0-XXX SS-408 9/15/2009 0-1 ft		OC-SS-409-0.0/1.0-XXX SS-409 9/15/2009 0-1 ft		OC-SS-410-0.0/1.0-XXX SS-410 9/15/2009 0-1 ft		OC-SS-411-0.0/1.0-XXX SS-411 9/15/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016									0.098	U	0.1	U		
Aroclor-1260									0.14		0.1	U		
Inorganics (mg/Kg)														
Aluminum	6000		14000		8300		6800		8300				12000	
Antimony	0.58	UJ	0.79	UJ	0.68	UJ	0.63	UJ	0.68	UJ			1.5	UJ
Arsenic	**5**		**6.8**		**5**		**7.1**		**5.6**				**2.8**	J
Barium	7	J	17	J	9.3	J	23	J	29	J			81	J
Beryllium	0.16	J	0.27	J	0.21	J	0.25	J	0.24	J			0.9	
Cadmium	0.11	J	0.23	J	0.26	J	0.43		0.41				0.5	J
Calcium	490		600		390		2100		3700				1100	
Chromium	8		14		32		82		21				22	
Chromium, Hexavalent														
Cobalt	2.3		2.6		1.8		3.9		6.6				3.5	
Copper	4.9		12		5.5		12		19				25	
Iron	6500		13000		7200		12000		16000				6900	
Lead	10	J	33	J	15	J	31	J	14	J			25	J
Magnesium	1000		560		830		2200		3400				110	
Manganese	46		23		37		96		180				13	
Mercury	0.17	UJ	0.077	J	0.21	UJ	0.1	J	0.068	J			0.43	UJ
Nickel	6.6		6.9		6.2		10		15				12	
Potassium	670		450		440		740		1200				620	U
Selenium	0.58	U	0.79	U	0.68	U	0.63	U	0.68	U			1.9	
Silver	0.58	U	0.089	J	0.45	J	1.1		0.68	U			1.5	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-405-0.0/1.0-XXX SS-405 9/14/2009 0-1 ft		OC-SS-406-0.0/1.0-XXX SS-406 9/15/2009 0-1 ft		OC-SS-407-0.0/1.0-XXX SS-407 9/15/2009 0-1 ft		OC-SS-408-0.0/1.0-XXX SS-408 9/15/2009 0-1 ft		OC-SS-409-0.0/1.0-XXX SS-409 9/15/2009 0-1 ft		OC-SS-410-0.0/1.0-XXX SS-410 9/15/2009 0-1 ft		OC-SS-411-0.0/1.0-XXX SS-411 9/15/2009 0-1 ft	
Sodium	120	U	160	U	140	U	25	J	47	J			310	U
Thallium	1.2	U	1.6	U	1.4	U	1.3	U	1.4	U			3.1	U
Tin	2.6	J	4.6	J	12	J	31	J	6.9	J			7.9	J
Vanadium	10		30		12		18		44				18	
Zinc	17		13		38		60		120				82	
Chloride	21	U	27	U	22	U	24	U	20	U			48	U
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	40		200		77		100		36				810	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	43	U	53	U	45	U	47	U	41	U			97	U
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-412-0.0/1.0-XXX SS-412 9/15/2009 0-1 ft		OC-SS-413-0.0/1.0-XXX SS-413 9/15/2009 0-1 ft		OC-SS-414-0.0/1.0-XXX SS-414 9/15/2009 0-1 ft		OC-SS-415-0.0/1.0-XXX SS-415 9/15/2009 0-1 ft		OC-SS-416-0.0/1.0-XXX SS-416 9/15/2009 0-1 ft		OC-SS-417-0.0/1.0-XXX SS-417 9/15/2009 0-1 ft		OC-SS-418-0.0/1.0-XXX SS-418 9/15/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0027	U			0.0026	U	0.0079	U	0.0026	U	0.0024	U	0.0028	U
1,1-Dichloroethane	0.0027	U			0.0026	U	0.0079	U	0.0026	U	0.0024	U	0.0028	U
1,2,4-Trichlorobenzene	0.0027	U			0.0026	U	0.0079	U	0.0026	UJ	0.0024	U	0.0028	U
1,2,4-Trimethylbenzene	0.0027	U			0.0026	U	0.0079	U	0.0026	U	0.0024	U	0.0028	U
1,2-Dichlorobenzene	0.0027	U			0.0026	U	0.0079	U	0.0026	U	0.0024	U	0.0028	U
1,2-Dichloroethane	0.0027	U			0.0026	U	0.0079	U	0.0026	U	0.0024	U	0.0028	U
1,3,5-Trimethylbenzene	0.0027	U			0.0026	U	0.0079	U	0.0026	U	0.0024	U	0.0028	U
2,4,4-Trimethyl-1-pentene	0.0054	U			0.0052	U	0.016	U	0.0053	U	0.002	J	0.0055	U
2,4,4-Trimethyl-2-pentene	0.0054	U			0.0052	U	0.016	U	0.0053	U	0.0048	U	0.0055	U
2-Butanone	0.027	U			0.026	U	0.079	U	0.026	U	0.024	U	0.028	U
Acetic acid, methyl ester	0.054	U			0.052	U	0.16	U	0.053	U	0.048	U	0.055	U
Acetone	0.27	UJ			0.26	UJ	0.79	UJ	0.26	UJ	0.24	UJ	0.28	UJ
Benzene	0.0027	U			0.0026	U	0.0079	U	0.0026	U	0.0024	U	0.0028	U
Formaldehyde														
Methylene chloride	0.011	U			0.01	U	0.031	U	0.011	U	0.0096	U	0.011	U
Naphthalene	0.027	U			0.026	U	0.079	U	0.026	UJ	0.024	U	0.028	U
Styrene	0.0027	U			0.0026	U	0.0079	U	0.0026	U	0.0024	U	0.0028	U
Tetrachloroethene	0.0027	U			0.0026	U	0.0079	U	0.0026	U	0.0024	U	0.0028	U
Tetrahydrofuran	0.027	U			0.026	U	0.079	U	0.026	U	0.024	U	0.028	U
Toluene	0.0027	U			0.0026	U	0.0079	U	0.0026	U	0.0024	U	0.0028	U
Trichloroethene	0.0027	U			0.0026	U	0.0079	U	0.0026	U	0.0024	U	0.0028	U
Xylenes (m&p)	0.0054	U			0.0052	U	0.016	U	0.0053	U	0.0048	U	0.0055	U
Xylenes, Total	0.0054	U			0.0052	U	0.016	U	0.0053	U	0.0048	U	0.0055	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
2,4-Dimethylphenol	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
2,4-Dinitrophenol	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
2-Methylnaphthalene	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
2-Methylphenol	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
3 & 4 Methylphenol	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Acenaphthene	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Acenaphthylene	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Acetophenone	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Aniline	0.36	UJ			0.35	UJ	1.6	UJ		R	0.34	UJ	0.036	UJ
Anthracene	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Benzaldehyde	0.25	J			0.35	U	1.6	U	0.36	U	0.34	U	0.023	J
Benzo(a)anthracene	0.54				0.35	U	1.6	UJ	0.13	J	0.34	U	0.036	U
Benzo(a)pyrene	**0.57**				0.35	U	1.6	U	0.17	J	0.34	U	0.036	U
Benzo(b)fluoranthene	0.47				0.35	U	1.6	U	0.31	J	0.34	U	0.036	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-412-0.0/1.0-XXX SS-412 9/15/2009 0-1 ft		OC-SS-413-0.0/1.0-XXX SS-413 9/15/2009 0-1 ft		OC-SS-414-0.0/1.0-XXX SS-414 9/15/2009 0-1 ft		OC-SS-415-0.0/1.0-XXX SS-415 9/15/2009 0-1 ft		OC-SS-416-0.0/1.0-XXX SS-416 9/15/2009 0-1 ft		OC-SS-417-0.0/1.0-XXX SS-417 9/15/2009 0-1 ft		OC-SS-418-0.0/1.0-XXX SS-418 9/15/2009 0-1 ft	
Benzo(ghi)perylene	0.42				0.35	U	1.6	U	0.16	J	0.34	U	0.036	U
Benzo(k)fluoranthene	0.48				0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Benzoic Acid	1.8	U			1.8	U	2	JEB	1.8	U	1.7	U	0.24	U
Benzyl alcohol	0.71	U			0.71	U	3.1	U		R	0.68	U	0.073	U
Biphenyl	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Bis(2-Ethylhexyl)phthalate	0.88	U			2.1	EB	2.9	JEB	0.55	JEB	1.1	EB	0.02	JEB
Butylbenzylphthalate	0.36	U			0.35	U	1.6	UJ	0.36	U	0.34	U	0.036	U
Carbazole	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Chrysene	1				0.35	U	1.6	UJ	0.3	J	0.34	U	0.013	J
Dibenz(a,h)anthracene	**0.32**	J			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Dibenzofuran	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Diethylphthalate	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Dimethylphthalate	0.36	U			0.35	U	1.6	U	0.36	U	0.11	J	0.036	U
Di-n-butylphthalate	0.36	U			0.35	U	1.6	U		R	0.34	U	0.036	U
Di-n-octylphthalate	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Diphenyl ether	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Diphenylamine														
Fluoranthene	0.96				0.12	J	1.6	U	0.43	J	0.34	U	0.016	J
Fluorene	0.36	U			0.35	U	1.6	U	0.21	J	0.34	U	0.036	U
Hexachlorobenzene	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Indeno(1,2,3-cd)pyrene	0.32	J			0.35	U	1.6	U	0.13	J	0.34	U	0.036	U
Naphthalene	0.86	U			0.85	U	3.7	U	0.87	U	0.81	U	0.088	U
N-Nitrosodiphenylamine	0.36	U			0.35	U	1.6	U	0.36	U	0.45	EB	0.036	U
Pentachlorophenol	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Phenanthrene	0.41	J			0.42	U	1.9	U	0.15	J	0.41	U	0.044	U
Phenol	0.36	U			0.35	U	1.6	U	0.36	U	0.34	U	0.036	U
Pyrene	1.4				0.14	J	1.6	UJ	0.34	J	0.34	U	0.017	J
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-412-0.0/1.0-XXX SS-412 9/15/2009 0-1 ft		OC-SS-413-0.0/1.0-XXX SS-413 9/15/2009 0-1 ft		OC-SS-414-0.0/1.0-XXX SS-414 9/15/2009 0-1 ft		OC-SS-415-0.0/1.0-XXX SS-415 9/15/2009 0-1 ft		OC-SS-416-0.0/1.0-XXX SS-416 9/15/2009 0-1 ft		OC-SS-417-0.0/1.0-XXX SS-417 9/15/2009 0-1 ft		OC-SS-418-0.0/1.0-XXX SS-418 9/15/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016	0.11	U	0.11	U					0.11	U	0.1	U		
Aroclor-1260	0.11	U	0.11	U					0.11	U	0.1	U		
Inorganics (mg/Kg)														
Aluminum	9500				6400		4000		5200		2300		640	
Antimony	0.69	UJ			0.64	UJ	1.4	UJ	0.81	J	0.28	J	0.64	UJ
Arsenic	**8**				**7.8**		2	J	**4.2**		2		1.3	U
Barium	46	J			17	J	56	J	27	J	19		3.4	
Beryllium	0.31				0.22	J	0.19	J	0.16	J	0.1	J	0.26	U
Cadmium	0.27	J			0.19	J	1.1		0.68		0.3		0.026	J
Calcium	1800				2000		13000		590		950		68	
Chromium	59				14		84		57		10		1.1	
Chromium, Hexavalent									**7.3**					
Cobalt	6.4				5.9		5.9		2		1.9		0.16	J
Copper	12				22		26		32		7.4		0.94	JEB
Iron	15000				12000		6800		8800		5600		300	
Lead	11	J			8.1	J	80	J	26	J	9		3.7	
Magnesium	5100				2700		1100		910		570		24	
Manganese	180				130		93		53		32		2.8	
Mercury	0.19	UJ			0.2	UJ	0.41	UJ	0.17	J	0.19	U	0.034	J
Nickel	23				11		9.9		7.3		5		0.66	J
Potassium	3400				930		380	J	440		330		250	J
Selenium	0.69	U			0.64	U	1.4	U	0.62	U	0.69	U	0.64	U
Silver	0.55	J			0.64	U	1.3	J	0.88		0.69	U	0.64	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-412-0.0/1.0-XXX SS-412 9/15/2009 0-1 ft		OC-SS-413-0.0/1.0-XXX SS-413 9/15/2009 0-1 ft		OC-SS-414-0.0/1.0-XXX SS-414 9/15/2009 0-1 ft		OC-SS-415-0.0/1.0-XXX SS-415 9/15/2009 0-1 ft		OC-SS-416-0.0/1.0-XXX SS-416 9/15/2009 0-1 ft		OC-SS-417-0.0/1.0-XXX SS-417 9/15/2009 0-1 ft		OC-SS-418-0.0/1.0-XXX SS-418 9/15/2009 0-1 ft	
Sodium	33	J			75	J	88	J	120	U	55	J	32	J
Thallium	1.4	U			1.3	U	2.8	U	1.2	U	1.4	U	1.3	U
Tin	21	J			4.5	J	34	J	22	J	3.9	J	6.4	UJ
Vanadium	33				18		14		9.9		7		4.1	
Zinc	53				21		59		280		48		1.2	J
Chloride	22	U			21	U	55		22	U	20	U	16	U
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	64				50		670		41		38		58	
Oxidation Reduction Potential **(mV)**									290					
pH **(pH units)**									6.38					
Sulfate	43	U			43	U	94	U	43	U	39	U	31	U
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-427-0.0/1.0-XXX SS-427 9/16/2009 0-1 ft		OC-SS-432-0.0/1.0-XXX SS-432 9/16/2009 0-1 ft		OC-SS-436-0.0/1.0-XXX SS-436 9/16/2009 0-1 ft		OC-SS-437-0.0/1.0-XXX SS-437 9/16/2009 0-1 ft		OC-SS-440-0.0/1.0-XXX SS-440 9/16/2009 0-1 ft		OC-SS-442-0.0/1.0-XXX SS-442 9/16/2009 0-1 ft		OC-SS-456-0.0/1.0-XXX SS-456 9/18/2009 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
1,1-Dichloroethane	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
1,2,4-Trichlorobenzene	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
1,2,4-Trimethylbenzene	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
1,2-Dichlorobenzene	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
1,2-Dichloroethane	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
1,3,5-Trimethylbenzene	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
2,4,4-Trimethyl-1-pentene	0.0069	U	0.0063	U	0.0063	U	0.0068	U	0.0085	U	0.012	U	0.0064	U
2,4,4-Trimethyl-2-pentene	0.0069	U	0.0063	U	0.0063	U	0.0068	U	0.0085	U	0.012	U	0.0064	U
2-Butanone	0.034	U	0.031	U	0.032	U	0.034	U	0.042	U	0.06	U	0.032	U
Acetic acid, methyl ester	0.069	U	0.063	U	0.063	U	0.068	U	0.085	U	0.12	U	0.064	U
Acetone	0.34	UJ	0.31	UJ	0.32	UJ	0.34	UJ	0.42	UJ	0.6	UJ	0.32	UJ
Benzene	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
Formaldehyde														
Methylene chloride	0.014	U	0.013	U	0.013	U	0.014	U	0.017	U	0.024	U	0.013	U
Naphthalene	0.034	U	0.031	U	0.032	U	0.034	U	0.042	U	0.06	U	0.032	U
Styrene	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
Tetrachloroethene	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
Tetrahydrofuran	0.034	U	0.031	U	0.032	U	0.034	U	0.042	U	0.06	U	0.032	U
Toluene	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
Trichloroethene	0.0034	U	0.0031	U	0.0032	U	0.0034	U	0.0042	U	0.006	U	0.0032	U
Xylenes (m&p)	0.0069	U	0.0063	U	0.0063	U	0.0068	U	0.0085	U	0.012	U	0.0064	U
Xylenes, Total	0.0069	U	0.0063	U	0.0063	U	0.0068	U	0.0085	U	0.012	U	0.0064	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
2,4-Dimethylphenol	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
2,4-Dinitrophenol	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
2-Methylnaphthalene	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
2-Methylphenol	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
3 & 4 Methylphenol	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Acenaphthene	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Acenaphthylene	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Acetophenone	0.039	U	0.013	JEB	0.043	U	0.045	U	0.061	U	0.021	JEB	0.039	U
Aniline	0.039	UJ	0.039	UJ	0.043	UJ	0.045	UJ	0.061	UJ	0.062	UJ	0.039	UJ
Anthracene	0.039	U	0.02	JEB	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Benzaldehyde	0.085		0.18		0.075		0.05		0.061		0.17		1.2	
Benzo(a)anthracene	0.039	U	0.14		0.043	U	0.045	U	0.061	U	0.022	J	0.017	J
Benzo(a)pyrene	0.039	U	0.15		0.043	U	0.016	J	0.061	U	0.026	J	0.018	J
Benzo(b)fluoranthene	0.039	U	0.24		0.043	U	0.018	J	0.061	U	0.04	J	0.025	J

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-427-0.0/1.0-XXX SS-427 9/16/2009 0-1 ft		OC-SS-432-0.0/1.0-XXX SS-432 9/16/2009 0-1 ft		OC-SS-436-0.0/1.0-XXX SS-436 9/16/2009 0-1 ft		OC-SS-437-0.0/1.0-XXX SS-437 9/16/2009 0-1 ft		OC-SS-440-0.0/1.0-XXX SS-440 9/16/2009 0-1 ft		OC-SS-442-0.0/1.0-XXX SS-442 9/16/2009 0-1 ft		OC-SS-456-0.0/1.0-XXX SS-456 9/18/2009 0-1 ft	
Benzo(ghi)perylene	0.039	U	0.074		0.043	U	0.018	J	0.061	U	0.023	J	0.039	U
Benzo(k)fluoranthene	0.039	U	0.089		0.043	U	0.045	U	0.061	U	0.062	U	0.013	J
Benzoic Acid	0.3	U	0.39	U	0.22	UJ	0.23	UJ	0.3	UJ	0.44	UJ	2.2	U
Benzyl alcohol	0.079	U	0.078	U	0.086	U	0.091	U	0.12	U	0.12	U	0.078	U
Biphenyl	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Bis(2-Ethylhexyl)phthalate	0.014	JEB	0.18	EB	0.043	U	0.027	JEB	0.022	JEB	0.031	JEB	0.019	JEB
Butylbenzylphthalate	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Carbazole	0.039	U	0.02	J	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Chrysene	0.015	J	0.18		0.043	U	0.019	J	0.061	U	0.038	J	0.029	J
Dibenz(a,h)anthracene	0.039	U	0.028	J	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Dibenzofuran	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Diethylphthalate	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Dimethylphthalate	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Di-n-butylphthalate	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Di-n-octylphthalate	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Diphenyl ether	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Diphenylamine	0.039	U							0.061	U			0.039	U
Fluoranthene	0.018	J	0.46		0.014	J	0.032	J	0.061	U	0.055	J	0.035	J
Fluorene	0.039	U	0.028	J	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Hexachlorobenzene	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Indeno(1,2,3-cd)pyrene	0.039	U	0.079		0.043	U	0.022	J	0.061	U	0.036	J	0.027	J
Naphthalene	0.094	U	0.094	U	0.1	U	0.11	U	0.15	U	0.02	J	0.094	U
N-Nitrosodiphenylamine	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Pentachlorophenol	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Phenanthrene	0.047	U	0.16		0.052	U	0.019	J	0.073	U	0.042	J	0.023	J
Phenol	0.039	U	0.039	U	0.043	U	0.045	U	0.061	U	0.062	U	0.039	U
Pyrene	0.018	J	0.33		0.013	J	0.032	J	0.061	U	0.064		0.036	J
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-427-0.0/1.0-XXX SS-427 9/16/2009 0-1 ft		OC-SS-432-0.0/1.0-XXX SS-432 9/16/2009 0-1 ft		OC-SS-436-0.0/1.0-XXX SS-436 9/16/2009 0-1 ft		OC-SS-437-0.0/1.0-XXX SS-437 9/16/2009 0-1 ft		OC-SS-440-0.0/1.0-XXX SS-440 9/16/2009 0-1 ft		OC-SS-442-0.0/1.0-XXX SS-442 9/16/2009 0-1 ft		OC-SS-456-0.0/1.0-XXX SS-456 9/18/2009 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	13000		6800		3100		3800		3900		3600		6800	
Antimony	0.75	UJ	0.66	UJ	0.76	UJ	0.73	UJ	1.1	UJ	0.97	UJ	0.67	UJ
Arsenic	**3.7**		**8.3**		2.4		**2.6**		**14**		**7.5**		**4.1**	
Barium	9.2		26		5.9		15		12		23		9.3	
Beryllium	0.3	J	0.27		0.067	J	0.21	J	0.16	J	0.13	J	0.2	J
Cadmium	0.14	J	0.3		0.073	J	0.11	J	0.17	J	0.16	J	0.16	J
Calcium	310		2400		130		330		670		610		620	
Chromium	6.3		30		2.9		70		81		8.8		6.8	
Chromium, Hexavalent					3	U	**8.9**							
Cobalt	1.3		3.8		0.38	J	3.9		1.4		1.9		1.3	
Copper	2.4	EB	13		2		6.3		4.5		6.2		4.4	
Iron	6200		9500		2300		3200		8000		4200		6300	
Lead	8.4		15		8.4		15		24		41		8.2	
Magnesium	280		2000		68		230		510		170		490	
Manganese	19		250		4.1		21		20		11		61	
Mercury	0.042	J	0.099	J	0.18	U	0.2	U	0.32	U	0.067	J	0.2	U
Nickel	3.6		7.7		1.4	J	7.5		4.2		3.7		4	
Potassium	340		980		200	J	580		650		380	J	330	
Selenium	0.75	U	0.66	U	0.76	U	0.73	U	1.1	U	0.97	U	0.67	U
Silver	0.75	U	0.21	J	0.76	U	0.98		0.99	J	0.97	U	0.67	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-427-0.0/1.0-XXX SS-427 9/16/2009 0-1 ft		OC-SS-432-0.0/1.0-XXX SS-432 9/16/2009 0-1 ft		OC-SS-436-0.0/1.0-XXX SS-436 9/16/2009 0-1 ft		OC-SS-437-0.0/1.0-XXX SS-437 9/16/2009 0-1 ft		OC-SS-440-0.0/1.0-XXX SS-440 9/16/2009 0-1 ft		OC-SS-442-0.0/1.0-XXX SS-442 9/16/2009 0-1 ft		OC-SS-456-0.0/1.0-XXX SS-456 9/18/2009 0-1 ft	
Sodium	150	U	130	U	23	J	36	J	220	U	42	J	130	U
Thallium	1.5	U	1.3	U	1.5	U	1.5	U	2.2	U	1.9	U	1.3	U
Tin	2.3	J	12	J	1.1	J	31	J	35	J	3.8	J	2.5	J
Vanadium	11		14		8.5		6.7		23		15		9.1	
Zinc	9.3		30		2.4	J	5.9		6		5.5		18	
Chloride	19	U	23	U	21	U	24	U	26	U	33	U	21	U
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	120		61		100		120		250		350		130	
Oxidation Reduction Potential **(mV)**					560		530							
pH **(pH units)**					3.95		4.41							
Sulfate	37	U	46	U	43	U	52		58		66	U	43	U
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine	0.0024	U							0.0035	U			0.0024	U
Acetaldehyde	0.24	U							0.36	U			0.24	U
Formaldehyde	0.18								0.57				0.22	
Phthalic Acid/Phthalic anhydride	0.12	U							0.18	U			0.11	U

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-457-0.0/1.0-XXX SS-457 9/17/2009 0-1 ft		OC-SS-458-0.0/1.0-XXX SS-458 9/18/2009 0-1 ft		OC-SS-459-0.0/1.0-XXX SS-459 9/18/2009 0-1 ft		OC-SS-461-0.0/1.0-XXX SS-461 9/18/2009 0-1 ft		OC-SS-501-0.0-1.0-XXX SS-501 11/20/2012 0-1 ft		OC-SS-502-0.0-1.0-XXX SS-502 11/20/2012 0-1 ft		OC-SS-503-0.0-1.0-XXX SS-503 11/20/2012 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
1,1-Dichloroethane	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
1,2,4-Trichlorobenzene	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
1,2,4-Trimethylbenzene	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
1,2-Dichlorobenzene	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
1,2-Dichloroethane	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
1,3,5-Trimethylbenzene	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
2,4,4-Trimethyl-1-pentene	0.0052	U	0.0072	U	0.0067	U	0.0071	U						
2,4,4-Trimethyl-2-pentene	0.0052	U	0.0072	U	0.0067	U	0.0071	U						
2-Butanone	0.026	U	0.036	U	0.034	U	0.036	U						
Acetic acid, methyl ester	0.052	U	0.072	U	0.067	U	0.071	U						
Acetone	0.021	J	0.36	UJ	0.34	UJ	0.081	J						
Benzene	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
Formaldehyde														
Methylene chloride	0.01	U	0.014	U	0.013	U	0.014	U						
Naphthalene	0.026	U	0.036	U	0.034	U	0.036	U						
Styrene	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
Tetrachloroethene	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
Tetrahydrofuran	0.026	U	0.036	U	0.034	U	0.036	U						
Toluene	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
Trichloroethene	0.0026	U	0.0036	U	0.0034	U	0.0036	U						
Xylenes (m&p)	0.0052	U	0.0072	U	0.0067	U	0.0071	U						
Xylenes, Total	0.0052	U	0.0072	U	0.0067	U	0.0071	U						
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.037	U	0.37	U	0.38	U	0.39	U						
2,4-Dimethylphenol	0.037	U	0.37	U	0.38	U	0.39	U						
2,4-Dinitrophenol	0.037	U	0.37	U	0.38	U	0.39	U						
2-Methylnaphthalene	0.037	U	0.37	U	0.38	U	0.39	U						
2-Methylphenol	0.037	U	0.37	U	0.38	U	0.39	U						
3 & 4 Methylphenol	0.037	U	0.37	U	0.38	U	0.39	U						
Acenaphthene	0.037	U	0.37	U	0.38	U	0.39	U						
Acenaphthylene	0.037	U	0.37	U	0.38	U	0.39	U						
Acetophenone	0.037	U	0.37	U	0.38	U	0.39	U						
Aniline	0.037	UJ	0.37	UJ	0.38	UJ	0.39	UJ						
Anthracene	0.037	U	0.37	U	0.38	U	0.39	U						
Benzaldehyde	0.012	J	0.69		0.24	J	0.16	J						
Benzo(a)anthracene	0.021	J	0.37	U	0.4		0.39	U						
Benzo(a)pyrene	0.022	J	0.37	UJ	**0.38**	J	0.39	U						
Benzo(b)fluoranthene	0.034	J	0.13	J	0.46		0.39	U						

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-457-0.0/1.0-XXX SS-457 9/17/2009 0-1 ft		OC-SS-458-0.0/1.0-XXX SS-458 9/18/2009 0-1 ft		OC-SS-459-0.0/1.0-XXX SS-459 9/18/2009 0-1 ft		OC-SS-461-0.0/1.0-XXX SS-461 9/18/2009 0-1 ft		OC-SS-501-0.0-1.0-XXX SS-501 11/20/2012 0-1 ft		OC-SS-502-0.0-1.0-XXX SS-502 11/20/2012 0-1 ft		OC-SS-503-0.0-1.0-XXX SS-503 11/20/2012 0-1 ft	
Benzo(ghi)perylene	0.015	J	0.37	UJ	0.26	J	0.39	U						
Benzo(k)fluoranthene	0.037	U	0.37	UJ	0.23	J	0.39	U						
Benzoic Acid	0.18	U	1.9	U	1.9	U	2	U						
Benzyl alcohol	0.073	U	0.75	U	0.76	U	0.78	U						
Biphenyl	0.037	U	0.37	U	0.38	U	0.39	U						
Bis(2-Ethylhexyl)phthalate	0.037	EB	0.12	JEB	0.38	U	0.39	U						
Butylbenzylphthalate	0.037	U	0.37	U	0.38	U	0.39	U						
Carbazole	0.037	U	0.37	U	0.38	U	0.39	U						
Chrysene	0.023	J	0.14	J	0.36	J	0.39	U						
Dibenz(a,h)anthracene	0.021	J	0.37	UJ	**0.25**	J	0.39	U						
Dibenzofuran	0.037	U	0.37	U	0.38	U	0.39	U						
Diethylphthalate	0.037	U	0.37	U	0.38	U	0.39	U						
Dimethylphthalate	0.037	U	0.37	U	0.38	U	0.39	U						
Di-n-butylphthalate	0.037	U	0.37	U	0.38	U	0.39	U						
Di-n-octylphthalate	0.037	U	0.37	UJ	0.38	U	0.39	U						
Diphenyl ether	0.037	U	0.37	U	0.38	U	0.39	U						
Diphenylamine	0.037	U			0.38	U								
Fluoranthene	0.041		0.2	J	0.69		0.12	J						
Fluorene	0.037	U	0.37	U	0.38	U	0.39	U						
Hexachlorobenzene	0.037	U	0.37	U	0.38	U	0.39	U						
Indeno(1,2,3-cd)pyrene	0.029	J	0.37	UJ	0.38	J	0.22	J						
Naphthalene	0.088	U	0.21	J	0.91	U	0.94	U						
N-Nitrosodiphenylamine	0.037	U	0.37	U	0.38	U	0.39	U						
Pentachlorophenol	0.037	U	0.37	U	0.38	U	0.39	U						
Phenanthrene	0.015	J	0.17	J	0.17	J	0.47	U						
Phenol	0.037	U	0.37	U	0.38	U	0.39	U						
Pyrene	0.04		0.19	J	0.8		0.12	J						
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-457-0.0/1.0-XXX SS-457 9/17/2009 0-1 ft		OC-SS-458-0.0/1.0-XXX SS-458 9/18/2009 0-1 ft		OC-SS-459-0.0/1.0-XXX SS-459 9/18/2009 0-1 ft		OC-SS-461-0.0/1.0-XXX SS-461 9/18/2009 0-1 ft		OC-SS-501-0.0-1.0-XXX SS-501 11/20/2012 0-1 ft		OC-SS-502-0.0-1.0-XXX SS-502 11/20/2012 0-1 ft		OC-SS-503-0.0-1.0-XXX SS-503 11/20/2012 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016									0.2	U	0.2	U	0.19	U
Aroclor-1260									**1**		0.23		0.5	
Inorganics (mg/Kg)														
Aluminum	9400		4800		8400		5600							
Antimony	0.66	UJ	0.67	UJ	0.7	UJ	0.74	UJ						
Arsenic	**18**		**9.5**		**8**		**5.7**							
Barium	32		19		23		19							
Beryllium	0.33		0.24	J	0.29		0.27	J						
Cadmium	0.3		0.24	J	0.36		0.24	J						
Calcium	2100		800		1800		1500							
Chromium	39		6.8		14		6.4							
Chromium, Hexavalent														
Cobalt	7		1.8		3.4		1.5							
Copper	13		15		20		9.8							
Iron	14000		8100		9400		6500							
Lead	12		31		33		24							
Magnesium	3500		580		1300		520							
Manganese	210		59		160		71							
Mercury	0.19	U	0.066	J	0.14	J	0.038	J						
Nickel	21		5.3		8.2		6							
Potassium	2000		290		720		310							
Selenium	0.66	U	0.67	U	0.7	U	0.74	U						
Silver	0.18	J	0.67	U	0.7	U	0.74	U						

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-457-0.0/1.0-XXX SS-457 9/17/2009 0-1 ft		OC-SS-458-0.0/1.0-XXX SS-458 9/18/2009 0-1 ft		OC-SS-459-0.0/1.0-XXX SS-459 9/18/2009 0-1 ft		OC-SS-461-0.0/1.0-XXX SS-461 9/18/2009 0-1 ft		OC-SS-501-0.0-1.0-XXX SS-501 11/20/2012 0-1 ft		OC-SS-502-0.0-1.0-XXX SS-502 11/20/2012 0-1 ft		OC-SS-503-0.0-1.0-XXX SS-503 11/20/2012 0-1 ft	
Sodium	29	J	130	U	140	U	150	U						
Thallium	1.3	U	1.3	U	1.4	U	1.5	U						
Tin	15		2.5	J	5.9	J	2.5	J						
Vanadium	24		14		15		12							
Zinc	29		20		49		39							
Chloride	22	U	19	U	19	U	18	U						
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia	65		140		190		200							
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	43	U	39	U	38	U	37	U						
Total Organic Carbon	12000													
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine	0.0022	U			0.0023	U								
Acetaldehyde	0.046	J			0.23	U								
Formaldehyde	0.27				0.23									
Phthalic Acid/Phthalic anhydride	0.11	U			0.11	U								

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-504-0.0-1.0-XXX SS-504 11/20/2012 0-1 ft		OC-SS-505-0.0-1.0-XXX SS-505 11/20/2012 0-1 ft		OC-SS-506-0.0-1.0-XXX SS-506 11/20/2012 0-1 ft		OC-SS-507-0.0-1.0-XXX SS-507 11/20/2012 0-1 ft		OC-SS-508-0.0-1.0-XXX SS-508 11/20/2012 0-1 ft		OC-SS-509-0.0-1.0-XXX SS-509 11/20/2012 0-1 ft		OC-SS-510-0.0/1.0-XXX SS-510 12/4/2012 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane														
1,1-Dichloroethane														
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane														
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene														
2,4,4-Trimethyl-2-pentene														
2-Butanone														
Acetic acid, methyl ester														
Acetone														
Benzene														
Formaldehyde														
Methylene chloride														
Naphthalene														
Styrene														
Tetrachloroethene														
Tetrahydrofuran														
Toluene														
Trichloroethene														
Xylenes (m&p)														
Xylenes, Total														
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol														
2,4-Dinitrophenol														
2-Methylnaphthalene														
2-Methylphenol														
3 & 4 Methylphenol														
Acenaphthene														
Acenaphthylene														
Acetophenone														
Aniline														
Anthracene														
Benzaldehyde														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-504-0.0-1.0-XXX SS-504 11/20/2012 0-1 ft		OC-SS-505-0.0-1.0-XXX SS-505 11/20/2012 0-1 ft		OC-SS-506-0.0-1.0-XXX SS-506 11/20/2012 0-1 ft		OC-SS-507-0.0-1.0-XXX SS-507 11/20/2012 0-1 ft		OC-SS-508-0.0-1.0-XXX SS-508 11/20/2012 0-1 ft		OC-SS-509-0.0-1.0-XXX SS-509 11/20/2012 0-1 ft		OC-SS-510-0.0/1.0-XXX SS-510 12/4/2012 0-1 ft	
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Benzoic Acid														
Benzyl alcohol														
Biphenyl														
Bis(2-Ethylhexyl)phthalate														
Butylbenzylphthalate														
Carbazole														
Chrysene														
Dibenz(a,h)anthracene														
Dibenzofuran														
Diethylphthalate														
Dimethylphthalate														
Di-n-butylphthalate														
Di-n-octylphthalate														
Diphenyl ether														
Diphenylamine														
Fluoranthene														
Fluorene														
Hexachlorobenzene														
Indeno(1,2,3-cd)pyrene														
Naphthalene														
N-Nitrosodiphenylamine														
Pentachlorophenol														
Phenanthrene														
Phenol														
Pyrene														
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-504-0.0-1.0-XXX SS-504 11/20/2012 0-1 ft		OC-SS-505-0.0-1.0-XXX SS-505 11/20/2012 0-1 ft		OC-SS-506-0.0-1.0-XXX SS-506 11/20/2012 0-1 ft		OC-SS-507-0.0-1.0-XXX SS-507 11/20/2012 0-1 ft		OC-SS-508-0.0-1.0-XXX SS-508 11/20/2012 0-1 ft		OC-SS-509-0.0-1.0-XXX SS-509 11/20/2012 0-1 ft		OC-SS-510-0.0/1.0-XXX SS-510 12/4/2012 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016	0.21	U	0.2	U	0.21	U	0.19	U	0.19	U	0.25	U		
Aroclor-1260	0.21	U	0.2	U	0.39		0.47		0.024	J	0.034	J		
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent													2.6	U
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Selenium														
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-504-0.0-1.0-XXX SS-504 11/20/2012 0-1 ft		OC-SS-505-0.0-1.0-XXX SS-505 11/20/2012 0-1 ft		OC-SS-506-0.0-1.0-XXX SS-506 11/20/2012 0-1 ft		OC-SS-507-0.0-1.0-XXX SS-507 11/20/2012 0-1 ft		OC-SS-508-0.0-1.0-XXX SS-508 11/20/2012 0-1 ft		OC-SS-509-0.0-1.0-XXX SS-509 11/20/2012 0-1 ft		OC-SS-510-0.0/1.0-XXX SS-510 12/4/2012 0-1 ft	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**													120	
pH **(pH units)**													4.24	
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-511-0.0/1.0-XXX SS-511 12/4/2012 0-1 ft		OC-SS-512-0.0/1.0-XXX SS-512 12/4/2012 0-1 ft		OC-SS-513-0.0/1.0-XXX SS-513 12/4/2012 0-1 ft		OC-SS-514-0.0/1.0-XXX SS-514 12/4/2012 0-1 ft		OC-SS-515-0.0/1.0-XXX SS-515 12/4/2012 0-1 ft		OC-SS-516-0.0/1.0-XXX SS-516 12/4/2012 0-1 ft		OC-SS-517-0.0/1.0-XXX SS-517 12/4/2012 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane														
1,1-Dichloroethane														
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane														
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene														
2,4,4-Trimethyl-2-pentene														
2-Butanone														
Acetic acid, methyl ester														
Acetone														
Benzene														
Formaldehyde														
Methylene chloride														
Naphthalene														
Styrene														
Tetrachloroethene														
Tetrahydrofuran														
Toluene														
Trichloroethene														
Xylenes (m&p)														
Xylenes, Total														
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol														
2,4-Dinitrophenol														
2-Methylnaphthalene														
2-Methylphenol														
3 & 4 Methylphenol														
Acenaphthene														
Acenaphthylene														
Acetophenone														
Aniline														
Anthracene														
Benzaldehyde														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-511-0.0/1.0-XXX SS-511 12/4/2012 0-1 ft		OC-SS-512-0.0/1.0-XXX SS-512 12/4/2012 0-1 ft		OC-SS-513-0.0/1.0-XXX SS-513 12/4/2012 0-1 ft		OC-SS-514-0.0/1.0-XXX SS-514 12/4/2012 0-1 ft		OC-SS-515-0.0/1.0-XXX SS-515 12/4/2012 0-1 ft		OC-SS-516-0.0/1.0-XXX SS-516 12/4/2012 0-1 ft		OC-SS-517-0.0/1.0-XXX SS-517 12/4/2012 0-1 ft	
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Benzoic Acid														
Benzyl alcohol														
Biphenyl														
Bis(2-Ethylhexyl)phthalate														
Butylbenzylphthalate														
Carbazole														
Chrysene														
Dibenz(a,h)anthracene														
Dibenzofuran														
Diethylphthalate														
Dimethylphthalate														
Di-n-butylphthalate														
Di-n-octylphthalate														
Diphenyl ether														
Diphenylamine														
Fluoranthene														
Fluorene														
Hexachlorobenzene														
Indeno(1,2,3-cd)pyrene														
Naphthalene														
N-Nitrosodiphenylamine														
Pentachlorophenol														
Phenanthrene														
Phenol														
Pyrene														
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-511-0.0/1.0-XXX SS-511 12/4/2012 0-1 ft		OC-SS-512-0.0/1.0-XXX SS-512 12/4/2012 0-1 ft		OC-SS-513-0.0/1.0-XXX SS-513 12/4/2012 0-1 ft		OC-SS-514-0.0/1.0-XXX SS-514 12/4/2012 0-1 ft		OC-SS-515-0.0/1.0-XXX SS-515 12/4/2012 0-1 ft		OC-SS-516-0.0/1.0-XXX SS-516 12/4/2012 0-1 ft		OC-SS-517-0.0/1.0-XXX SS-517 12/4/2012 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent	3.8	U	2.9	U	3.5	U	2.2	U	2.5	U	2.4	U	2.4	U
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Selenium														
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-511-0.0/1.0-XXX SS-511 12/4/2012 0-1 ft		OC-SS-512-0.0/1.0-XXX SS-512 12/4/2012 0-1 ft		OC-SS-513-0.0/1.0-XXX SS-513 12/4/2012 0-1 ft		OC-SS-514-0.0/1.0-XXX SS-514 12/4/2012 0-1 ft		OC-SS-515-0.0/1.0-XXX SS-515 12/4/2012 0-1 ft		OC-SS-516-0.0/1.0-XXX SS-516 12/4/2012 0-1 ft		OC-SS-517-0.0/1.0-XXX SS-517 12/4/2012 0-1 ft	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**	25		100		20		61		57		68		64	
pH **(pH units)**	6.49		4.21		6.28		4.59		4.55		3.59		3.82	
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-518-0.0/1.0-XXX SS-518 12/4/2012 0-1 ft		OC-SS-519-0.0/1.0-XXX SS-519 12/4/2012 0-1 ft		OC-SS-520-0.0/1.0-XXX SS-520 12/4/2012 0-1 ft		OC-SS-521-0.0/1.0-XXX SS-521 12/4/2012 0-1 ft		OC-SS-522-0.0/1.0-XXX SS-522 12/4/2012 0-1 ft		OC-SS-523-0.0/1.0-XXX SS-523 12/4/2012 0-1 ft		OC-SS-524-0.0/1.0-XXX SS-524 12/5/2012 0-1 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane														
1,1-Dichloroethane														
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane														
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene														
2,4,4-Trimethyl-2-pentene														
2-Butanone														
Acetic acid, methyl ester														
Acetone														
Benzene														
Formaldehyde														
Methylene chloride														
Naphthalene														
Styrene														
Tetrachloroethene														
Tetrahydrofuran														
Toluene														
Trichloroethene														
Xylenes (m&p)														
Xylenes, Total														
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene														
2,4-Dimethylphenol														
2,4-Dinitrophenol														
2-Methylnaphthalene														
2-Methylphenol														
3 & 4 Methylphenol														
Acenaphthene														
Acenaphthylene														
Acetophenone														
Aniline														
Anthracene														
Benzaldehyde														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-518-0.0/1.0-XXX SS-518 12/4/2012 0-1 ft		OC-SS-519-0.0/1.0-XXX SS-519 12/4/2012 0-1 ft		OC-SS-520-0.0/1.0-XXX SS-520 12/4/2012 0-1 ft		OC-SS-521-0.0/1.0-XXX SS-521 12/4/2012 0-1 ft		OC-SS-522-0.0/1.0-XXX SS-522 12/4/2012 0-1 ft		OC-SS-523-0.0/1.0-XXX SS-523 12/4/2012 0-1 ft		OC-SS-524-0.0/1.0-XXX SS-524 12/5/2012 0-1 ft	
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Benzoic Acid														
Benzyl alcohol														
Biphenyl														
Bis(2-Ethylhexyl)phthalate														
Butylbenzylphthalate														
Carbazole														
Chrysene														
Dibenz(a,h)anthracene														
Dibenzofuran														
Diethylphthalate														
Dimethylphthalate														
Di-n-butylphthalate														
Di-n-octylphthalate														
Diphenyl ether														
Diphenylamine														
Fluoranthene														
Fluorene														
Hexachlorobenzene														
Indeno(1,2,3-cd)pyrene														
Naphthalene														
N-Nitrosodiphenylamine														
Pentachlorophenol														
Phenanthrene														
Phenol														
Pyrene														
PAHs (mg/Kg)														
Acenaphthylene														
Anthracene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Dibenz(a,h)anthracene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
Phenanthrene														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-518-0.0/1.0-XXX SS-518 12/4/2012 0-1 ft		OC-SS-519-0.0/1.0-XXX SS-519 12/4/2012 0-1 ft		OC-SS-520-0.0/1.0-XXX SS-520 12/4/2012 0-1 ft		OC-SS-521-0.0/1.0-XXX SS-521 12/4/2012 0-1 ft		OC-SS-522-0.0/1.0-XXX SS-522 12/4/2012 0-1 ft		OC-SS-523-0.0/1.0-XXX SS-523 12/4/2012 0-1 ft		OC-SS-524-0.0/1.0-XXX SS-524 12/5/2012 0-1 ft	
Pyrene														
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
4,4'-DDE														
4,4'-DDT														
Aldrin														
Alpha-BHC														
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Delta-BHC														
Dieldrin														
Endosulfan I														
Endrin														
Endrin ketone														
Gamma-BHC/Lindane														
Heptachlor epoxide														
Aroclor-1016														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent	3.9	U	4	U	4.7	U	4.9	U	3.2	U	3.5	U	4.4	U
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Selenium														
Silver														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-518-0.0/1.0-XXX SS-518 12/4/2012 0-1 ft		OC-SS-519-0.0/1.0-XXX SS-519 12/4/2012 0-1 ft		OC-SS-520-0.0/1.0-XXX SS-520 12/4/2012 0-1 ft		OC-SS-521-0.0/1.0-XXX SS-521 12/4/2012 0-1 ft		OC-SS-522-0.0/1.0-XXX SS-522 12/4/2012 0-1 ft		OC-SS-523-0.0/1.0-XXX SS-523 12/4/2012 0-1 ft		OC-SS-524-0.0/1.0-XXX SS-524 12/5/2012 0-1 ft	
Sodium														
Thallium														
Tin														
Vanadium														
Zinc														
Chloride														
Cyanide, Available														
Cyanide, Total														
Eh **(mV)**														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**	68		97		98		67		67		82		110	
pH **(pH units)**	3.64		3.58		3.99		3.87		3.9		3.71		3.36	
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**														
VPH (mg/Kg)														
C9-C10 Aromatics														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)pyrene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-525-0.0/1.0-XXX SS-525 12/5/2012 0-1 ft	
Volatile Organics (mg/Kg)		
1,1,1-Trichloroethane		
1,1-Dichloroethane		
1,2,4-Trichlorobenzene		
1,2,4-Trimethylbenzene		
1,2-Dichlorobenzene		
1,2-Dichloroethane		
1,3,5-Trimethylbenzene		
2,4,4-Trimethyl-1-pentene		
2,4,4-Trimethyl-2-pentene		
2-Butanone		
Acetic acid, methyl ester		
Acetone		
Benzene		
Formaldehyde		
Methylene chloride		
Naphthalene		
Styrene		
Tetrachloroethene		
Tetrahydrofuran		
Toluene		
Trichloroethene		
Xylenes (m&p)		
Xylenes, Total		
Semivolatile Organics (mg/Kg)		
1-Methylnaphthalene		
2,4-Dimethylphenol		
2,4-Dinitrophenol		
2-Methylnaphthalene		
2-Methylphenol		
3 & 4 Methylphenol		
Acenaphthene		
Acenaphthylene		
Acetophenone		
Aniline		
Anthracene		
Benzaldehyde		
Benzo(a)anthracene		
Benzo(a)pyrene		
Benzo(b)fluoranthene		

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-525-0.0/1.0-XXX SS-525 12/5/2012 0-1 ft	
Benzo(ghi)perylene		
Benzo(k)fluoranthene		
Benzoic Acid		
Benzyl alcohol		
Biphenyl		
Bis(2-Ethylhexyl)phthalate		
Butylbenzylphthalate		
Carbazole		
Chrysene		
Dibenz(a,h)anthracene		
Dibenzofuran		
Diethylphthalate		
Dimethylphthalate		
Di-n-butylphthalate		
Di-n-octylphthalate		
Diphenyl ether		
Diphenylamine		
Fluoranthene		
Fluorene		
Hexachlorobenzene		
Indeno(1,2,3-cd)pyrene		
Naphthalene		
N-Nitrosodiphenylamine		
Pentachlorophenol		
Phenanthrene		
Phenol		
Pyrene		
PAHs (mg/Kg)		
Acenaphthylene		
Anthracene		
Benzo(a)anthracene		
Benzo(a)pyrene		
Benzo(b)fluoranthene		
Benzo(ghi)perylene		
Benzo(k)fluoranthene		
Chrysene		
Dibenz(a,h)anthracene		
Fluoranthene		
Indeno(1,2,3-cd)pyrene		
Phenanthrene		

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-525-0.0/1.0-XXX SS-525 12/5/2012 0-1 ft	
Pyrene		
Pesticides/PCBs (mg/Kg)		
4,4'-DDD		
4,4'-DDE		
4,4'-DDT		
Aldrin		
Alpha-BHC		
Alpha-Chlordane		
Beta-BHC		
Chlordane (technical)		
Delta-BHC		
Dieldrin		
Endosulfan I		
Endrin		
Endrin ketone		
Gamma-BHC/Lindane		
Heptachlor epoxide		
Aroclor-1016		
Aroclor-1260		
Inorganics (mg/Kg)		
Aluminum		
Antimony		
Arsenic		
Barium		
Beryllium		
Cadmium		
Calcium		
Chromium		
Chromium, Hexavalent	3	U
Cobalt		
Copper		
Iron		
Lead		
Magnesium		
Manganese		
Mercury		
Nickel		
Potassium		
Selenium		
Silver		

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-525-0.0/1.0-XXX SS-525 12/5/2012 0-1 ft	
Sodium		
Thallium		
Tin		
Vanadium		
Zinc		
Chloride		
Cyanide, Available		
Cyanide, Total		
Eh **(mV)**		
Nitrogen, as Ammonia		
Oxidation Reduction Potential **(mV)**	99	
pH **(pH units)**	4.07	
Sulfate		
Total Organic Carbon		
Total Organic Carbon **(%)**		
VPH (mg/Kg)		
C9-C10 Aromatics		
Volatile Petroleum Hydrocarbons, Total		
EPH (mg/Kg)		
Benzo(a)pyrene		
Benzo(ghi)perylene		
C11-C22 Aromatics		
C11-C22 Aromatics (unadj.)		
C19-C36 Aliphatics		
C9-C18 Aliphatics		
Extractable Petroleum Hydrocarbons, Total		
Specialty Compounds (mg/Kg)		
Hydrazine		
Acetaldehyde		
Formaldehyde		
Phthalic Acid/Phthalic anhydride		

Appendix F-1
Summary of Detected Chemicals for OU1 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)	Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1010-CP-TP15 CP-TP15 9/18/2001 0-2.25 ft	1010-CP-TP19 CP-TP19 9/18/2001 0-2.25 ft	1010-CP-TP8 CP-TP8 9/18/2001 0-2.25 ft	1010-SED-SDF-3S SDF-3 9/17/2001 0-0.5 ft	1010-SED-SDF-4S SDF-4 9/17/2001 0-0.5 ft

United States Environmental Protection Agency Regions 3, 6, and 9. November 2013. Regional Screening Levels for Chemical Contaminants at Superfund Sites.
http://www.epa.gov/reg3hwmd/risk/human/rb-concentrations_table/index.htm

RSL for 2,4,4-Trimethyl-1-pentene and 2,4,4-Trimethyl-2-pentene calculated consistent with RSL Guidance.
RSL for Chromium (III) used for chromium.
MCP Method 1 Soil category S-2 Standards were used for screening EPH/VPH.

c - RSL is based on an excess lifetime cancer risk of 1 in 1 million.
c* - where n RSL < 100X c RSL.
c** - where n RSL < 10X c RSL.
n - RSL is based on a non-cancer hazard quotient.
nm - RSL is based on a non-cancer hazard quotient; concentration may exceed ceiling limit.
nms - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat and the ceiling limit.
ns - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat.

(2) Values are the Risk- and MCL-based Soil Screening Levels (SSLs) as presented in the RSLs.

mg/Kg = milligram per kilogram
mV = millivolts

J = value is estimated
JEB = value is estimated, analyte detected in the blank
R = value is rejected
A = value is estimated due to exceedance of holding times
B = analyte was detected in both the sample and its associated laboratory blank
C = value is estimated due to surrogate recovery outside of control limits
E = value is estimated due to interference
G = value is estimated due to duplicate precision outside of control limits
N = presumptively present
T = value is estimated and may be biased high due to oxidation of Cr+3 to Cr+6

(1) Values are the Industrial Soil Regional Screening Levels (RSLs).
BOLD outlined cells indicate a concentration greater than the Industrial RSL.
Shaded cells indicate a concentration greater than the risk-based or MCL-based SSL.

Prepared by / Date: KJC 03/06/14
Checked by / Date: CTM 03/06/14

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	101B LP-101 11/30/1998 6-8 ft		102B LP-102 11/30/1998 6-8 ft		1120-BD-C2 BD-C2 10/10/2000 4.8-4.8 ft		1120-BD-C20 BD-C20 10/27/2000 3.8-3.8 ft		1120-BD-C21 BD-C21 10/27/2000 1.9-1.9 ft		1120-BD-C25 BD-C25 10/27/2000 6.8-6.8 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	490	n	0.015						0.14	U	0.17	U	0.15	U	0.16	U
1,2,4-Trichlorobenzene	99	c**	0.0029	0.2					0.14	U	0.17	U	0.15	U	0.16	U
1,2,4-Trimethylbenzene	260	ns	0.021						0.14	U	0.17	U	0.15	U	0.16	U
1,2-Dichlorobenzene	9800	ns	0.27	0.58					0.14	U	0.17	U	0.15	U	0.16	U
1,2-Dichloroethane	2.2	c*	0.000042	0.0014					0.14	U	0.17	U	0.15	U	0.16	U
1,3,5-Trimethylbenzene	10000	ns	0.12						0.14	U	0.17	U	0.15	U	0.16	U
1,4-Dichlorobenzene	12	c	0.0004	0.072					0.14	U	0.17	U	0.15	U	0.16	U
2,4,4-Trimethyl-1-pentene	39	n							0.14	U	6.7		0.15	U	0.16	U
2,4,4-Trimethyl-2-pentene	39	n							0.14	U	2.2		0.15	U	0.16	U
2-Butanone	200000	nms	1						2.8	U	3.4	U	3	U	3.2	U
2-Hexanone	1400	n	0.0079						0.56	U	0.67	U	0.59	U	0.63	U
4-iso-Propyltoluene									0.14	U	0.57		0.15	U	0.16	U
4-Methyl-2-pentanone	53000	ns	0.23						0.56	U	0.67	U	0.59	U	0.63	U
Acetone	630000	nms	2.4						2.8	U	3.4	U	3	U	3.2	U
Benzene	5.4	c*	0.0002	0.0026					0.14	U	0.17	U	0.15	U	0.16	U
Carbon disulfide	3700	ns	0.21													
Carbon tetrachloride	3	c	0.00015	0.0019					0.14	U	0.17	U	0.15	U	0.16	U
Chlorobenzene	1400	ns	0.049	0.068					0.14	U	0.17	U	0.15	U	0.16	U
Chloroform	1.5	c	0.000053	0.022					0.14	U	0.17	U	0.15	U	0.16	U
Chloromethane	500	n	0.049						0.28	U	0.34	U	0.3	U	0.32	U
Ethyl benzene	27	c	0.0015	0.78					0.14	U	0.88		0.15	U	0.16	U
Formaldehyde	120000	nm	0.62													
Isopropylbenzene	11000	ns	0.64						0.14	U	0.17	U	0.15	U	0.16	U
Methylene chloride	960	c**	0.0025	0.0013					0.14	U	0.34	U	0.3	U	0.32	U
Naphthalene	18	c*	0.00047						1.4	U	1.7	U	1.5	U	1.6	U
Propylbenzene	21000	ns	0.99						0.14	U	0.17	U	0.15	U	0.16	U
sec-Butylbenzene			4.6						0.14	U	0.17	U	0.15	U	0.16	U
Styrene	36000	ns	1.2	0.11					0.14	U	0.17	U	0.15	U	0.16	U
Tetrachloroethene	110	c**	0.0044	0.0023					0.14	U	0.17	U	0.15	U	0.16	U
Tetrahydrofuran	95000	n	0.71													
Toluene	45000	ns	0.59	0.69					0.14	U	0.25		0.15	U	0.16	U
Trichloroethene	6.4	c**	0.00016	0.0018					0.14	U	0.17	U	0.15	U	0.16	U
Trichlorofluoromethane	3400	ns	0.69						0.14	U	0.17	U	0.15	U	0.16	U
Xylene, o	3000	ns	0.19						0.14	U	0.15	J	0.15	U	0.16	U
Xylenes (m&p)									0.14	U	0.5		0.15	U	0.16	U
Xylenes, Total	2700	ns	0.19	9.8					0.14	U	0.65	J	0.15	U	0.16	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	99	c**	0.0029	0.2					0.39	U	48	UC	8	UC	21	UC
1,2-Dichlorobenzene	9800	ns	0.27	0.58					0.39	U	48	UC	8	UC	21	UC
1,4-Dichlorobenzene	12	c	0.0004	0.072					0.39	U	48	UC	8	UC	21	UC

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	101B LP-101 11/30/1998 6-8 ft		102B LP-102 11/30/1998 6-8 ft		1120-BD-C2 BD-C2 10/10/2000 4.8-4.8 ft		1120-BD-C20 BD-C20 10/27/2000 3.8-3.8 ft		1120-BD-C21 BD-C21 10/27/2000 1.9-1.9 ft		1120-BD-C25 BD-C25 10/27/2000 6.8-6.8 ft	
1-Methylnaphthalene	53	c	0.0051						0.39	U	48	UC	8	UC	21	UC
2,4-Dimethylphenol	12000	n	0.32						0.39	U	48	UC	8	UC	21	UC
2-Methylnaphthalene	2200	n	0.14						0.39	U	48	UC	8	UC	21	UC
3 & 4 Methylphenol									0.39	U	48	UC	8	UC	21	UC
4-Chlorophenyl phenyl ether									0.39	U	48	UC	8	UC	21	UC
Acenaphthene	33000	n	4.1						0.39	U	48	UC	8	UC	21	UC
Acenaphthylene									0.39	U	48	UC	8	UC	21	UC
Acetophenone	100000	nms	0.45													
Aniline	300	c*	0.0039						1.9	U	240	UC	40	UC	100	UC
Anthracene	170000	nm	42						0.39	U	48	UC	8	UC	21	UC
Benzaldehyde	100000	nms	0.33													
Benzo(a)anthracene	2.1	c	0.01						0.39	U	48	UC	8	UC	21	UC
Benzo(a)pyrene	0.21	c	0.0035	0.24					0.39	U	48	UC	8	UC	21	UC
Benzo(b)fluoranthene	2.1	c	0.035						0.39	U	48	UC	8	UC	21	UC
Benzo(ghi)perylene									0.39	U	48	UC	8	UC	21	UC
Benzo(k)fluoranthene	21	c	0.35						0.39	U	48	UC	8	UC	21	UC
Benzoic Acid	2500000	nm	14						1.9	U	240	UC	40	UC	100	UC
Biphenyl	210	n	0.0087													
Bis(2-Ethylhexyl)phthalate	120	c	1.1	1.4					0.22	J	**359**	C	101	C	**137**	C
Butylbenzylphthalate	910	c	0.2						0.39	U	48	UC	8	UC	21	UC
Carbazole																
Chrysene	210	c	1.1						0.39	U	48	UC	8	UC	21	UC
Dibenz(a,h)anthracene	0.21	c	0.011						0.39	U	48	UC	8	UC	21	UC
Dibenzofuran	1000	n	0.11						0.39	U	48	UC	8	UC	21	UC
Diethylphthalate	490000	nm	4.7						0.39	U	48	UC	8	UC	21	UC
Di-n-butylphthalate	62000	n	1.7						0.39	U	33	JC	8	UC	21	UC
Di-n-octylphthalate	6200	n	44						0.39	U	48	UC	8	UC	21	UC
Diphenyl ether																
Diphenylamine	15000	n	0.44													
Fluoranthene	22000	n	70						0.39	U	48	UC	8	UC	21	UC
Fluorene	22000	n	4						0.39	U	48	UC	8	UC	21	UC
Indeno(1,2,3-cd)pyrene	2.1	c	0.2						0.39	U	48	UC	8	UC	21	UC
Naphthalene	18	c*	0.00047						0.39	U	48	UC	8	UC	21	UC
N-Nitrosodiphenylamine	350	c	0.057						0.39	U	48	UC	4.7	JC	21	UC
Phenanthrene									0.39	U	48	UC	8	UC	21	UC
Phenol	180000	nm	2.6						0.39	U	48	UC	8	UC	21	UC
Pyrene	17000	n	9.5						0.39	U	48	UC	8	UC	21	UC
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	7.2	c	0.0064						0.011	U	0.015	U	0.012	U	0.012	U
Aldrin	0.1	c	0.00065						0.011	U	0.015	U	0.012	U	0.012	U
Alpha-BHC	0.27	c	0.000036						0.011	U	0.015	U	0.012	U	0.012	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	101B LP-101 11/30/1998 6-8 ft		102B LP-102 11/30/1998 6-8 ft		1120-BD-C2 BD-C2 10/10/2000 4.8-4.8 ft		1120-BD-C20 BD-C20 10/27/2000 3.8-3.8 ft		1120-BD-C21 BD-C21 10/27/2000 1.9-1.9 ft		1120-BD-C25 BD-C25 10/27/2000 6.8-6.8 ft	
Alpha-Chlordane																
Beta-BHC	0.96	c	0.00013						0.011	U	0.015	U	0.012	U	0.012	U
Chlordane (technical)	6.5	c*	0.013	0.14												
Endosulfan sulfate									0.011	U	0.015	U	0.012	U	0.012	U
Endrin	180	n	0.068	0.081					0.011	U	0.015	U	0.012	U	0.012	U
Gamma-BHC/Lindane	2.1	c	0.00021	0.0012					0.011	U	0.015	U	0.012	U	0.012	U
Aroclor-1260	0.74	c	0.024													
Inorganics (mg/Kg)																
Aluminum	990000	nm	23000						3600		3900		4600		3600	
Antimony	410	n	0.27	0.27												
Arsenic	2.4	cR	0.0013	0.29					2	U	2	U	1	U	1	U
Barium	190000	nm	120	82												
Beryllium	2000	n	13	3.2												
Cadmium	800	n	0.52	0.38					0.3	U	0.3	U	0.65		0.3	U
Calcium																
Chromium	1500000	nm		180000	2130		624		6.1		250		320		18	
Chromium, Hexavalent	5.6	c	0.00059		**19.9**	T	**12.7**	T								
Cobalt	300	n	0.21													
Copper	41000	n	22	46												
Iron	720000	nm	270						3300		3300		2400		2700	
Lead	800	L		14					2.1		3.4		7		2.2	
Magnesium																
Manganese	23000	n	21													
Mercury	43	ns	0.033	0.1					0.05	U	0.06	U	0.05	U	0.06	U
Nickel	20000	n	20													
Potassium																
Selenium	5100	n	0.4	0.26					2	U	2	U	1	U	1	U
Silver	5100	n	0.6													
Sodium																
Thallium	10	n	0.011	0.14												
Tin	610000	nm	2300													
Vanadium	5100	n	63													
Zinc	310000	nm	290													
Chloride																
Cyanide, Total	140	n	0.014	2												
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N	1600000	nm														
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	101B LP-101 11/30/1998 6-8 ft		102B LP-102 11/30/1998 6-8 ft		1120-BD-C2 BD-C2 10/10/2000 4.8-4.8 ft		1120-BD-C20 BD-C20 10/27/2000 3.8-3.8 ft		1120-BD-C21 BD-C21 10/27/2000 1.9-1.9 ft		1120-BD-C25 BD-C25 10/27/2000 6.8-6.8 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene	27	c	0.0015	0.78												
Toluene	45000	ns	0.59	0.69												
Xylenes, Total	2700	ns	0.19	9.8												
C5-C8 Aliphatics	500															
C5-C8 Aliphatics (unadj.)	500															
C9-C10 Aromatics	500															
C9-C12 Aliphatics	3000															
C9-C12 Aliphatics (unadj.)	3000															
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene	33000	n	4.1													
Acenaphthylene																
Benzo(a)anthracene	2.1	c	0.01													
Benzo(a)pyrene	0.21	c	0.0035	0.24												
Benzo(ghi)perylene																
Fluoranthene	22000	n	70													
Fluorene	22000	n	4													
Indeno(1,2,3-cd)pyrene	2.1	c	0.2													
Naphthalene	18	c*	0.00047													
C11-C22 Aromatics	3000															
C11-C22 Aromatics (unadj.)	3000															
C19-C36 Aliphatics	5000															
C9-C18 Aliphatics	3000															
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine	0.95	c														
Acetaldehyde	52	c**	0.00045													
Formaldehyde	120000	nm	0.62													
Phthalic Acid/Phthalic anhydride	1200000	nm	5.3													

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-BD-C3 BD-C3 10/10/2000 1.2-3.2 ft	1120-BD-C30 BD-C30 10/27/2000 6.4-6.4 ft	1120-BD-C35 BD-C35 10/27/2000 1.9-1.9 ft	1120-BD-C5 BD-C5 10/10/2000 6.9-6.9 ft	1120-BD-C6 BD-C6 10/10/2000 1.4-3.4 ft	1120-BD-C9 BD-C9 10/11/2000 8.1-8.1 ft	1120-DA-C25 DA-C25 9/29/2000 5.8-5.8 ft	1120-DA-C26 DA-C26 9/29/2000 0.5-3.5 ft
Volatile Organics (mg/Kg)								
1,2,3-Trichlorobenzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
1,2,4-Trichlorobenzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
1,2,4-Trimethylbenzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
1,2-Dichlorobenzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
1,2-Dichloroethane	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
1,3,5-Trimethylbenzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
1,4-Dichlorobenzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
2,4,4-Trimethyl-1-pentene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
2,4,4-Trimethyl-2-pentene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
2-Butanone	2.8 U	3 U	3.9 U	2.7 U	3 U	2.9 U	3.1 U	2.5 U
2-Hexanone	0.55 U	0.6 U	0.77 U	0.55 U	0.59 U	0.57 U	0.61 U	0.51 U
4-iso-Propyltoluene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
4-Methyl-2-pentanone	0.55 U	0.6 U	0.77 U	0.55 U	0.59 U	0.57 U	0.61 U	0.51 U
Acetone	2.8 U	3 U	3.9 U	2.7 U	3 U	2.9 U	3.1 U	2.5 U
Benzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Carbon disulfide								
Carbon tetrachloride	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Chlorobenzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Chloroform	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Chloromethane	0.28 U	0.3 U	0.39 U	0.27 U	0.3 U	0.29 U	0.28 J	0.25 U
Ethyl benzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Formaldehyde								
Isopropylbenzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Methylene chloride	0.14 U	0.3 U	0.39 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Naphthalene	1.4 U	1.5 U	1.9 U	1.4 U	1.5 U	1.4 U	1.5 U	1.3 U
Propylbenzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
sec-Butylbenzene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Styrene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Tetrachloroethene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Tetrahydrofuran								
Toluene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Trichloroethene	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Trichlorofluoromethane	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Xylene, o	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Xylenes (m&p)	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Xylenes, Total	0.14 U	0.15 U	0.19 U	0.14 U	0.15 U	0.14 U	0.15 U	0.13 U
Semivolatile Organics (mg/Kg)								
1,2,4-Trichlorobenzene	0.37 U	0.41 U	5.3 UC	0.4 U	0.42 U	0.42 U	0.36 U	0.34 U
1,2-Dichlorobenzene	0.37 U	0.41 U	5.3 UC	0.4 U	0.42 U	0.42 U	0.36 U	0.34 U
1,4-Dichlorobenzene	0.37 U	0.41 U	5.3 UC	0.4 U	0.42 U	0.42 U	0.36 U	0.34 U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-BD-C3 BD-C3 10/10/2000 1.2-3.2 ft		1120-BD-C30 BD-C30 10/27/2000 6.4-6.4 ft		1120-BD-C35 BD-C35 10/27/2000 1.9-1.9 ft		1120-BD-C5 BD-C5 10/10/2000 6.9-6.9 ft		1120-BD-C6 BD-C6 10/10/2000 1.4-3.4 ft		1120-BD-C9 BD-C9 10/11/2000 8.1-8.1 ft		1120-DA-C25 DA-C25 9/29/2000 5.8-5.8 ft		1120-DA-C26 DA-C26 9/29/2000 0.5-3.5 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.37	U	0.41	U	5.3	UC	1.8		0.42	U	0.42	U	0.36	U	0.34	U
2-Methylnaphthalene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
3 & 4 Methylphenol	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
4-Chlorophenyl phenyl ether	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Acenaphthene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Acenaphthylene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Acetophenone																
Aniline	1.9	U	2	U	27	UC	2	U	2.1	U	2.1	U	1.8	U	1.7	U
Anthracene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Benzaldehyde																
Benzo(a)anthracene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Benzo(a)pyrene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Benzo(b)fluoranthene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Benzo(ghi)perylene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Benzo(k)fluoranthene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Benzoic Acid	1.9	U	2	U	27	UC	2	U	2.1	U	2.1	U	1.8	U	1.7	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate	1.1		2.9		32	C	2.2		0.42	U	0.74		2.4		1.6	
Butylbenzylphthalate	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Carbazole																
Chrysene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Dibenz(a,h)anthracene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Dibenzofuran	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Diethylphthalate	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Di-n-butylphthalate	0.37	U	0.41	U	3.2	JC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Di-n-octylphthalate	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Fluorene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Indeno(1,2,3-cd)pyrene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Naphthalene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
N-Nitrosodiphenylamine	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	2.4		0.34	U
Phenanthrene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Phenol	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Pyrene	0.37	U	0.41	U	5.3	UC	0.4	U	0.42	U	0.42	U	0.36	U	0.34	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.011	U	0.012	U	0.016	U	0.012	U	0.012	U	0.012	U	0.011	U	0.01	U
Aldrin	0.011	U	0.012	U	0.016	U	0.012	U	0.012	U	0.012	U	0.011	U	0.01	U
Alpha-BHC	0.011	U	0.012	U	0.016	U	0.012	U	0.012	U	0.012	U	0.011	U	0.01	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-BD-C3 BD-C3 10/10/2000 1.2-3.2 ft		1120-BD-C30 BD-C30 10/27/2000 6.4-6.4 ft		1120-BD-C35 BD-C35 10/27/2000 1.9-1.9 ft		1120-BD-C5 BD-C5 10/10/2000 6.9-6.9 ft		1120-BD-C6 BD-C6 10/10/2000 1.4-3.4 ft		1120-BD-C9 BD-C9 10/11/2000 8.1-8.1 ft		1120-DA-C25 DA-C25 9/29/2000 5.8-5.8 ft		1120-DA-C26 DA-C26 9/29/2000 0.5-3.5 ft	
Alpha-Chlordane																
Beta-BHC	0.011	U	0.012	U	0.016	U	0.012	U	0.012	U	0.012	U	0.011	U	0.01	U
Chlordane (technical)																
Endosulfan sulfate	0.011	U	0.012	U	0.016	U	0.012	U	0.012	U	0.012	U	0.011	U	0.01	U
Endrin	0.011	U	0.012	U	0.016	U	0.012	U	0.012	U	0.012	U	0.011	U	0.01	U
Gamma-BHC/Lindane	0.011	U	0.012	U	0.016	U	0.012	U	0.012	U	0.012	U	0.011	U	0.01	U
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	4900		4200		12000		2900		1300		3400					
Antimony																
Arsenic	2	U	1	U	**7.1**		2	U	1	U	1	U				
Barium																
Beryllium																
Cadmium	0.3	U	0.3	U	0.4		0.4	U	0.3	U	0.3	U	0.3	U	0.3	U
Calcium																
Chromium	7		5.1		43		4.5		1	U	6.7		14		14	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron	3300		2100		12000		1900		160		2800					
Lead	1.8		2.1		50		2.1		1	U	2.2		4		3.9	
Magnesium																
Manganese																
Mercury	0.05	U	0.06	U	0.17		0.05	U	0.06	U	0.06	U				
Nickel																
Potassium																
Selenium	2	U	1	U	2	U	2	U	1	U	1	U				
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-BD-C3 BD-C3 10/10/2000 1.2-3.2 ft	1120-BD-C30 BD-C30 10/27/2000 6.4-6.4 ft	1120-BD-C35 BD-C35 10/27/2000 1.9-1.9 ft	1120-BD-C5 BD-C5 10/10/2000 6.9-6.9 ft	1120-BD-C6 BD-C6 10/10/2000 1.4-3.4 ft	1120-BD-C9 BD-C9 10/11/2000 8.1-8.1 ft	1120-DA-C25 DA-C25 9/29/2000 5.8-5.8 ft	1120-DA-C26 DA-C26 9/29/2000 0.5-3.5 ft
pH **(pH units)**							6.44	6.31
Sulfate								
Sulfate **(mg/L)**								
Total Organic Carbon								
Urea								
TCLP Metals (mg/L)								
Chromium								
VPH (mg/Kg)								
Ethyl benzene								
Toluene								
Xylenes, Total								
C5-C8 Aliphatics								
C5-C8 Aliphatics (unadj.)								
C9-C10 Aromatics								
C9-C12 Aliphatics								
C9-C12 Aliphatics (unadj.)								
Volatile Petroleum Hydrocarbons, Total								
EPH (mg/Kg)								
Acenaphthene								
Acenaphthylene								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(ghi)perylene								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
C9-C18 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								
Specialty Compounds (mg/Kg)								
Hydrazine								
Acetaldehyde								
Formaldehyde								
Phthalic Acid/Phthalic anhydride								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C33 DA-C33 9/29/2000 5.4-5.4 ft		1120-DA-C34 DA-C34 9/29/2000 2.3-5.3 ft		1160-LAKEPOLY101 LAKEPOLY1-01 5/8/2001 4.5-4.5 ft		1160-LAKEPOLY102 LAKEPOLY1-02 5/8/2001 4.5-4.5 ft		1160-LPB 29-S3 LPB29 7/12/2001 8-10.5 ft		1160-LPB 30-S3 LPB30 7/12/2001 9-11 ft		1160-LPB 31-S1 LPB31 7/12/2001 0-6 ft		1160-LPB 31-S2 LPB31 7/12/2001 6-8 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.16	U	0.13	U	0.14	U	1	U								
1,2,4-Trichlorobenzene	0.16	U	0.13	U	0.14	U	1	U								
1,2,4-Trimethylbenzene	0.16	U	0.13	U	0.14	U	0.68	J								
1,2-Dichlorobenzene	0.16	U	0.13	U	0.14	U	1	U								
1,2-Dichloroethane	0.16	U	0.13	U	0.14	U	1	U								
1,3,5-Trimethylbenzene	0.16	U	0.13	U	0.14	U	1	U								
1,4-Dichlorobenzene	0.16	U	0.13	U	0.14	U	1	U								
2,4,4-Trimethyl-1-pentene	2.3		0.13	U	0.92		**97**									
2,4,4-Trimethyl-2-pentene	0.16	U	0.13	U	1.4		**45**									
2-Butanone	3.2	U	2.6	U	2.8	U	21	U								
2-Hexanone	0.63	U	0.52	U	0.56	U	4.1	U								
4-iso-Propyltoluene	0.16	U	0.13	U	0.14	U	4.4									
4-Methyl-2-pentanone	0.63	U	0.52	U	0.56	U	4.1	U								
Acetone	3.2	U	2.6	U	2.8	U	21	U								
Benzene	0.16	U	0.13	U	0.14	U	1	U								
Carbon disulfide																
Carbon tetrachloride	0.16	U	0.13	U	0.14	U	1	U								
Chlorobenzene	0.16	U	0.13	U	0.14	U	1	U								
Chloroform	0.16	U	0.13	U	0.14	U	1	U								
Chloromethane	0.32	U	0.26	U	0.28	U	2.1	U								
Ethyl benzene	0.16	U	0.13	U	0.14	U	1	U								
Formaldehyde																
Isopropylbenzene	0.16	U	0.13	U	0.14	U	1	U								
Methylene chloride	0.16	U	0.13	U	0.28	U	2.1	U								
Naphthalene	1.6	U	1.3	U	1.4	U	10	U								
Propylbenzene	0.16	U	0.13	U	0.14	U	1	U								
sec-Butylbenzene	0.16	U	0.13	U	0.14	U	1	U								
Styrene	0.16	U	0.13	U	0.14	U	1	U								
Tetrachloroethene	0.16	U	0.13	U	0.14	U	1	U								
Tetrahydrofuran																
Toluene	0.16	U	0.13	U	0.14	U	1	U								
Trichloroethene	0.16	U	0.13	U	0.14	U	1	U								
Trichlorofluoromethane	0.16	U	0.13	U	0.14	U	1	U								
Xylene, o	0.16	U	0.13	U	0.14	U	1	U								
Xylenes (m&p)	0.16	U	0.13	U	0.14	U	1	U								
Xylenes, Total	0.16	U	0.13	U	0.14	U	1	U								
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.43	U	0.36	U	0.42	U	670	U								
1,2-Dichlorobenzene	0.43	U	0.36	U	0.42	U	670	U								
1,4-Dichlorobenzene	0.43	U	0.36	U	0.42	U	670	U								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C33 DA-C33 9/29/2000 5.4-5.4 ft		1120-DA-C34 DA-C34 9/29/2000 2.3-5.3 ft		1160-LAKEPOLY101 LAKEPOLY1-01 5/8/2001 4.5-4.5 ft		1160-LAKEPOLY102 LAKEPOLY1-02 5/8/2001 4.5-4.5 ft		1160-LPB 29-S3 LPB29 7/12/2001 8-10.5 ft		1160-LPB 30-S3 LPB30 7/12/2001 9-11 ft		1160-LPB 31-S1 LPB31 7/12/2001 0-6 ft		1160-LPB 31-S2 LPB31 7/12/2001 6-8 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.43	U	0.36	U	0.42	U	670	U								
2-Methylnaphthalene	0.43	U	0.36	U	0.42	U	670	U								
3 & 4 Methylphenol	0.43	U	0.36	U												
4-Chlorophenyl phenyl ether	0.43	U	0.36	U	0.42	U	670	U								
Acenaphthene	0.43	U	0.36	U	0.42	U	670	U								
Acenaphthylene	0.43	U	0.36	U	0.42	U	670	U								
Acetophenone																
Aniline	2.1	U	1.8	U												
Anthracene	0.43	U	0.36	U	0.42	U	670	U								
Benzaldehyde																
Benzo(a)anthracene	0.43	U	0.36	U	0.42	U	670	U								
Benzo(a)pyrene	0.43	U	0.36	U	0.42	U	670	U								
Benzo(b)fluoranthene	0.43	U	0.36	U	0.42	U	670	U								
Benzo(ghi)perylene	0.43	U	0.36	U	0.42	U	670	U								
Benzo(k)fluoranthene	0.43	U	0.36	U	0.42	U	670	U								
Benzoic Acid	2.1	U	1.8	U												
Biphenyl																
Bis(2-Ethylhexyl)phthalate	0.43	U	0.45		0.42	UJ	**600**	J								
Butylbenzylphthalate	0.43	U	0.36	U	0.42	U	670	U								
Carbazole					0.42	U	670	U								
Chrysene	0.43	U	0.36	U	0.42	U	670	U								
Dibenz(a,h)anthracene	0.43	U	0.36	U	0.42	U	670	U								
Dibenzofuran	0.43	U	0.36	U	0.42	U	670	U								
Diethylphthalate	0.43	U	0.36	U	0.42	U	670	U								
Di-n-butylphthalate	0.43	U	0.36	U	0.42	U	670	U								
Di-n-octylphthalate	0.43	U	0.36	U	0.42	U	670	U								
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.43	U	0.36	U	0.42	U	670	U								
Fluorene	0.43	U	0.36	U	0.42	U	670	U								
Indeno(1,2,3-cd)pyrene	0.43	U	0.36	U	0.42	U	670	U								
Naphthalene	0.43	U	0.36	U	0.42	U	670	U								
N-Nitrosodiphenylamine	0.43	U	0.27	J	0.42	U	**2800**									
Phenanthrene	0.43	U	0.36	U	0.42	U	670	U								
Phenol	0.43	U	0.36	U	0.42	U	670	U								
Pyrene	0.43	U	0.36	U	0.42	U	670	U								
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.012	U	0.01	U												
Aldrin	0.012	U	0.01	U												
Alpha-BHC	0.012	U	0.01	U												

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C33 DA-C33 9/29/2000 5.4-5.4 ft		1120-DA-C34 DA-C34 9/29/2000 2.3-5.3 ft		1160-LAKEPOLY101 LAKEPOLY1-01 5/8/2001 4.5-4.5 ft		1160-LAKEPOLY102 LAKEPOLY1-02 5/8/2001 4.5-4.5 ft		1160-LPB 29-S3 LPB29 7/12/2001 8-10.5 ft		1160-LPB 30-S3 LPB30 7/12/2001 9-11 ft		1160-LPB 31-S1 LPB31 7/12/2001 0-6 ft		1160-LPB 31-S2 LPB31 7/12/2001 6-8 ft	
Alpha-Chlordane																
Beta-BHC	0.012	U	0.01	U												
Chlordane (technical)																
Endosulfan sulfate	0.012	U	0.01	U												
Endrin	0.012	U	0.01	U												
Gamma-BHC/Lindane	0.012	U	0.01	U												
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium	0.3	U	0.3	U	0.63	U	1	U								
Calcium																
Chromium	4.3		4.8		11		1500		2700		740		16		1800	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead	1.7		1.7		4		21									
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia					61		2775									
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C33 DA-C33 9/29/2000 5.4-5.4 ft	1120-DA-C34 DA-C34 9/29/2000 2.3-5.3 ft	1160-LAKEPOLY101 LAKEPOLY1-01 5/8/2001 4.5-4.5 ft	1160-LAKEPOLY102 LAKEPOLY1-02 5/8/2001 4.5-4.5 ft	1160-LPB 29-S3 LPB29 7/12/2001 8-10.5 ft	1160-LPB 30-S3 LPB30 7/12/2001 9-11 ft	1160-LPB 31-S1 LPB31 7/12/2001 0-6 ft	1160-LPB 31-S2 LPB31 7/12/2001 6-8 ft
pH **(pH units)**	4.94	4.7						
Sulfate								
Sulfate **(mg/L)**								
Total Organic Carbon								
Urea								
TCLP Metals (mg/L)								
Chromium								
VPH (mg/Kg)								
Ethyl benzene								
Toluene								
Xylenes, Total								
C5-C8 Aliphatics								
C5-C8 Aliphatics (unadj.)								
C9-C10 Aromatics								
C9-C12 Aliphatics								
C9-C12 Aliphatics (unadj.)								
Volatile Petroleum Hydrocarbons, Total								
EPH (mg/Kg)								
Acenaphthene								
Acenaphthylene								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(ghi)perylene								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
C9-C18 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								
Specialty Compounds (mg/Kg)								
Hydrazine								
Acetaldehyde								
Formaldehyde								
Phthalic Acid/Phthalic anhydride								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB 32-S2 LPB32 7/12/2001 2-8 ft		1160-LPB 33-S1 LPB33 7/12/2001 0-6 ft		1160-LPB 33-S2 LPB33 7/12/2001 6-7 ft		1160-LPB 33-S3 LPB33 7/12/2001 7-8 ft		1160-LPB 34-S1 LPB34 7/12/2001 0-6 ft		1160-LPB 34-S2 LPB34 7/12/2001 6-8 ft		1160-LPB10-S1 LPB10 7/10/2001 0-5.5 ft		1160-LPB10-S2 LPB10 7/10/2001 5.5-7.5 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene													0.12	U	0.44	
1,2,4-Trichlorobenzene													0.12	U	0.11	U
1,2,4-Trimethylbenzene													0.12	U	0.39	
1,2-Dichlorobenzene													0.12	U	0.11	U
1,2-Dichloroethane													0.12	U	0.11	U
1,3,5-Trimethylbenzene													0.12	U	0.11	J
1,4-Dichlorobenzene													0.12	U	0.11	U
2,4,4-Trimethyl-1-pentene													12		**103**	
2,4,4-Trimethyl-2-pentene													3.4		**43**	
2-Butanone													2.4	U	2.3	U
2-Hexanone													0.49	U	0.46	U
4-iso-Propyltoluene													0.12	U	5.2	
4-Methyl-2-pentanone													0.49	U	0.46	U
Acetone													2.4	U	2.3	U
Benzene													0.12	U	0.11	U
Carbon disulfide																
Carbon tetrachloride													0.12	U	0.11	U
Chlorobenzene													0.12	U	0.11	U
Chloroform													0.12	U	0.11	U
Chloromethane													0.24	U	0.23	U
Ethyl benzene													0.12	U	0.72	
Formaldehyde																
Isopropylbenzene													0.12	U	0.11	U
Methylene chloride													0.24	U	0.23	U
Naphthalene													1.2	U	1.1	U
Propylbenzene													0.12	U	0.11	U
sec-Butylbenzene													0.12	U	0.11	U
Styrene													0.12	U	0.11	U
Tetrachloroethene													0.12	U	0.11	U
Tetrahydrofuran																
Toluene													0.12	U	0.11	U
Trichloroethene													0.12	U	0.11	U
Trichlorofluoromethane													0.12	U	0.11	U
Xylene, o													0.12	U	0.11	U
Xylenes (m&p)													0.12	U	0.2	
Xylenes, Total													0.12	U	0.2	
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene													3.7	U	79	U
1,2-Dichlorobenzene													3.7	U	79	U
1,4-Dichlorobenzene													3.7	U	79	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB 32-S2 LPB32 7/12/2001 2-8 ft		1160-LPB 33-S1 LPB33 7/12/2001 0-6 ft		1160-LPB 33-S2 LPB33 7/12/2001 6-7 ft		1160-LPB 33-S3 LPB33 7/12/2001 7-8 ft		1160-LPB 34-S1 LPB34 7/12/2001 0-6 ft		1160-LPB 34-S2 LPB34 7/12/2001 6-8 ft		1160-LPB10-S1 LPB10 7/10/2001 0-5.5 ft		1160-LPB10-S2 LPB10 7/10/2001 5.5-7.5 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol													3.7	U	79	U
2-Methylnaphthalene													3.7	U	79	U
3 & 4 Methylphenol													3.7	U	79	U
4-Chlorophenyl phenyl ether													3.7	U	79	U
Acenaphthene													3.7	U	79	U
Acenaphthylene													3.7	U	79	U
Acetophenone																
Aniline													18	U	400	U
Anthracene													3.7	U	79	U
Benzaldehyde																
Benzo(a)anthracene													3.7	U	79	U
Benzo(a)pyrene													3.7	U	79	U
Benzo(b)fluoranthene													3.7	U	79	U
Benzo(ghi)perylene													3.7	U	79	U
Benzo(k)fluoranthene													3.7	U	79	U
Benzoic Acid													18	U	400	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate													54	C	**1218**	C
Butylbenzylphthalate													3.7	U	79	U
Carbazole																
Chrysene													3.7	U	79	U
Dibenz(a,h)anthracene													3.7	U	79	U
Dibenzofuran													3.7	U	79	U
Diethylphthalate													3.7	U	79	U
Di-n-butylphthalate													3.7	U	79	U
Di-n-octylphthalate													3.7	U	79	U
Diphenyl ether																
Diphenylamine																
Fluoranthene													3.7	U	79	U
Fluorene													3.7	U	79	U
Indeno(1,2,3-cd)pyrene													3.7	U	79	U
Naphthalene													3.7	U	79	U
N-Nitrosodiphenylamine													4.9	C	**682**	C
Phenanthrene													3.7	U	79	U
Phenol													3.7	U	79	U
Pyrene													3.7	U	79	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD													0.054	U	0.059	U
Aldrin													0.054	U	0.059	U
Alpha-BHC													0.054	U	0.059	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB 32-S2 LPB32 7/12/2001 2-8 ft		1160-LPB 33-S1 LPB33 7/12/2001 0-6 ft		1160-LPB 33-S2 LPB33 7/12/2001 6-7 ft		1160-LPB 33-S3 LPB33 7/12/2001 7-8 ft		1160-LPB 34-S1 LPB34 7/12/2001 0-6 ft		1160-LPB 34-S2 LPB34 7/12/2001 6-8 ft		1160-LPB10-S1 LPB10 7/10/2001 0-5.5 ft		1160-LPB10-S2 LPB10 7/10/2001 5.5-7.5 ft	
Alpha-Chlordane																
Beta-BHC													0.054	U	0.059	U
Chlordane (technical)																
Endosulfan sulfate													0.054	U	0.059	U
Endrin													0.054	U	0.059	U
Gamma-BHC/Lindane													0.054	U	0.059	U
Aroclor-1260															0.59	U
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic													12	U	13	U
Barium															52	
Beryllium																
Cadmium													2	U	3	U
Calcium																
Chromium	450		18		2100		76		39		4000		1300		2700	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead													12	U	13	U
Magnesium																
Manganese																
Mercury															7	
Nickel																
Potassium																
Selenium															13	U
Silver															13	U
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**															200	>
Lab Specific Conductance **(mS/cm)**															0.033	
Nitrate as N																
Nitrogen, as Ammonia													610		660	F
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB 32-S2 LPB32 7/12/2001 2-8 ft		1160-LPB 33-S1 LPB33 7/12/2001 0-6 ft		1160-LPB 33-S2 LPB33 7/12/2001 6-7 ft		1160-LPB 33-S3 LPB33 7/12/2001 7-8 ft		1160-LPB 34-S1 LPB34 7/12/2001 0-6 ft		1160-LPB 34-S2 LPB34 7/12/2001 6-8 ft		1160-LPB10-S1 LPB10 7/10/2001 0-5.5 ft		1160-LPB10-S2 LPB10 7/10/2001 5.5-7.5 ft	
pH **(pH units)**															6.53	
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium													0.08		0.19	
VPH (mg/Kg)																
Ethyl benzene													0.2	U	0.65	
Toluene													0.2	U	0.2	U
Xylenes, Total													0.2	U	0.24	
C5-C8 Aliphatics													9.8		88	
C5-C8 Aliphatics (unadj.)													9.8		88	
C9-C10 Aromatics													15		12	
C9-C12 Aliphatics													13		8.9	
C9-C12 Aliphatics (unadj.)													28		22	
Volatile Petroleum Hydrocarbons, Total													38		110	
EPH (mg/Kg)																
Acenaphthene													0.4	U	0.8	U
Acenaphthylene													0.4	U	0.8	U
Benzo(a)anthracene													0.4	U	0.8	U
Benzo(a)pyrene													0.4	U	0.8	U
Benzo(ghi)perylene													0.4	U	0.8	U
Fluoranthene													0.4	U	0.8	U
Fluorene													0.4	U	0.8	U
Indeno(1,2,3-cd)pyrene													0.4	U	0.8	U
Naphthalene													0.4	U	0.8	U
C11-C22 Aromatics													620		2100	
C11-C22 Aromatics (unadj.)													620		2100	
C19-C36 Aliphatics													570		1300	
C9-C18 Aliphatics													160	FK	380	K
Extractable Petroleum Hydrocarbons, Total													1300		3800	
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB10-S3 LPB10 7/10/2001 7.5-8.5 ft		1160-LPB11-S3 LPB11 7/9/2001 6-9 ft		1160-LPB12-S3 LPB12 7/10/2001 6.5-10 ft		1160-LPB13-S2 LPB13 7/9/2001 4.5-6 ft		1160-LPB13-S3 LPB13 7/9/2001 6-7 ft		1160-LPB14-S2 LPB14 7/11/2001 2.5-4.5 ft		1160-LPB15-S2 LPB15 7/10/2001 6.5-8.5 ft		1160-LPB15-S3 LPB15 7/10/2001 8.5-11 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene					0.11	U					0.13	U			0.11	U
1,2,4-Trichlorobenzene					0.11	U					0.13	U			0.11	U
1,2,4-Trimethylbenzene					0.11	U					0.13	U			0.11	U
1,2-Dichlorobenzene					0.16						0.13	U			0.11	U
1,2-Dichloroethane					0.11	U					0.13	U			0.11	U
1,3,5-Trimethylbenzene					0.11	U					0.13	U			0.11	U
1,4-Dichlorobenzene					0.27						0.13	U			0.11	U
2,4,4-Trimethyl-1-pentene					3.4						0.13	U			0.11	U
2,4,4-Trimethyl-2-pentene					2.8						0.13	U			0.11	U
2-Butanone					2.1	U					2.7	U			2.2	U
2-Hexanone					0.43	U					0.53	U			0.44	U
4-iso-Propyltoluene					0.11	U					0.13	U			0.11	U
4-Methyl-2-pentanone					0.43	U					0.53	U			0.44	U
Acetone					2.1	U					2.7	U			2.2	U
Benzene					0.11	U					0.13	U			0.11	U
Carbon disulfide																
Carbon tetrachloride					0.11	U					0.13	U			0.11	U
Chlorobenzene					0.11	U					0.13	U			0.11	U
Chloroform					0.11	U					0.13	U			0.11	U
Chloromethane					0.21	U					0.27	U			0.22	U
Ethyl benzene					0.11	U					0.13	U			0.11	U
Formaldehyde																
Isopropylbenzene					0.11	U					0.13	U			0.11	U
Methylene chloride					0.21	U					0.27	U			0.22	U
Naphthalene					1.1	U					1.3	U			1.1	U
Propylbenzene					0.11	U					0.13	U			0.11	U
sec-Butylbenzene					0.11	U					0.13	U			0.11	U
Styrene					0.11	U					0.13	U			0.11	U
Tetrachloroethene					0.11	U					0.13	U			0.11	U
Tetrahydrofuran																
Toluene					0.11	U					0.13	U			0.11	U
Trichloroethene					0.11	U					0.13	U			0.11	U
Trichlorofluoromethane					0.11	U					0.13	U			0.11	U
Xylene, o					0.11	U					0.13	U			0.11	U
Xylenes (m&p)					0.11	U					0.13	U			0.11	U
Xylenes, Total					0.11	U					0.13	U			0.11	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene					0.36	UA					0.43	U			0.37	U
1,2-Dichlorobenzene					0.36	UA					0.43	U			0.37	U
1,4-Dichlorobenzene					0.36	UA					0.43	U			0.37	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB10-S3 LPB10 7/10/2001 7.5-8.5 ft		1160-LPB11-S3 LPB11 7/9/2001 6-9 ft		1160-LPB12-S3 LPB12 7/10/2001 6.5-10 ft		1160-LPB13-S2 LPB13 7/9/2001 4.5-6 ft		1160-LPB13-S3 LPB13 7/9/2001 6-7 ft		1160-LPB14-S2 LPB14 7/11/2001 2.5-4.5 ft		1160-LPB15-S2 LPB15 7/10/2001 6.5-8.5 ft		1160-LPB15-S3 LPB15 7/10/2001 8.5-11 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol					0.36	UA					0.43	U			0.37	U
2-Methylnaphthalene					0.36	UA					0.43	U			0.37	U
3 & 4 Methylphenol					0.36	UA					0.43	U			0.37	U
4-Chlorophenyl phenyl ether					0.36	UA					0.43	U			0.37	U
Acenaphthene					0.36	UA					0.43	U			0.37	U
Acenaphthylene					0.36	UA					0.43	U			0.37	U
Acetophenone																
Aniline					1.8	UA					2.1	U			1.8	U
Anthracene					0.36	UA					0.43	U			0.37	U
Benzaldehyde																
Benzo(a)anthracene					0.36	UA					0.43	U			0.37	U
Benzo(a)pyrene					0.36	UA					0.43	U			0.37	U
Benzo(b)fluoranthene					0.36	UA					0.43	U			0.37	U
Benzo(ghi)perylene					0.36	UA					0.43	U			0.37	U
Benzo(k)fluoranthene					0.36	UA					0.43	U			0.37	U
Benzoic Acid					1.8	UA					2.1	U			1.8	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate					6.4	A					0.35	BJ			1.3	
Butylbenzylphthalate					0.36	UA					0.43	U			0.37	U
Carbazole																
Chrysene					0.36	UA					0.43	U			0.37	U
Dibenz(a,h)anthracene					0.36	UA					0.43	U			0.37	U
Dibenzofuran					0.36	UA					0.43	U			0.37	U
Diethylphthalate					0.36	UA					0.43	U			0.37	U
Di-n-butylphthalate					0.36	UA					0.43	U			0.37	U
Di-n-octylphthalate					0.36	UA					0.43	U			0.37	U
Diphenyl ether																
Diphenylamine																
Fluoranthene					0.36	UA					0.43	U			0.37	U
Fluorene					0.36	UA					0.43	U			0.37	U
Indeno(1,2,3-cd)pyrene					0.36	UA					0.43	U			0.37	U
Naphthalene					0.36	UA					0.43	U			0.37	U
N-Nitrosodiphenylamine					0.27	JA					0.43	U			0.37	U
Phenanthrene					0.36	UA					0.43	U			0.37	U
Phenol					0.36	UA					0.43	U			0.37	U
Pyrene					0.36	UA					0.43	U			0.37	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD					0.011	U					0.013	U			0.01	U
Aldrin					0.011	U					0.013	U			0.01	U
Alpha-BHC					0.011	U					0.013	U			0.01	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB10-S3 LPB10 7/10/2001 7.5-8.5 ft		1160-LPB11-S3 LPB11 7/9/2001 6-9 ft		1160-LPB12-S3 LPB12 7/10/2001 6.5-10 ft		1160-LPB13-S2 LPB13 7/9/2001 4.5-6 ft		1160-LPB13-S3 LPB13 7/9/2001 6-7 ft		1160-LPB14-S2 LPB14 7/11/2001 2.5-4.5 ft		1160-LPB15-S2 LPB15 7/10/2001 6.5-8.5 ft		1160-LPB15-S3 LPB15 7/10/2001 8.5-11 ft	
Alpha-Chlordane																
Beta-BHC					0.011	U					0.013	U			0.01	U
Chlordane (technical)																
Endosulfan sulfate					0.011	U					0.013	U			0.01	U
Endrin					0.011	U					0.013	U			0.01	U
Gamma-BHC/Lindane					0.011	U					0.013	U			0.01	U
Aroclor-1260					0.11	U									0.1	U
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic					6	U					7	U			12	U
Barium					50										43	
Beryllium																
Cadmium					1	U					1	U			2	U
Calcium																
Chromium	920		1100		1300	J	700		920		530		460		2700	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead					7						21				12	U
Magnesium																
Manganese																
Mercury					0.05	U									0.06	
Nickel																
Potassium																
Selenium					6	U									12	U
Silver					6	U									12	U
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**					200	>									200	>
Lab Specific Conductance **(mS/cm)**					0.029										0.016	
Nitrate as N																
Nitrogen, as Ammonia					80						62				12	
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB10-S3 LPB10 7/10/2001 7.5-8.5 ft		1160-LPB11-S3 LPB11 7/9/2001 6-9 ft		1160-LPB12-S3 LPB12 7/10/2001 6.5-10 ft		1160-LPB13-S2 LPB13 7/9/2001 4.5-6 ft		1160-LPB13-S3 LPB13 7/9/2001 6-7 ft		1160-LPB14-S2 LPB14 7/11/2001 2.5-4.5 ft		1160-LPB15-S2 LPB15 7/10/2001 6.5-8.5 ft		1160-LPB15-S3 LPB15 7/10/2001 8.5-11 ft	
pH **(pH units)**					6.65										6.51	
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium					0.5										0.72	
VPH (mg/Kg)																
Ethyl benzene					0.2	U					0.3	U			0.2	U
Toluene					0.2	U					0.3	U			0.2	U
Xylenes, Total					0.2	U					0.3	U			0.2	U
C5-C8 Aliphatics					4.9						2.7	U			2.2	U
C5-C8 Aliphatics (unadj.)					4.9						2.7	U			2.2	U
C9-C10 Aromatics					2.1	U					2.7	U			2.2	U
C9-C12 Aliphatics					2.7						2.7	U			2.2	U
C9-C12 Aliphatics (unadj.)					2.7						2.7	U			2.2	U
Volatile Petroleum Hydrocarbons, Total					7.6						2.7	U			2.2	U
EPH (mg/Kg)																
Acenaphthene					0.4	U					0.4	U			0.4	U
Acenaphthylene					0.4	U					0.4	U			0.4	U
Benzo(a)anthracene					0.4	U					0.4	U			0.4	U
Benzo(a)pyrene					0.4	U					0.4	U			0.4	U
Benzo(ghi)perylene					0.4	U					0.4	U			0.4	U
Fluoranthene					0.4	U					0.4	U			0.4	U
Fluorene					0.4	U					0.4	U			0.4	U
Indeno(1,2,3-cd)pyrene					0.4	U					0.4	U			0.4	U
Naphthalene					0.4	U					0.4	U			0.4	U
C11-C22 Aromatics					19						5.2				6.1	
C11-C22 Aromatics (unadj.)					19						5.2				6.1	
C19-C36 Aliphatics					20						4.2	U			3.6	U
C9-C18 Aliphatics					5.5	K					4.2	UK			3.6	UK
Extractable Petroleum Hydrocarbons, Total					45						5.2				6.1	
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB16-S2 LPB16 7/10/2001 7.5-8.5 ft		1160-LPB17-S1 LPB17 7/9/2001 0-5.5 ft		1160-LPB17-S2 LPB17 7/9/2001 5.5-8.5 ft		1160-LPB18-S1 LPB18 7/10/2001 0-8 ft		1160-LPB18-S2 LPB18 7/10/2001 8-10 ft		1160-LPB19-S1 LPB19 7/9/2001 0-3.5 ft		1160-LPB19-S2 LPB19 7/9/2001 3.5-4.5 ft		1160-LPB19-S3 LPB19 7/9/2001 6-12 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.12	U														
1,2,4-Trichlorobenzene	0.12	U														
1,2,4-Trimethylbenzene	0.12	U														
1,2-Dichlorobenzene	0.12	U														
1,2-Dichloroethane	0.12	U														
1,3,5-Trimethylbenzene	0.12	U														
1,4-Dichlorobenzene	0.12	U														
2,4,4-Trimethyl-1-pentene	0.12	U														
2,4,4-Trimethyl-2-pentene	0.12	U														
2-Butanone	2.4	U														
2-Hexanone	0.48	U														
4-iso-Propyltoluene	0.12	U														
4-Methyl-2-pentanone	0.48	U														
Acetone	2.4	U														
Benzene	0.12	U														
Carbon disulfide																
Carbon tetrachloride	0.12	U														
Chlorobenzene	0.12	U														
Chloroform	0.12	U														
Chloromethane	0.24	U														
Ethyl benzene	0.12	U														
Formaldehyde																
Isopropylbenzene	0.12	U														
Methylene chloride	0.24	U														
Naphthalene	1.2	U														
Propylbenzene	0.12	U														
sec-Butylbenzene	0.12	U														
Styrene	0.12	U														
Tetrachloroethene	0.12	U														
Tetrahydrofuran																
Toluene	0.12	U														
Trichloroethene	0.12	U														
Trichlorofluoromethane	0.12	U														
Xylene, o	0.12	U														
Xylenes (m&p)	0.12	U														
Xylenes, Total	0.12	U														
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	15	U														
1,2-Dichlorobenzene	15	U														
1,4-Dichlorobenzene	15	U														

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB16-S2 LPB16 7/10/2001 7.5-8.5 ft		1160-LPB17-S1 LPB17 7/9/2001 0-5.5 ft		1160-LPB17-S2 LPB17 7/9/2001 5.5-8.5 ft		1160-LPB18-S1 LPB18 7/10/2001 0-8 ft		1160-LPB18-S2 LPB18 7/10/2001 8-10 ft		1160-LPB19-S1 LPB19 7/9/2001 0-3.5 ft		1160-LPB19-S2 LPB19 7/9/2001 3.5-4.5 ft		1160-LPB19-S3 LPB19 7/9/2001 6-12 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	15	U														
2-Methylnaphthalene	15	U														
3 & 4 Methylphenol	15	U														
4-Chlorophenyl phenyl ether	15	U														
Acenaphthene	15	U														
Acenaphthylene	15	U														
Acetophenone																
Aniline	75	U														
Anthracene	15	U														
Benzaldehyde																
Benzo(a)anthracene	15	U														
Benzo(a)pyrene	15	U														
Benzo(b)fluoranthene	15	U														
Benzo(ghi)perylene	15	U														
Benzo(k)fluoranthene	15	U														
Benzoic Acid	75	U														
Biphenyl																
Bis(2-Ethylhexyl)phthalate	**157**	C														
Butylbenzylphthalate	15	U														
Carbazole																
Chrysene	15	U														
Dibenz(a,h)anthracene	15	U														
Dibenzofuran	15	U														
Diethylphthalate	15	U														
Di-n-butylphthalate	15	U														
Di-n-octylphthalate	15	U														
Diphenyl ether																
Diphenylamine																
Fluoranthene	15	U														
Fluorene	15	U														
Indeno(1,2,3-cd)pyrene	15	U														
Naphthalene	15	U														
N-Nitrosodiphenylamine	15	U														
Phenanthrene	15	U														
Phenol	15	U														
Pyrene	15	U														
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.011	U														
Aldrin	0.011	U														
Alpha-BHC	0.011	U														

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB16-S2 LPB16 7/10/2001 7.5-8.5 ft		1160-LPB17-S1 LPB17 7/9/2001 0-5.5 ft		1160-LPB17-S2 LPB17 7/9/2001 5.5-8.5 ft		1160-LPB18-S1 LPB18 7/10/2001 0-8 ft		1160-LPB18-S2 LPB18 7/10/2001 8-10 ft		1160-LPB19-S1 LPB19 7/9/2001 0-3.5 ft		1160-LPB19-S2 LPB19 7/9/2001 3.5-4.5 ft		1160-LPB19-S3 LPB19 7/9/2001 6-12 ft	
Alpha-Chlordane																
Beta-BHC	0.011	U														
Chlordane (technical)																
Endosulfan sulfate	0.011	U														
Endrin	0.011	U														
Gamma-BHC/Lindane	0.011	U														
Aroclor-1260	0.11	U														
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic	12	U														
Barium	28															
Beryllium																
Cadmium	2	U														
Calcium																
Chromium	2900		86		1000		33		7900		13		660		780	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead	12	U														
Magnesium																
Manganese																
Mercury	0.05	U														
Nickel																
Potassium																
Selenium	12	U														
Silver	12	U														
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**	200	>														
Lab Specific Conductance **(mS/cm)**	0.02															
Nitrate as N																
Nitrogen, as Ammonia	55															
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB16-S2 LPB16 7/10/2001 7.5-8.5 ft		1160-LPB17-S1 LPB17 7/9/2001 0-5.5 ft		1160-LPB17-S2 LPB17 7/9/2001 5.5-8.5 ft		1160-LPB18-S1 LPB18 7/10/2001 0-8 ft		1160-LPB18-S2 LPB18 7/10/2001 8-10 ft		1160-LPB19-S1 LPB19 7/9/2001 0-3.5 ft		1160-LPB19-S2 LPB19 7/9/2001 3.5-4.5 ft		1160-LPB19-S3 LPB19 7/9/2001 6-12 ft	
pH **(pH units)**	6.67															
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium	0.28								0.84							
VPH (mg/Kg)																
Ethyl benzene	0.2	U														
Toluene	0.2	U														
Xylenes, Total	0.2	U														
C5-C8 Aliphatics	2.4	U														
C5-C8 Aliphatics (unadj.)	2.4	U														
C9-C10 Aromatics	2.4	U														
C9-C12 Aliphatics	2.4	U														
C9-C12 Aliphatics (unadj.)	2.4	U														
Volatile Petroleum Hydrocarbons, Total	2.4	U														
EPH (mg/Kg)																
Acenaphthene	0.4	U														
Acenaphthylene	0.4	U														
Benzo(a)anthracene	0.4	U														
Benzo(a)pyrene	0.4	U														
Benzo(ghi)perylene	0.4	U														
Fluoranthene	0.4	U														
Fluorene	0.4	U														
Indeno(1,2,3-cd)pyrene	0.4	U														
Naphthalene	0.4	U														
C11-C22 Aromatics	330															
C11-C22 Aromatics (unadj.)	330															
C19-C36 Aliphatics	390															
C9-C18 Aliphatics	110	K														
Extractable Petroleum Hydrocarbons, Total	830															
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB1-S1 LPB1 7/11/2001 0-4 ft		1160-LPB1-S2 LPB1 7/11/2001 4-8 ft		1160-LPB22-S1 LPB22 7/11/2001 0-4.2 ft		1160-LPB22-S2 LPB22 7/11/2001 4.2-9 ft		1160-LPB23-S1 LPB23 7/11/2001 0-3 ft		1160-LPB23-S2 LPB23 7/11/2001 3-8 ft		1160-LPB24-S2 LPB24 7/11/2001 2-2.5 ft		1160-LPB24-S3 LPB24 7/11/2001 2.5-8 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane																
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene																
2,4,4-Trimethyl-2-pentene																
2-Butanone																
2-Hexanone																
4-iso-Propyltoluene																
4-Methyl-2-pentanone																
Acetone																
Benzene																
Carbon disulfide																
Carbon tetrachloride																
Chlorobenzene																
Chloroform																
Chloromethane																
Ethyl benzene																
Formaldehyde																
Isopropylbenzene																
Methylene chloride																
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene																
Tetrachloroethene																
Tetrahydrofuran																
Toluene																
Trichloroethene																
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene																
1,2-Dichlorobenzene																
1,4-Dichlorobenzene																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB1-S1 LPB1 7/11/2001 0-4 ft	1160-LPB1-S2 LPB1 7/11/2001 4-8 ft	1160-LPB22-S1 LPB22 7/11/2001 0-4.2 ft	1160-LPB22-S2 LPB22 7/11/2001 4.2-9 ft	1160-LPB23-S1 LPB23 7/11/2001 0-3 ft	1160-LPB23-S2 LPB23 7/11/2001 3-8 ft	1160-LPB24-S2 LPB24 7/11/2001 2-2.5 ft	1160-LPB24-S3 LPB24 7/11/2001 2.5-8 ft
1-Methylnaphthalene								
2,4-Dimethylphenol								
2-Methylnaphthalene								
3 & 4 Methylphenol								
4-Chlorophenyl phenyl ether								
Acenaphthene								
Acenaphthylene								
Acetophenone								
Aniline								
Anthracene								
Benzaldehyde								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(b)fluoranthene								
Benzo(ghi)perylene								
Benzo(k)fluoranthene								
Benzoic Acid								
Biphenyl								
Bis(2-Ethylhexyl)phthalate								
Butylbenzylphthalate								
Carbazole								
Chrysene								
Dibenz(a,h)anthracene								
Dibenzofuran								
Diethylphthalate								
Di-n-butylphthalate								
Di-n-octylphthalate								
Diphenyl ether								
Diphenylamine								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
N-Nitrosodiphenylamine								
Phenanthrene								
Phenol								
Pyrene								
Pesticides/PCBs (mg/Kg)								
4,4'-DDD								
Aldrin								
Alpha-BHC								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB1-S1 LPB1 7/11/2001 0-4 ft		1160-LPB1-S2 LPB1 7/11/2001 4-8 ft		1160-LPB22-S1 LPB22 7/11/2001 0-4.2 ft		1160-LPB22-S2 LPB22 7/11/2001 4.2-9 ft		1160-LPB23-S1 LPB23 7/11/2001 0-3 ft		1160-LPB23-S2 LPB23 7/11/2001 3-8 ft		1160-LPB24-S2 LPB24 7/11/2001 2-2.5 ft		1160-LPB24-S3 LPB24 7/11/2001 2.5-8 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium	32		21		6.5	J	8.4	J	12	J	16	J	7	J	17	J
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB1-S1 LPB1 7/11/2001 0-4 ft	1160-LPB1-S2 LPB1 7/11/2001 4-8 ft	1160-LPB22-S1 LPB22 7/11/2001 0-4.2 ft	1160-LPB22-S2 LPB22 7/11/2001 4.2-9 ft	1160-LPB23-S1 LPB23 7/11/2001 0-3 ft	1160-LPB23-S2 LPB23 7/11/2001 3-8 ft	1160-LPB24-S2 LPB24 7/11/2001 2-2.5 ft	1160-LPB24-S3 LPB24 7/11/2001 2.5-8 ft
pH **(pH units)**								
Sulfate								
Sulfate **(mg/L)**								
Total Organic Carbon								
Urea								
TCLP Metals (mg/L)								
Chromium								
VPH (mg/Kg)								
Ethyl benzene								
Toluene								
Xylenes, Total								
C5-C8 Aliphatics								
C5-C8 Aliphatics (unadj.)								
C9-C10 Aromatics								
C9-C12 Aliphatics								
C9-C12 Aliphatics (unadj.)								
Volatile Petroleum Hydrocarbons, Total								
EPH (mg/Kg)								
Acenaphthene								
Acenaphthylene								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(ghi)perylene								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
C9-C18 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								
Specialty Compounds (mg/Kg)								
Hydrazine								
Acetaldehyde								
Formaldehyde								
Phthalic Acid/Phthalic anhydride								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB25-S2 LPB25 7/11/2001 2.5-3 ft		1160-LPB25-S3 LPB25 7/11/2001 3-8 ft		1160-LPB26-S1 LPB26 7/11/2001 0-3.5 ft		1160-LPB26-S2 LPB26 7/11/2001 3.5-7 ft		1160-LPB26-S3 LPB26 7/11/2001 7-8 ft		1160-LPB27-S1 LPB27 7/11/2001 0-5 ft		1160-LPB27-S2 LPB27 7/11/2001 5-7.5 ft		1160-LPB27-S3 LPB27 7/11/2001 7.5-12 f	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane																
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene																
2,4,4-Trimethyl-2-pentene																
2-Butanone																
2-Hexanone																
4-iso-Propyltoluene																
4-Methyl-2-pentanone																
Acetone																
Benzene																
Carbon disulfide																
Carbon tetrachloride																
Chlorobenzene																
Chloroform																
Chloromethane																
Ethyl benzene																
Formaldehyde																
Isopropylbenzene																
Methylene chloride																
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene																
Tetrachloroethene																
Tetrahydrofuran																
Toluene																
Trichloroethene																
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene																
1,2-Dichlorobenzene																
1,4-Dichlorobenzene																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB25-S2 LPB25 7/11/2001 2.5-3 ft	1160-LPB25-S3 LPB25 7/11/2001 3-8 ft	1160-LPB26-S1 LPB26 7/11/2001 0-3.5 ft	1160-LPB26-S2 LPB26 7/11/2001 3.5-7 ft	1160-LPB26-S3 LPB26 7/11/2001 7-8 ft	1160-LPB27-S1 LPB27 7/11/2001 0-5 ft	1160-LPB27-S2 LPB27 7/11/2001 5-7.5 ft	1160-LPB27-S3 LPB27 7/11/2001 7.5-12 f
1-Methylnaphthalene								
2,4-Dimethylphenol								
2-Methylnaphthalene								
3 & 4 Methylphenol								
4-Chlorophenyl phenyl ether								
Acenaphthene								
Acenaphthylene								
Acetophenone								
Aniline								
Anthracene								
Benzaldehyde								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(b)fluoranthene								
Benzo(ghi)perylene								
Benzo(k)fluoranthene								
Benzoic Acid								
Biphenyl								
Bis(2-Ethylhexyl)phthalate								
Butylbenzylphthalate								
Carbazole								
Chrysene								
Dibenz(a,h)anthracene								
Dibenzofuran								
Diethylphthalate								
Di-n-butylphthalate								
Di-n-octylphthalate								
Diphenyl ether								
Diphenylamine								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
N-Nitrosodiphenylamine								
Phenanthrene								
Phenol								
Pyrene								
Pesticides/PCBs (mg/Kg)								
4,4'-DDD								
Aldrin								
Alpha-BHC								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB25-S2 LPB25 7/11/2001 2.5-3 ft		1160-LPB25-S3 LPB25 7/11/2001 3-8 ft		1160-LPB26-S1 LPB26 7/11/2001 0-3.5 ft		1160-LPB26-S2 LPB26 7/11/2001 3.5-7 ft		1160-LPB26-S3 LPB26 7/11/2001 7-8 ft		1160-LPB27-S1 LPB27 7/11/2001 0-5 ft		1160-LPB27-S2 LPB27 7/11/2001 5-7.5 ft		1160-LPB27-S3 LPB27 7/11/2001 7.5-12 f	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium	8	J	34	J	62		14	J	31	J	140		6		13	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	320															
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB25-S2 LPB25 7/11/2001 2.5-3 ft	1160-LPB25-S3 LPB25 7/11/2001 3-8 ft	1160-LPB26-S1 LPB26 7/11/2001 0-3.5 ft	1160-LPB26-S2 LPB26 7/11/2001 3.5-7 ft	1160-LPB26-S3 LPB26 7/11/2001 7-8 ft	1160-LPB27-S1 LPB27 7/11/2001 0-5 ft	1160-LPB27-S2 LPB27 7/11/2001 5-7.5 ft	1160-LPB27-S3 LPB27 7/11/2001 7.5-12 f
pH **(pH units)**								
Sulfate								
Sulfate **(mg/L)**								
Total Organic Carbon								
Urea								
TCLP Metals (mg/L)								
Chromium								
VPH (mg/Kg)								
Ethyl benzene								
Toluene								
Xylenes, Total								
C5-C8 Aliphatics								
C5-C8 Aliphatics (unadj.)								
C9-C10 Aromatics								
C9-C12 Aliphatics								
C9-C12 Aliphatics (unadj.)								
Volatile Petroleum Hydrocarbons, Total								
EPH (mg/Kg)								
Acenaphthene								
Acenaphthylene								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(ghi)perylene								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
C9-C18 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								
Specialty Compounds (mg/Kg)								
Hydrazine								
Acetaldehyde								
Formaldehyde								
Phthalic Acid/Phthalic anhydride								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB2-S1 LPB2 7/11/2001 0-6 ft		1160-LPB2-S2 LPB2 7/11/2001 6-8 ft		1160-LPB33-S2 LPB33 7/12/2001 6-7 ft		1160-LPB3-S2 LPB3 7/9/2001 2.5-6 ft		1160-LPB3-S3 LPB3 7/9/2001 6-6.5 ft		1160-LPB4-S2 LPB4 7/10/2001 1-4 ft		1160-LPB4-S3 LPB4 7/10/2001 4-6 ft		1160-LPB5-S2 LPB5 7/10/2001 2.5-8 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene															0.11	U
1,2,4-Trichlorobenzene															0.11	U
1,2,4-Trimethylbenzene															0.11	U
1,2-Dichlorobenzene															0.11	U
1,2-Dichloroethane															0.11	U
1,3,5-Trimethylbenzene															0.11	U
1,4-Dichlorobenzene															0.11	U
2,4,4-Trimethyl-1-pentene															0.11	U
2,4,4-Trimethyl-2-pentene															0.11	U
2-Butanone															2.3	U
2-Hexanone															0.46	U
4-iso-Propyltoluene															0.11	U
4-Methyl-2-pentanone															0.46	U
Acetone															2.3	U
Benzene															0.11	U
Carbon disulfide																
Carbon tetrachloride															0.11	U
Chlorobenzene															0.11	U
Chloroform															0.11	U
Chloromethane															0.23	U
Ethyl benzene															0.11	U
Formaldehyde																
Isopropylbenzene															0.11	U
Methylene chloride															0.23	U
Naphthalene															1.1	U
Propylbenzene															0.11	U
sec-Butylbenzene															0.11	U
Styrene															0.11	U
Tetrachloroethene															0.11	U
Tetrahydrofuran																
Toluene															0.11	U
Trichloroethene															0.11	U
Trichlorofluoromethane															0.11	U
Xylene, o															0.11	U
Xylenes (m&p)															0.11	U
Xylenes, Total															0.11	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene															0.36	U
1,2-Dichlorobenzene															0.36	U
1,4-Dichlorobenzene															0.36	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB2-S1 LPB2 7/11/2001 0-6 ft	1160-LPB2-S2 LPB2 7/11/2001 6-8 ft	1160-LPB33-S2 LPB33 7/12/2001 6-7 ft	1160-LPB3-S2 LPB3 7/9/2001 2.5-6 ft	1160-LPB3-S3 LPB3 7/9/2001 6-6.5 ft	1160-LPB4-S2 LPB4 7/10/2001 1-4 ft	1160-LPB4-S3 LPB4 7/10/2001 4-6 ft	1160-LPB5-S2 LPB5 7/10/2001 2.5-8 ft
1-Methylnaphthalene								
2,4-Dimethylphenol								0.36 U
2-Methylnaphthalene								0.36 U
3 & 4 Methylphenol								0.36 U
4-Chlorophenyl phenyl ether								0.36 U
Acenaphthene								0.36 U
Acenaphthylene								0.36 U
Acetophenone								
Aniline								1.8 U
Anthracene								0.36 U
Benzaldehyde								
Benzo(a)anthracene								0.36 U
Benzo(a)pyrene								0.36 U
Benzo(b)fluoranthene								0.36 U
Benzo(ghi)perylene								0.36 U
Benzo(k)fluoranthene								0.36 U
Benzoic Acid								1.8 U
Biphenyl								
Bis(2-Ethylhexyl)phthalate								0.36 U
Butylbenzylphthalate								0.36 U
Carbazole								
Chrysene								0.36 U
Dibenz(a,h)anthracene								0.36 U
Dibenzofuran								0.36 U
Diethylphthalate								0.36 U
Di-n-butylphthalate								0.36 U
Di-n-octylphthalate								0.36 U
Diphenyl ether								
Diphenylamine								
Fluoranthene								0.36 U
Fluorene								0.36 U
Indeno(1,2,3-cd)pyrene								0.36 U
Naphthalene								0.36 U
N-Nitrosodiphenylamine								0.36 U
Phenanthrene								0.36 U
Phenol								0.36 U
Pyrene								0.36 U
Pesticides/PCBs (mg/Kg)								
4,4'-DDD								0.0099 U
Aldrin								0.0099 U
Alpha-BHC								0.0099 U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB2-S1 LPB2 7/11/2001 0-6 ft		1160-LPB2-S2 LPB2 7/11/2001 6-8 ft		1160-LPB33-S2 LPB33 7/12/2001 6-7 ft		1160-LPB3-S2 LPB3 7/9/2001 2.5-6 ft		1160-LPB3-S3 LPB3 7/9/2001 6-6.5 ft		1160-LPB4-S2 LPB4 7/10/2001 1-4 ft		1160-LPB4-S3 LPB4 7/10/2001 4-6 ft		1160-LPB5-S2 LPB5 7/10/2001 2.5-8 ft	
Alpha-Chlordane																
Beta-BHC															0.0099	U
Chlordane (technical)																
Endosulfan sulfate															0.0099	U
Endrin															0.0099	U
Gamma-BHC/Lindane															0.0099	U
Aroclor-1260															0.099	U
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic															11	U
Barium															11	U
Beryllium																
Cadmium															2	U
Calcium																
Chromium	130		580				19		12		14		32		11	U
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead															11	U
Magnesium																
Manganese																
Mercury															0.04	U
Nickel																
Potassium																
Selenium															11	U
Silver															11	U
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**															200	>
Lab Specific Conductance **(mS/cm)**															0.031	
Nitrate as N																
Nitrogen, as Ammonia															14	
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB2-S1 LPB2 7/11/2001 0-6 ft		1160-LPB2-S2 LPB2 7/11/2001 6-8 ft		1160-LPB33-S2 LPB33 7/12/2001 6-7 ft		1160-LPB3-S2 LPB3 7/9/2001 2.5-6 ft		1160-LPB3-S3 LPB3 7/9/2001 6-6.5 ft		1160-LPB4-S2 LPB4 7/10/2001 1-4 ft		1160-LPB4-S3 LPB4 7/10/2001 4-6 ft		1160-LPB5-S2 LPB5 7/10/2001 2.5-8 ft	
pH **(pH units)**															5.35	
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium					0.17										0.063	
VPH (mg/Kg)																
Ethyl benzene															0.2	U
Toluene															0.2	U
Xylenes, Total															0.2	U
C5-C8 Aliphatics															2.3	U
C5-C8 Aliphatics (unadj.)															2.3	U
C9-C10 Aromatics															2.3	U
C9-C12 Aliphatics															2.3	U
C9-C12 Aliphatics (unadj.)															2.3	U
Volatile Petroleum Hydrocarbons, Total															2.3	U
EPH (mg/Kg)																
Acenaphthene															0.4	U
Acenaphthylene															0.4	U
Benzo(a)anthracene															0.4	U
Benzo(a)pyrene															0.4	U
Benzo(ghi)perylene															0.4	U
Fluoranthene															0.4	U
Fluorene															0.4	U
Indeno(1,2,3-cd)pyrene															0.4	U
Naphthalene															0.4	U
C11-C22 Aromatics															3.6	U
C11-C22 Aromatics (unadj.)															3.6	U
C19-C36 Aliphatics															3.6	U
C9-C18 Aliphatics															3.6	UK
Extractable Petroleum Hydrocarbons, Total															3.6	U
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB6-S2 LPB6 7/10/2001 1-8 ft	1160-LPB7-S1 LPB7 7/10/2001 0-3 ft	1160-LPB7-S2 LPB7 7/10/2001 3-8 ft	1160-LPB7-S2 LPB7 7/11/2001 3-8 ft	1160-LPB8-S1 LPB8 7/10/2001 0-5 ft	1160-LPB8-S2 LPB8 7/10/2001 5-7 ft	1160-LPB8-S3 LPB8 7/10/2001 7-8 ft	1160-LPB9-S1 LPB9 7/9/2001 0-4.5 ft
Volatile Organics (mg/Kg)								
1,2,3-Trichlorobenzene		0.11 U	0.09 U		0.12 U	0.082 U		
1,2,4-Trichlorobenzene		0.11 U	0.09 U		0.12 U	0.082 U		
1,2,4-Trimethylbenzene		0.11 U	0.09 U		0.12 U	0.082 U		
1,2-Dichlorobenzene		0.11 U	0.09 U		0.12 U	0.082 U		
1,2-Dichloroethane		0.11 U	0.09 U		0.12 U	0.082 U		
1,3,5-Trimethylbenzene		0.11 U	0.09 U		0.12 U	0.082 U		
1,4-Dichlorobenzene		0.11 U	0.09 U		0.12 U	0.082 U		
2,4,4-Trimethyl-1-pentene		0.11 U	0.09 U		0.12 U	20		
2,4,4-Trimethyl-2-pentene		0.11 U	0.09 U		0.12 U	9.2		
2-Butanone		2.3 U	1.8 U		2.4 U	1.6 U		
2-Hexanone		0.45 U	0.36 U		0.47 U	0.33 U		
4-iso-Propyltoluene		0.11 U	0.09 U		0.12 U	0.46		
4-Methyl-2-pentanone		0.45 U	0.36 U		0.47 U	0.33 U		
Acetone		2.3 U	1.8 U		2.4 U	1.6 U		
Benzene		0.11 U	0.09 U		0.12 U	0.082 U		
Carbon disulfide								
Carbon tetrachloride		0.11 U	0.09 U		0.12 U	0.082 U		
Chlorobenzene		0.11 U	0.09 U		0.12 U	0.082 U		
Chloroform		0.11 U	0.09 U		0.12 U	0.082 U		
Chloromethane		0.23 U	0.18 U		0.24 U	0.16 U		
Ethyl benzene		0.11 U	0.09 U		0.12 U	6.7		
Formaldehyde								
Isopropylbenzene		0.11 U	0.09 U		0.12 U	0.082 U		
Methylene chloride		0.23 U	0.18 U		0.24 U	0.16 U		
Naphthalene		1.1 U	0.9 U		1.2 U	0.82 U		
Propylbenzene		0.11 U	0.09 U		0.12 U	0.082 U		
sec-Butylbenzene		0.11 U	0.09 U		0.12 U	0.082 U		
Styrene		0.11 U	0.09 U		0.12 U	0.082 U		
Tetrachloroethene		0.11 U	0.09 U		0.12 U	0.082 U		
Tetrahydrofuran								
Toluene		0.11 U	0.09 U		0.12 U	0.11		
Trichloroethene		0.11 U	0.09 U		0.12 U	0.082 U		
Trichlorofluoromethane		0.11 U	0.09 U		0.12 U	0.082 U		
Xylene, o		0.11 U	0.09 U		0.12 U	0.082 U		
Xylenes (m&p)		0.11 U	0.09 U		0.12 U	0.082 U		
Xylenes, Total		0.11 U	0.09 U		0.12 U	0.082 U		
Semivolatile Organics (mg/Kg)								
1,2,4-Trichlorobenzene		0.36 U		0.37 U	0.36 U	37 U		
1,2-Dichlorobenzene		0.36 U		0.37 U	0.36 U	37 U		
1,4-Dichlorobenzene		0.36 U		0.37 U	0.36 U	37 U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB6-S2 LPB6 7/10/2001 1-8 ft		1160-LPB7-S1 LPB7 7/10/2001 0-3 ft		1160-LPB7-S2 LPB7 7/10/2001 3-8 ft		1160-LPB7-S2 LPB7 7/11/2001 3-8 ft		1160-LPB8-S1 LPB8 7/10/2001 0-5 ft		1160-LPB8-S2 LPB8 7/10/2001 5-7 ft		1160-LPB8-S3 LPB8 7/10/2001 7-8 ft		1160-LPB9-S1 LPB9 7/9/2001 0-4.5 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol			0.36	U			0.37	U	0.36	U	37	U				
2-Methylnaphthalene			0.36	U			0.37	U	0.36	U	37	U				
3 & 4 Methylphenol			0.36	U			0.37	U	0.36	U	37	U				
4-Chlorophenyl phenyl ether			0.36	U			0.37	U	0.36	U	37	U				
Acenaphthene			0.36	U			0.37	U	0.36	U	37	U				
Acenaphthylene			0.36	U			0.37	U	0.36	U	37	U				
Acetophenone																
Aniline			1.8	U			1.8	U	1.8	U	180	U				
Anthracene			0.36	U			0.37	U	0.36	U	37	U				
Benzaldehyde																
Benzo(a)anthracene			0.36	U			0.37	U	0.36	U	37	U				
Benzo(a)pyrene			0.36	U			0.37	U	0.36	U	37	U				
Benzo(b)fluoranthene			0.36	U			0.37	U	0.36	U	37	U				
Benzo(ghi)perylene			0.36	U			0.37	U	0.36	U	37	U				
Benzo(k)fluoranthene			0.36	U			0.37	U	0.36	U	37	U				
Benzoic Acid			1.8	U			1.8	U	1.8	U	180	U				
Biphenyl																
Bis(2-Ethylhexyl)phthalate			0.29	BJ			0.35	BJ	0.53	B	**699**	C				
Butylbenzylphthalate			0.36	U			0.37	U	0.36	U	37	U				
Carbazole																
Chrysene			0.36	U			0.37	U	0.36	U	37	U				
Dibenz(a,h)anthracene			0.36	U			0.37	U	0.36	U	37	U				
Dibenzofuran			0.36	U			0.37	U	0.36	U	37	U				
Diethylphthalate			0.36	U			0.37	U	0.36	U	37	U				
Di-n-butylphthalate			0.36	U			0.37	U	0.36	U	37	U				
Di-n-octylphthalate			0.36	U			0.37	U	0.36	U	37	U				
Diphenyl ether																
Diphenylamine																
Fluoranthene			0.36	U			0.37	U	0.36	U	37	U				
Fluorene			0.36	U			0.37	U	0.36	U	37	U				
Indeno(1,2,3-cd)pyrene			0.36	U			0.37	U	0.36	U	37	U				
Naphthalene			0.36	U			0.37	U	0.36	U	37	U				
N-Nitrosodiphenylamine			0.36	U			0.37	U	0.36	U	203	C				
Phenanthrene			0.36	U			0.37	U	0.36	U	37	U				
Phenol			0.36	U			0.37	U	0.36	U	37	U				
Pyrene			0.36	U			0.37	U	0.36	U	37	U				
Pesticides/PCBs (mg/Kg)																
4,4'-DDD			0.01	U			0.011	U	0.01	U	0.054	U				
Aldrin			0.01	U			0.011	U	0.01	U	0.054	U				
Alpha-BHC			0.01	U			0.011	U	0.01	U	0.054	U				

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB6-S2 LPB6 7/10/2001 1-8 ft		1160-LPB7-S1 LPB7 7/10/2001 0-3 ft		1160-LPB7-S2 LPB7 7/10/2001 3-8 ft		1160-LPB7-S2 LPB7 7/11/2001 3-8 ft		1160-LPB8-S1 LPB8 7/10/2001 0-5 ft		1160-LPB8-S2 LPB8 7/10/2001 5-7 ft		1160-LPB8-S3 LPB8 7/10/2001 7-8 ft		1160-LPB9-S1 LPB9 7/9/2001 0-4.5 ft	
Alpha-Chlordane																
Beta-BHC			0.01	U			0.011	U	0.01	U	0.054	U				
Chlordane (technical)																
Endosulfan sulfate			0.01	U			0.011	U	0.01	U	0.054	U				
Endrin			0.01	U			0.011	U	0.01	U	0.054	U				
Gamma-BHC/Lindane			0.01	U			0.011	U	0.01	U	0.054	U				
Aroclor-1260											0.54	U				
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic			6	U			**12**		5	U	6	U				
Barium											22					
Beryllium																
Cadmium			1	U			1	U	1	U	1	U				
Calcium																
Chromium	720		14		480				17		460		11		270	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead			6	U			6	U	5	U	6	U				
Magnesium																
Manganese																
Mercury											0.05	U				
Nickel																
Potassium																
Selenium											6	U				
Silver											6	U				
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**											200	>				
Lab Specific Conductance **(mS/cm)**											0.032					
Nitrate as N																
Nitrogen, as Ammonia			13		10		10		17		130					
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB6-S2 LPB6 7/10/2001 1-8 ft		1160-LPB7-S1 LPB7 7/10/2001 0-3 ft		1160-LPB7-S2 LPB7 7/10/2001 3-8 ft		1160-LPB7-S2 LPB7 7/11/2001 3-8 ft		1160-LPB8-S1 LPB8 7/10/2001 0-5 ft		1160-LPB8-S2 LPB8 7/10/2001 5-7 ft		1160-LPB8-S3 LPB8 7/10/2001 7-8 ft		1160-LPB9-S1 LPB9 7/9/2001 0-4.5 ft	
pH **(pH units)**											7.04					
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium	0.19										0.05	U				
VPH (mg/Kg)																
Ethyl benzene			0.2	U	0.2	U			0.2	U	5.3					
Toluene			0.2	U	0.2	U			0.2	U	0.8	U				
Xylenes, Total			0.2	U	0.2	U			0.2	U	4.6					
C5-C8 Aliphatics			2.3	U	1.8	U			2.4	U	20					
C5-C8 Aliphatics (unadj.)			2.3	U	1.8	U			2.4	U	20					
C9-C10 Aromatics			2.3	U	1.8	U			2.4	U	8.2	U				
C9-C12 Aliphatics			2.3	U	1.8	U			2.4	U	8.2	U				
C9-C12 Aliphatics (unadj.)			2.3	U	1.8	U			2.4	U	18					
Volatile Petroleum Hydrocarbons, Total			2.3	U	1.8	U			2.4	U	20					
EPH (mg/Kg)																
Acenaphthene			0.4	U			0.4	U	0.4	U	0.4	U				
Acenaphthylene			0.4	U			0.4	U	0.4	U	0.4	U				
Benzo(a)anthracene			0.4	U			0.4	U	0.4	U	0.4	U				
Benzo(a)pyrene			0.4	U			0.4	U	0.4	U	0.4	U				
Benzo(ghi)perylene			0.4	U			0.4	U	0.4	U	0.66					
Fluoranthene			0.4	U			0.4	U	0.4	U	5.7					
Fluorene			0.4	U			0.4	U	0.4	U	0.4	U				
Indeno(1,2,3-cd)pyrene			0.4	U			0.4	U	0.4	U	**10**					
Naphthalene			0.4	U			0.4	U	0.4	U	0.4	U				
C11-C22 Aromatics			5.7				3.7	U	17		500					
C11-C22 Aromatics (unadj.)			5.7				3.7	U	17		1400					
C19-C36 Aliphatics			3.6	U			3.7	U	10		160					
C9-C18 Aliphatics			3.6	UK			3.7	UK	3.6	UK	9.1	K				
Extractable Petroleum Hydrocarbons, Total			5.7				3.7	U	27		1300					
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB9-S2 LPB9 7/9/2001 4.5-6 ft		1160-LPB9-S3 LPB9 7/9/2001 6-8 ft		1160-RS0-06-B RSO-06-B 11/9/2000 8-8 ft		1160-RS0-06-E RSO-06-E 11/9/2000 4-6 ft		1160-RS0-06-N RSO-06-N 11/9/2000 4-6 ft		1160-RS0-06-S RSO-06-S 11/9/2000 4-6 ft		1160-RS0-06-W RSO-06-W 11/9/2000 4-6 ft		AS-1-8-10 AS-1 10/10/2000 8-10 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane															1.6	U
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene															2.1	
2,4,4-Trimethyl-2-pentene															1.6	U
2-Butanone															1.6	U
2-Hexanone															1.6	U
4-iso-Propyltoluene																
4-Methyl-2-pentanone															1.6	U
Acetone															1.6	U
Benzene															1.6	U
Carbon disulfide															1.6	U
Carbon tetrachloride															1.6	U
Chlorobenzene															1.6	U
Chloroform															1.6	U
Chloromethane															1.6	U
Ethyl benzene															1.6	U
Formaldehyde																
Isopropylbenzene																
Methylene chloride															1.6	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene															1.6	U
Tetrachloroethene															1.6	U
Tetrahydrofuran																
Toluene															1.6	U
Trichloroethene															1.6	U
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total															1.6	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
1,2-Dichlorobenzene					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
1,4-Dichlorobenzene					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB9-S2 LPB9 7/9/2001 4.5-6 ft		1160-LPB9-S3 LPB9 7/9/2001 6-8 ft		1160-RS0-06-B RSO-06-B 11/9/2000 8-8 ft		1160-RS0-06-E RSO-06-E 11/9/2000 4-6 ft		1160-RS0-06-N RSO-06-N 11/9/2000 4-6 ft		1160-RS0-06-S RSO-06-S 11/9/2000 4-6 ft		1160-RS0-06-W RSO-06-W 11/9/2000 4-6 ft		AS-1-8-10 AS-1 10/10/2000 8-10 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
2-Methylnaphthalene					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
3 & 4 Methylphenol					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
4-Chlorophenyl phenyl ether					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
Acenaphthene					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
Acenaphthylene					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
Acetophenone																
Aniline					1.8	U	1.8	U	37	UC	1.8	U	1.7	U		
Anthracene					0.36	U	0.35	U	7.6	C	0.36	U	0.35	U		
Benzaldehyde																
Benzo(a)anthracene					0.36	U	0.35	U	**18**	C	0.36	U	0.35	U		
Benzo(a)pyrene					0.36	U	0.35	U	**23**	C	0.36	U	0.35	U		
Benzo(b)fluoranthene					0.36	U	0.35	U	**17**	C	0.2	J	0.35	U		
Benzo(ghi)perylene					0.36	U	0.35	U	9.5	C	0.36	U	0.35	U		
Benzo(k)fluoranthene					0.36	U	0.35	U	21	C	0.36	U	0.35	U		
Benzoic Acid					1.8	U	1.8	U	37	UC	1.8	U	1.7	U		
Biphenyl																
Bis(2-Ethylhexyl)phthalate					0.34	J	0.21	J	5.7	CJ	0.72		0.35	UB		
Butylbenzylphthalate					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
Carbazole																
Chrysene					0.36	U	0.35	U	18	C	0.36	U	0.35	U		
Dibenz(a,h)anthracene					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
Dibenzofuran					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
Diethylphthalate					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
Di-n-butylphthalate					0.35	J	0.24	J	4.6	CJ	0.2	J	0.28	J		
Di-n-octylphthalate					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
Diphenyl ether																
Diphenylamine																
Fluoranthene					0.36	U	0.35	U	37	C	0.24	J	0.35	U		
Fluorene					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
Indeno(1,2,3-cd)pyrene					0.36	U	0.35	U	**10**	C	0.36	U	0.35	U		
Naphthalene					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
N-Nitrosodiphenylamine					0.36	U	0.35	U	6.4	CJ	0.36	U	0.35	U		
Phenanthrene					0.36	U	0.35	U	33	C	0.36	U	0.35	U		
Phenol					0.36	U	0.35	U	7.4	UC	0.36	U	0.35	U		
Pyrene					0.36	U	0.35	U	35	C	0.21	J	0.35	U		
Pesticides/PCBs (mg/Kg)																
4,4'-DDD					0.011	U	0.01	U	0.054	UC	0.011	U	0.01	U		
Aldrin					0.011	U	0.01	U	0.054	UC	0.011	U	0.01	U		
Alpha-BHC					0.011	U	0.01	U	0.054	UC	0.011	U	0.01	U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB9-S2 LPB9 7/9/2001 4.5-6 ft	1160-LPB9-S3 LPB9 7/9/2001 6-8 ft	1160-RS0-06-B RSO-06-B 11/9/2000 8-8 ft	1160-RS0-06-E RSO-06-E 11/9/2000 4-6 ft	1160-RS0-06-N RSO-06-N 11/9/2000 4-6 ft	1160-RS0-06-S RSO-06-S 11/9/2000 4-6 ft	1160-RS0-06-W RSO-06-W 11/9/2000 4-6 ft	AS-1-8-10 AS-1 10/10/2000 8-10 ft
Alpha-Chlordane								
Beta-BHC			0.011 U	0.01 U	0.054 UC	0.011 U	0.01 U	
Chlordane (technical)								
Endosulfan sulfate			0.011 U	0.01 U	0.054 UC	0.011 U	0.01 U	
Endrin			0.011 U	0.01 U	0.054 U	0.011 U	0.01 U	
Gamma-BHC/Lindane			0.011 U	0.01 U	0.054 UC	0.011 U	0.01 U	
Aroclor-1260								
Inorganics (mg/Kg)								
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium			0.2 U	0.2 U	0.29	0.2 U	0.2 U	
Calcium								
Chromium	64	230	7.3	5.1	19	9.7	6.4	
Chromium, Hexavalent								
Cobalt								
Copper								
Iron								
Lead			3.5	1.8	19	13	2.1	
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Tin								
Vanadium								
Zinc								
Chloride								
Cyanide, Total								
Eh **(mV)**								
Flash Point **(°F)**								
Lab Specific Conductance **(mS/cm)**								
Nitrate as N								
Nitrogen, as Ammonia								
Oxidation Reduction Potential **(mV)**								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB9-S2 LPB9 7/9/2001 4.5-6 ft		1160-LPB9-S3 LPB9 7/9/2001 6-8 ft		1160-RS0-06-B RSO-06-B 11/9/2000 8-8 ft		1160-RS0-06-E RSO-06-E 11/9/2000 4-6 ft		1160-RS0-06-N RSO-06-N 11/9/2000 4-6 ft		1160-RS0-06-S RSO-06-S 11/9/2000 4-6 ft		1160-RS0-06-W RSO-06-W 11/9/2000 4-6 ft		AS-1-8-10 AS-1 10/10/2000 8-10 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene															0.2	U
Toluene															0.2	U
Xylenes, Total															0.2	U
C5-C8 Aliphatics															3	
C5-C8 Aliphatics (unadj.)															3	
C9-C10 Aromatics															10	
C9-C12 Aliphatics															7.4	
C9-C12 Aliphatics (unadj.)															18	
Volatile Petroleum Hydrocarbons, Total															21	
EPH (mg/Kg)																
Acenaphthene															0.4	U
Acenaphthylene															0.4	U
Benzo(a)anthracene															1.7	
Benzo(a)pyrene															0.4	U
Benzo(ghi)perylene															0.85	
Fluoranthene															0.4	U
Fluorene															0.4	U
Indeno(1,2,3-cd)pyrene															0.4	U
Naphthalene															0.4	U
C11-C22 Aromatics															980	
C11-C22 Aromatics (unadj.)															980	
C19-C36 Aliphatics															63	
C9-C18 Aliphatics															140	
Extractable Petroleum Hydrocarbons, Total															1200	
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AS-3 8-10 AS-3 10/11/2000 8-10 ft		AS-4-8 AS-4 10/16/2000 8-8 ft		AS-9 S-2 7 AS-9 10/17/2000 7-7 ft		B-1, 8'-10' B-1A 8/12/1998 8-10 ft		B-10 S-2 B-10 10/25/2000 5-6.2 ft		BH05 BH5 6/6/1991 5.9-7.9 ft		BH11 (4-6 ft) BH11 6/7/1991 4-6 ft		BH12 BH12 6/10/1991 4-6 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane	1.4	U	34	U	1.6	U			1600	U	0.0055	U	0.005	U	0.0055	U
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene	0.94	J	**140**		1.6	U			**6400**		0.011	U	2.3	J	0.01	J
2,4,4-Trimethyl-2-pentene	1.4	U	34	U	1.6	U			**1600**	J	0.001	J	0.9	J	0.011	U
2-Butanone	1.4	U	34	U	1.6	U			1600	U	0.016	U	0.015	U	0.016	U
2-Hexanone	1.4	U	34	U	1.6	U			1600	U	0.016	U	0.022		0.016	U
4-iso-Propyltoluene																
4-Methyl-2-pentanone	1.4	U	34	U	1.6	U			1600	U	0.016	U	0.015	U	0.016	U
Acetone	1.4	U	34	U	1.6	U			1600	U	0.041		0.015	U	0.027	U
Benzene	1.4	U	34	U	1.6	U			1600	U	0.0055	U	0.005	U	0.0055	U
Carbon disulfide	1.4	U	34	U	1.6	U			1600	U	0.011	U	0.01	U	0.011	U
Carbon tetrachloride	1.4	U	34	U	1.6	U			1600	U	0.0055	U	0.005	U	0.0055	U
Chlorobenzene	1.4	U	34	U	1.6	U			1600	U	0.0055	U	0.005	U	0.0055	U
Chloroform	1.4	U	34	U	1.6	U			1600	U	0.0055	U	0.005	U	0.0055	U
Chloromethane	1.4	U	34	U	1.6	U			1600	U	0.011	U	0.01	U	0.011	U
Ethyl benzene	1.4	U	34	U	1.6	U			1600	U	0.0055	U	0.005	U	0.0055	U
Formaldehyde																
Isopropylbenzene																
Methylene chloride	1.4	U	34	U	1.6	U			1600	U	0.011	U	0.01	U	0.011	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene	1.4	U	34	U	1.6	U			1600	U	0.0055	U	0.005	U	0.0055	U
Tetrachloroethene	1.4	U	34	U	1.6	U			1600	U	0.0055	U	0.005	U	0.0055	U
Tetrahydrofuran																
Toluene	1.4	U	34	U	1.6	U			1600	U	0.0055	U	0.005	U	0.0006	J
Trichloroethene	1.4	U	34	U	1.6	U			1600	U	0.0055	U	0.005	U	0.0055	U
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total	1.4	U	34	U	1.6	U			1600	U	0.0055	U	0.005	U	0.0055	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene											0.73	U	0.69	U	0.73	U
1,2-Dichlorobenzene											0.73	U	0.69	U	0.73	U
1,4-Dichlorobenzene											0.73	U	0.69	U	0.73	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AS-3 8-10 AS-3 10/11/2000 8-10 ft	AS-4-8 AS-4 10/16/2000 8-8 ft	AS-9 S-2 7 AS-9 10/17/2000 7-7 ft	B-1, 8'-10' B-1A 8/12/1998 8-10 ft	B-10 S-2 B-10 10/25/2000 5-6.2 ft	BH05 BH5 6/6/1991 5.9-7.9 ft	BH11 (4-6 ft) BH11 6/7/1991 4-6 ft	BH12 BH12 6/10/1991 4-6 ft
1-Methylnaphthalene								
2,4-Dimethylphenol						0.73 U	0.69 U	0.73 U
2-Methylnaphthalene						0.73 U	0.69 U	0.063 J
3 & 4 Methylphenol								
4-Chlorophenyl phenyl ether						0.73 U	0.69 U	0.73 U
Acenaphthene						0.73 U	0.69 U	0.73 U
Acenaphthylene						0.73 U	0.69 U	0.73 U
Acetophenone								
Aniline								
Anthracene						0.73 U	0.69 U	0.73 U
Benzaldehyde								
Benzo(a)anthracene						0.73 U	0.048 J	0.052 J
Benzo(a)pyrene						0.73 U	0.69 U	0.73 U
Benzo(b)fluoranthene						0.73 U	0.049 J	0.043 J
Benzo(ghi)perylene						0.73 U	0.69 U	0.73 U
Benzo(k)fluoranthene						0.73 U	0.69 U	0.73 U
Benzoic Acid						3.5 U	3.4 U	3.5 U
Biphenyl								
Bis(2-Ethylhexyl)phthalate						0.73 U	1.1	**1100**
Butylbenzylphthalate						0.73 U	0.13 J	2.2
Carbazole								
Chrysene						0.73 U	0.057 J	0.089 J
Dibenz(a,h)anthracene						0.73 U	0.69 U	0.73 U
Dibenzofuran						0.73 U	0.69 U	0.11 J
Diethylphthalate						0.73 U	0.046 J	0.73 U
Di-n-butylphthalate						0.73 U	0.69 U	32
Di-n-octylphthalate						0.73 U	0.023 J	0.13 J
Diphenyl ether								
Diphenylamine								
Fluoranthene						0.73 U	0.69 U	0.73 U
Fluorene						0.73 U	0.69 U	0.73 U
Indeno(1,2,3-cd)pyrene						0.73 U	0.69 U	0.73 U
Naphthalene						0.73 U	0.69 U	0.16 J
N-Nitrosodiphenylamine						0.73 U	0.69 U	**3400**
Phenanthrene						0.73 U	0.69 U	0.64 J
Phenol						0.73 U	0.69 U	0.73 U
Pyrene						0.73 U	0.17 J	0.2 J
Pesticides/PCBs (mg/Kg)								
4,4'-DDD						0.035 U	0.034 U	0.04
Aldrin						0.018 U	0.017 U	0.032
Alpha-BHC						0.018 U	0.017 U	0.024

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AS-3 8-10 AS-3 10/11/2000 8-10 ft		AS-4-8 AS-4 10/16/2000 8-8 ft		AS-9 S-2 7 AS-9 10/17/2000 7-7 ft		B-1, 8'-10' B-1A 8/12/1998 8-10 ft		B-10 S-2 B-10 10/25/2000 5-6.2 ft		BH05 BH5 6/6/1991 5.9-7.9 ft		BH11 (4-6 ft) BH11 6/7/1991 4-6 ft		BH12 BH12 6/10/1991 4-6 ft	
Alpha-Chlordane											0.18	U	0.17	U	0.18	U
Beta-BHC											0.018	U	0.017	U	0.018	U
Chlordane (technical)											0.18	U	0.17	U	0.18	U
Endosulfan sulfate											0.035	U	0.034	U	0.15	
Endrin											0.035	U	0.034	U	0.089	
Gamma-BHC/Lindane											0.018	U	0.017	U	0.018	U
Aroclor-1260											0.35	U	0.34	U	0.35	U
Inorganics (mg/Kg)																
Aluminum							3000				10000		9000		7100	
Antimony											20	U	20	U	41	
Arsenic											**9**		**12**		**4.2**	
Barium											35		33		42	
Beryllium											1.5	U	1.5	U	1.5	U
Cadmium											1.2		1		1	U
Calcium											3000		1900		710	
Chromium							170				21		18		2400	
Chromium, Hexavalent																
Cobalt											5.1		4		3.7	
Copper											12		13		7.7	
Iron							4100				12000		9900		8800	
Lead											10	U	10	U	10	U
Magnesium											3500		2600		3400	
Manganese											200		110		100	
Mercury											0.1	U	0.1	U	0.3	
Nickel											14		11		6.9	
Potassium											2000		1600		1300	
Selenium											0.5	U	0.5	U	0.5	U
Silver											1.5	U	1.5	U	1.5	U
Sodium							120				120		150		190	
Thallium											0.5	U	0.5	U	0.5	U
Tin																
Vanadium											16		13		24	
Zinc											30		27		33	
Chloride							21.5				40	UJ	40	UJ	40	UJ
Cyanide, Total											2	UJ	2	UJ	2.3	J
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia							62.1		5.2		63	J	21	J	59	J
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AS-3 8-10 AS-3 10/11/2000 8-10 ft		AS-4-8 AS-4 10/16/2000 8-8 ft		AS-9 S-2 7 AS-9 10/17/2000 7-7 ft		B-1, 8'-10' B-1A 8/12/1998 8-10 ft		B-10 S-2 B-10 10/25/2000 5-6.2 ft		BH05 BH5 6/6/1991 5.9-7.9 ft		BH11 (4-6 ft) BH11 6/7/1991 4-6 ft		BH12 BH12 6/10/1991 4-6 ft	
pH **(pH units)**							6.3									
Sulfate											1600	J	140	J	87	J
Sulfate **(mg/L)**							148									
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene	0.3	U	0.3	U	0.3	U			13	U						
Toluene	0.3	U	0.3	U	0.3	U			57							
Xylenes, Total	0.3	U	0.3	U	0.3	U			25							
C5-C8 Aliphatics	3.6		16		2.7	U			**3900**							
C5-C8 Aliphatics (unadj.)	3.6		16		2.7	U			**4000**							
C9-C10 Aromatics	2.6	U	17		3.2				130	U						
C9-C12 Aliphatics	2.7		17		2.7	U			140							
C9-C12 Aliphatics (unadj.)	2.7		34		5.6				170							
Volatile Petroleum Hydrocarbons, Total	6.2		49		3.2				4100							
EPH (mg/Kg)																
Acenaphthene	0.4	U	6.2		0.3	U			0.4	U						
Acenaphthylene	0.4	U	0.4	U	0.3	U			0.88							
Benzo(a)anthracene	0.4	U	1.2		0.3	U			1.4							
Benzo(a)pyrene	0.4	U	0.4	U	0.3	U			0.4	U						
Benzo(ghi)perylene	0.4	U	0.4	U	0.3	U			0.5							
Fluoranthene	0.4	U	0.4	U	0.3	U			0.4	U						
Fluorene	0.4	U	0.4	U	0.3	U			2.7							
Indeno(1,2,3-cd)pyrene	0.4	U	0.4	U	0.3	U			0.4	U						
Naphthalene	0.4	U	0.77		0.3	U			0.4	U						
C11-C22 Aromatics	97		300		250				1700							
C11-C22 Aromatics (unadj.)	97		310		250				1700							
C19-C36 Aliphatics	8.1		3.6	U	5.1				18							
C9-C18 Aliphatics	16		67		15				96							
Extractable Petroleum Hydrocarbons, Total	120		370		270				1800							
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH13 BH13 6/10/1991 8-10 ft		BH14 BH14 6/10/1991 4-6 ft		BH15 BH15 6/10/1991 8-10 ft		BH16 BH16 6/10/1991 4-6 ft		BH17 BH17 6/10/1991 8-10 ft		BH18 BH18 6/10/1991 4-6 ft		BH19 BH19 6/11/1991 5-7 ft		BH20-A (3-6 FT) BH20-A 1/24/2000 3-6 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U	0.035	U	0.006	U		
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene	0.011		0.006	J	2.4	J	0.011	U	0.64	J	0.075		0.004	J		
2,4,4-Trimethyl-2-pentene	0.006	J	0.002	J	3.6	J	0.011	U	0.57	J	0.039	J	0.011	U		
2-Butanone	0.016	U	0.016	U	0.016	U	0.016	U	0.018	U	0.01	J	0.004	J		
2-Hexanone	0.016	U	0.016	U	3.8		0.016	U	0.007	J	0.1	U	0.018	U		
4-iso-Propyltoluene																
4-Methyl-2-pentanone	0.016	U	0.016	U	0.015	J	0.016	U	0.018	U	0.1	U	0.018	U		
Acetone	0.016	U	0.016	U	0.12		0.016	U	0.018		0.1	U	0.032			
Benzene	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U	0.012	J	0.006	U		
Carbon disulfide	0.011	U	0.011	U	0.001	J	0.011	U	0.012	U	0.07	U	0.012	U		
Carbon tetrachloride	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U	0.035	U	0.006	U		
Chlorobenzene	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U	0.035	U	0.006	U		
Chloroform	0.0055	U	0.0055	U	0.0055	U	0.001	J	0.006	U	0.035	U	0.006	U		
Chloromethane	0.011	U	0.011	U	0.011	U	0.011	U	0.012	U	0.07	U	0.012	U		
Ethyl benzene	0.0055	U	0.0055	U	2.3		0.0055	U	0.006	U	0.011	J	0.006	U		
Formaldehyde																
Isopropylbenzene																
Methylene chloride	0.011	U	0.011	U	0.011	U	0.011	U	0.012	U	0.07	U	0.012	U		
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene	0.0055	U	0.0055	U	3.3		0.0055	U	0.003	J	0.035	U	0.006	U		
Tetrachloroethene	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U	0.035	U	0.006	U		
Tetrahydrofuran																
Toluene	0.002	J	0.0008	J	4.8		0.0055	U	0.017		0.017	J	0.0007	J		
Trichloroethene	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U	0.01	J	0.006	U		
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total	0.0055	U	0.0055	U	0.035		0.0055	U	0.006	U	0.035	U	0.006	U		
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
1,2-Dichlorobenzene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
1,4-Dichlorobenzene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH13 BH13 6/10/1991 8-10 ft		BH14 BH14 6/10/1991 4-6 ft		BH15 BH15 6/10/1991 8-10 ft		BH16 BH16 6/10/1991 4-6 ft		BH17 BH17 6/10/1991 8-10 ft		BH18 BH18 6/10/1991 4-6 ft		BH19 BH19 6/11/1991 5-7 ft		BH20-A (3-6 FT) BH20-A 1/24/2000 3-6 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
2-Methylnaphthalene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Acenaphthene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Acenaphthylene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Acetophenone																
Aniline																
Anthracene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Benzaldehyde																
Benzo(a)anthracene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Benzo(a)pyrene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Benzo(b)fluoranthene	0.69	U	0.039	J	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Benzo(ghi)perylene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Benzo(k)fluoranthene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Benzoic Acid	3.4	U	3.7	U	3.5	U	3.5	U	3.8	U	4.5	U	3.7	U		
Biphenyl																
Bis(2-Ethylhexyl)phthalate	0.69	U	70		0.73	U	4.9		36		0.92	U	0.3	J		
Butylbenzylphthalate	0.69	U	0.5	J	0.73	U	0.73	U	0.15	J	0.05	J	0.76	U		
Carbazole																
Chrysene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Dibenz(a,h)anthracene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Dibenzofuran	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Diethylphthalate	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.057	J	0.76	U		
Di-n-butylphthalate	0.081	U	1.3	U	0.73	U	0.73	U	1.1	U	0.92	U	0.76	U		
Di-n-octylphthalate	0.69	U	0.059	J	0.73	U	0.73	U	0.79	U	0.92	U	0.31	J		
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.69	U	0.038	J	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Fluorene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Indeno(1,2,3-cd)pyrene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Naphthalene	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
N-Nitrosodiphenylamine	0.69	U	20		0.73	U	3		14		0.92	U	0.76	U		
Phenanthrene	0.69	U	0.062	J	0.73	U	0.73	U	0.052	J	0.92	U	0.76	U		
Phenol	0.69	U	0.76	U	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Pyrene	0.69	U	0.064	J	0.73	U	0.73	U	0.79	U	0.92	U	0.76	U		
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.034	U	0.037	U	0.035	U	0.035	UJ	0.038	U	0.045	U	0.035	U		
Aldrin	0.017	U	0.018	U	0.018	U	0.018	UJ	0.019	U	0.022	U	0.018	U		
Alpha-BHC	0.017	U	0.018	U	0.018	U	0.018	UJ	0.019	U	0.022	U	0.018	U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH13 BH13 6/10/1991 8-10 ft		BH14 BH14 6/10/1991 4-6 ft		BH15 BH15 6/10/1991 8-10 ft		BH16 BH16 6/10/1991 4-6 ft		BH17 BH17 6/10/1991 8-10 ft		BH18 BH18 6/10/1991 4-6 ft		BH19 BH19 6/11/1991 5-7 ft		BH20-A (3-6 FT) BH20-A 1/24/2000 3-6 ft	
Alpha-Chlordane	0.17	U	0.18	U	0.18	U	0.18	UJ	0.19	U	0.22	U	0.18	U		
Beta-BHC	0.017	U	0.018	U	0.018	U	0.018	UJ	0.019	U	0.022	U	0.018	U		
Chlordane (technical)	0.17	U	0.18	U	0.18	U	0.18	UJ	0.19	U	0.22	U	0.18	U		
Endosulfan sulfate	0.034	U	0.037	U	0.035	U	0.035	UJ	0.038	U	0.045	U	0.035	U		
Endrin	0.034	U	0.037	U	0.035	U	0.035	UJ	0.038	U	0.045	U	0.035	U		
Gamma-BHC/Lindane	0.017	U	0.018	U	0.018	U	0.018	UJ	0.019	U	0.022	U	0.018	U		
Aroclor-1260	0.34	U	0.37	U	0.35	U	0.35	UJ	0.38	U	0.45	U	0.35	U		
Inorganics (mg/Kg)																
Aluminum	5700		5700		6000		3400		4500		5700		4600		3200	
Antimony	20	U	20	U	20	U	20	U	20	U	20	U	20	U	1	U
Arsenic	**9.2**		**3.7**		**5.5**		2.3		**4.4**		2	U	1.9			
Barium	75		15	J	18		23		20		2.8		5.9		11	
Beryllium	1.5	U	1.5	UNR	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.075	
Cadmium	1		1	J	1	U	1	U	1	U	1	U	1	U	0.1	U
Calcium	730		740		990		570		830		170		540		330	
Chromium	160		1300		28		610		1200		5.9		5.8		86	
Chromium, Hexavalent																
Cobalt	2.7		2.4	J	2.4		1.8		2.5		1.5	U	1.5	U	2.2	
Copper	8.8		10	J	7.3		4.5		12		2.5	U	2.5	U	20	U
Iron	10000		9900	J	8300		6700		9200		580		3500		7000	
Lead	10	U	40		10	U	10	U	10	U	10	U	10	U	2.2	
Magnesium	2900		1700	J	2900		1800		1600		210		1100		1400	
Manganese	340		73	J	110		62		76		8.7		32		55	
Mercury	0.1	U	0.1	U	0.1	U	0.1		0.1		0.1	U	0.1	U	0.05	U
Nickel	5.4		7.2	J	7.7		4	U	8.2		4	U	4.3		5	
Potassium	1400		760	J	1100		1100		430		130		410		200	
Selenium	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U
Silver	1.5	U	1.5	UNR	4.5		1.5	U	1.5	U	1.5	U	1.5	U	0.7	
Sodium	100		200		100		82		120		440		71		71	
Thallium	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.7	U
Tin																
Vanadium	15		12		10		10		13		2.6		4.9		13	
Zinc	21		32		33		28		29		3.2		8		14	
Chloride	51	J	98	J	40	UJ	40	UJ	40	UJ	130	J	57	J		
Cyanide, Total	2	UJ	2	UJ	2	UJ	2	UJ	5.4	J	2	UJ	2	UJ		
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	12	J	28	J	11	J	26	J	360	J	70	J	100	J		
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH13 BH13 6/10/1991 8-10 ft		BH14 BH14 6/10/1991 4-6 ft		BH15 BH15 6/10/1991 8-10 ft		BH16 BH16 6/10/1991 4-6 ft		BH17 BH17 6/10/1991 8-10 ft		BH18 BH18 6/10/1991 4-6 ft		BH19 BH19 6/11/1991 5-7 ft		BH20-A (3-6 FT) BH20-A 1/24/2000 3-6 ft	
pH **(pH units)**																
Sulfate	67	J	110	J	47	J	40	J	20	UJ	20	UJ	20	UJ		
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH21 BH21 6/10/1991 8-10 ft		BH22 BH22 6/10/1991 8-10 ft		BH23 BH23 6/10/1991 4-6 ft		BH24 BH24 6/10/1991 4-6 ft		BH25 BH25 6/10/1991 4-6 ft		BH26 BH26 6/11/1991 7-9 ft		BH27 BH27 6/11/1991 4-6 ft		BH28 BH28 6/11/1991 4-6 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane	0.005	U	0.0055	U	0.006	U	0.0055	U	0.006	U	0.035		0.0055	U	0.0055	U
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene	0.014		0.013		7	J	0.05		2.5		1		0.005	J	0.52	J
2,4,4-Trimethyl-2-pentene	0.012		0.008	J	5.1	J	0.016		0.65		0.36		0.002	J	0.1	J
2-Butanone	0.015	U	0.016	U	0.018	U	0.016	U	0.018	U	0.017	J	0.001	J	0.016	U
2-Hexanone	0.015	U	0.016	U	0.009	J	0.001	J	0.054		0.069	J	0.016	U	0.016	U
4-iso-Propyltoluene																
4-Methyl-2-pentanone	0.015	U	0.016	U	0.018	U	0.016	U	0.018	U	0.027	J	0.016	U	0.016	U
Acetone	0.015	U	0.016		0.018	U	0.016	U	0.018	U	0.09		0.016	U	0.016	U
Benzene	0.005	U	0.0055	U	0.006	U	0.0055	U	0.006	U	0.029	U	0.0055	U	0.0055	U
Carbon disulfide	0.01	U	0.011	U	0.012	U	0.011	U	0.012	U	0.058	U	0.011	U	0.011	U
Carbon tetrachloride	0.005	U	0.0055	U	0.006	U	0.0055	U	0.006	U	0.009	J	0.0055	U	0.0055	U
Chlorobenzene	0.005	U	0.0055	U	0.006	U	0.0055	U	0.006	U	0.017	J	0.0055	U	0.0055	U
Chloroform	0.005	U	0.0055	U	0.001	J	0.0055	U	0.006	U	0.007	J	0.0055	U	0.0055	U
Chloromethane	0.01	U	0.011	U	0.012	U	0.011	U	0.012	U	0.058	U	0.011	U	0.011	U
Ethyl benzene	0.005	U	0.0055	U	0.006	U	0.0055	U	0.002	J	0.029	U	0.0055	U	0.0055	U
Formaldehyde																
Isopropylbenzene																
Methylene chloride	0.01	U	0.011	U	0.012	U	0.011	U	0.012	U	0.058	U	0.011	U	0.011	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene	0.0005	J	0.0055	U	0.006	U	0.0055	U	0.006	U	0.029	U	0.0055	U	0.0055	U
Tetrachloroethene	0.005	U	0.001	J	0.0008	J	0.0055	U	0.001	J	0.014	J	0.0055	U	0.001	J
Tetrahydrofuran																
Toluene	0.002	J	0.004	J	0.0008	J	0.0055	U	0.001	J	0.03		0.0008	J	0.0055	U
Trichloroethene	0.005	U	0.0055	U	0.006	U	0.0055	U	0.006	U	0.022	J	0.0055	U	0.0055	U
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total	0.005	U	0.0055	U	0.006	U	0.0055	U	0.006	U	0.085		0.0055	U	0.0055	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.69	U	0.73	U	1.2	U					0.96	U	0.69	U	0.69	U
1,2-Dichlorobenzene	0.69	U	0.73	U	1.2	U					0.96	U	0.69	U	0.69	U
1,4-Dichlorobenzene	0.69	U	0.73	U	1.2	U					0.96	U	0.69	U	0.69	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH21 BH21 6/10/1991 8-10 ft	BH22 BH22 6/10/1991 8-10 ft	BH23 BH23 6/10/1991 4-6 ft	BH24 BH24 6/10/1991 4-6 ft	BH25 BH25 6/10/1991 4-6 ft	BH26 BH26 6/11/1991 7-9 ft	BH27 BH27 6/11/1991 4-6 ft	BH28 BH28 6/11/1991 4-6 ft
1-Methylnaphthalene								
2,4-Dimethylphenol	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
2-Methylnaphthalene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
3 & 4 Methylphenol								
4-Chlorophenyl phenyl ether	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Acenaphthene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Acenaphthylene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Acetophenone								
Aniline								
Anthracene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Benzaldehyde								
Benzo(a)anthracene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Benzo(a)pyrene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Benzo(b)fluoranthene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Benzo(ghi)perylene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Benzo(k)fluoranthene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Benzoic Acid	3.4 U	3.5 U	6.1 U			4.6 U	3.4 U	3.4 U
Biphenyl								
Bis(2-Ethylhexyl)phthalate	0.69 U	0.75 U	1.2 U			**1200**	1.1	**330**
Butylbenzylphthalate	0.69 U	0.73 U	0.065 J			0.96 U	0.69 U	0.69 U
Carbazole								
Chrysene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Dibenz(a,h)anthracene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Dibenzofuran	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Diethylphthalate	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Di-n-butylphthalate	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Di-n-octylphthalate	0.69 U	0.73 U	1.2 U			0.37 J	0.69 U	0.26 J
Diphenyl ether								
Diphenylamine								
Fluoranthene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Fluorene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Indeno(1,2,3-cd)pyrene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.96
Naphthalene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
N-Nitrosodiphenylamine	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Phenanthrene	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Phenol	0.69 U	0.73 U	1.2 U			0.96 U	0.69 U	0.69 U
Pyrene	0.69 U	0.73 U	1.2 U			0.14 J	0.69 U	0.69 U
Pesticides/PCBs (mg/Kg)								
4,4'-DDD	0.032 U	0.035 U	0.035 U			0.046 U	0.032 U	0.035 U
Aldrin	0.016 U	0.018 U	0.018 U			0.023 U	0.016 U	0.018 U
Alpha-BHC	0.016 U	0.018 U	0.018 U			0.023 U	0.016 U	0.018 U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH21 BH21 6/10/1991 8-10 ft		BH22 BH22 6/10/1991 8-10 ft		BH23 BH23 6/10/1991 4-6 ft		BH24 BH24 6/10/1991 4-6 ft		BH25 BH25 6/10/1991 4-6 ft		BH26 BH26 6/11/1991 7-9 ft		BH27 BH27 6/11/1991 4-6 ft		BH28 BH28 6/11/1991 4-6 ft	
Alpha-Chlordane	0.16	UJ	0.18	UJ	0.18	UJ					0.23	U	0.16	U	0.18	U
Beta-BHC	0.016	U	0.018	U	0.018	U					0.023	U	0.016	U	0.018	U
Chlordane (technical)	0.16	UJ	0.18	UJ	0.18	UJ					0.23	U	0.16	U	0.18	U
Endosulfan sulfate	0.032	U	0.035	U	0.035	U					0.046	U	0.032	U	0.035	U
Endrin	0.032	U	0.035	U	0.035	U					0.046	U	0.032	U	0.035	U
Gamma-BHC/Lindane	0.016	U	0.018	U	0.018	U					0.023	U	0.016	U	0.018	U
Aroclor-1260	0.32	U	0.35	U	0.35	U					0.46	U	0.32	U	0.35	U
Inorganics (mg/Kg)																
Aluminum	7500		5600		7300						1200		5200	J	3600	
Antimony	20	U	20	U	20	U					20	U	20	UJ	20	U
Arsenic	**9.6**		**11**		2.2						0.9		**7.5**	J	**4.2**	
Barium	18		44		11						6		16		6	
Beryllium	1.5	U	1.5	U	1.5	U					1.5	U	1.5	U	1.5	U
Cadmium	1.1		1	U	1	U					1	U	1	U	1	U
Calcium	1400		970		760						5900		1000		550	
Chromium	12		27		21						6.6		11		6.6	
Chromium, Hexavalent																
Cobalt	2.8		2.7		3						1.5	U	3		1.5	U
Copper	9.9		6.2		2.9						2.5	U	6.2		2.8	
Iron	9800		10000		7400						2100		7300	J	4100	
Lead	10	U	10	U	10	U					10	U	10	U	10	U
Magnesium	2800		2700		3600						610		2000	J	1000	
Manganese	94		78		76						30		86	J	33	
Mercury	0.1	U	0.1	U	0.1	U					0.1	U	0.1	U	0.1	U
Nickel	7.1		5.6		7.6						4	UJ	7.7	J	4.3	J
Potassium	1200		1800		250						430		1200		500	
Selenium	0.5	U	0.5	U	0.5	U					0.5	U	0.5	U	0.5	U
Silver	1.5	U	1.5	U	1.5	U					1.5	U	1.5	U	1.5	U
Sodium	200		140		40						96		41		30	
Thallium	0.5	U	0.5	U	0.5	U					0.5	U	0.5	U	0.5	U
Tin																
Vanadium	11		14		18						2.5	U	10		5.6	
Zinc	18		18		18						3.4		16		15	
Chloride	40	UJ	47	J	170	J	43	J	51	J	40	UJ	40	UJ	40	UJ
Cyanide, Total	2	UJ	2	UJ	2	UJ					2	UJ	2	UJ	2	UJ
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N							14	J	24	J						
Nitrogen, as Ammonia	10	J	52	J	95	J	14	J	24	J	8	UJ	9.1	J	8	UJ
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH21 BH21 6/10/1991 8-10 ft		BH22 BH22 6/10/1991 8-10 ft		BH23 BH23 6/10/1991 4-6 ft		BH24 BH24 6/10/1991 4-6 ft		BH25 BH25 6/10/1991 4-6 ft		BH26 BH26 6/11/1991 7-9 ft		BH27 BH27 6/11/1991 4-6 ft		BH28 BH28 6/11/1991 4-6 ft	
pH **(pH units)**																
Sulfate	230	J	37	J	140	J	120	J	20	UJ	20	UJ	20	UJ	22	J
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH29 BH29 6/11/1991 4-6 ft		BH30 BH30 6/11/1991 8-10 ft		BH31 BH31 6/11/1991 3-5 ft		BH39 BH39 2/6/1992 4-6 ft		BH40 BH40 2/6/1992 4-6 ft		E1, 40, 3-4 E1.40 4/16/1998 3-4 ft		E1, 45, 1.5 E1.45 4/16/1998 1.5-1.5 ft		E1.5, 6-7 E1.50 4/17/1998 6-7 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene															0.006	U
1,2,4-Trichlorobenzene															0.006	U
1,2,4-Trimethylbenzene															0.006	U
1,2-Dichlorobenzene															0.006	U
1,2-Dichloroethane	0.0055	U	0.0055	U	0.006	U	0.006	UJ	0.007	UJ					0.006	U
1,3,5-Trimethylbenzene															0.006	U
1,4-Dichlorobenzene															0.006	U
2,4,4-Trimethyl-1-pentene	0.087		0.028		0.003	J	0.006	J	0.01	UJ						
2,4,4-Trimethyl-2-pentene	0.017		0.015		0.012	U	0.01	UJ	0.01	UJ						
2-Butanone	0.003	J	0.006	J	0.001	J	0.005	J	0.021	UJ					0.11	U
2-Hexanone	0.005	J	0.026		0.018	U	0.018	UJ	0.021	UJ					0.022	U
4-iso-Propyltoluene															0.006	U
4-Methyl-2-pentanone	0.016	U	0.016	U	0.018	U	0.018	UJ	0.021	UJ					0.022	U
Acetone	0.016	U	0.017	U	0.018	U	0.047	U	0.021	UJ					0.11	U
Benzene	0.0055	U	0.0055	U	0.0005	J	0.006	UJ	0.007	UJ					0.006	U
Carbon disulfide	0.011	U	0.011	U	0.012	U	0.012	UJ	0.014	UJ					0.006	U
Carbon tetrachloride	0.0055	U	0.0055	U	0.006	U	0.006	UJ	0.007	UJ					0.006	U
Chlorobenzene	0.0055	U	0.0055	U	0.006	U	0.006	UJ	0.007	UJ					0.006	U
Chloroform	0.0055	U	0.0055	U	0.006	U	0.006	UJ	0.007	UJ					0.006	U
Chloromethane	0.011	U	0.011	U	0.012	U	0.012	UJ	0.014	UJ					0.011	U
Ethyl benzene	0.0055	U	0.0055	U	0.006	U	0.006	UJ	0.007	UJ					0.006	U
Formaldehyde																
Isopropylbenzene															0.006	U
Methylene chloride	0.011	U	0.011	U	0.012	U	0.012	U	0.014	U					0.006	U
Naphthalene															0.055	U
Propylbenzene															0.006	U
sec-Butylbenzene															0.006	U
Styrene	0.0055	U	0.0055	U	0.006	U	0.006	UJ	0.007	UJ					0.006	U
Tetrachloroethene	0.0055	U	0.0055	U	0.006	U	0.006	UJ	0.007	UJ					0.006	U
Tetrahydrofuran																
Toluene	0.0055	U	0.0055	U	0.001	J	0.006	UJ	0.007	UJ					0.006	U
Trichloroethene	0.0055	U	0.0055	U	0.006	U	0.006	UJ	0.007	UJ					0.006	U
Trichlorofluoromethane															0.006	U
Xylene, o																
Xylenes (m&p)																
Xylenes, Total	0.0055	U	0.0055	U	0.006	U	0.006	UJ	0.007	UJ					0.006	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
1,2-Dichlorobenzene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
1,4-Dichlorobenzene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH29 BH29 6/11/1991 4-6 ft		BH30 BH30 6/11/1991 8-10 ft		BH31 BH31 6/11/1991 3-5 ft		BH39 BH39 2/6/1992 4-6 ft		BH40 BH40 2/6/1992 4-6 ft		E1, 40, 3-4 E1.40 4/16/1998 3-4 ft		E1, 45, 1.5 E1.45 4/16/1998 1.5-1.5 ft		E1.5, 6-7 E1.50 4/17/1998 6-7 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
2-Methylnaphthalene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Acenaphthene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Acenaphthylene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Acetophenone																
Aniline															3.63	U
Anthracene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Benzaldehyde																
Benzo(a)anthracene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Benzo(a)pyrene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Benzo(b)fluoranthene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Benzo(ghi)perylene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Benzo(k)fluoranthene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Benzoic Acid	3.4	U	3.5	U	3.8	U	3.8	U	4.5	U						
Biphenyl																
Bis(2-Ethylhexyl)phthalate	1.5		**210**		0.45	J	3.4		1.4	U					0.726	U
Butylbenzylphthalate	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Carbazole																
Chrysene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Dibenz(a,h)anthracene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Dibenzofuran	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Diethylphthalate	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Di-n-butylphthalate	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Di-n-octylphthalate	0.69	U	0.22	J	0.79	U	0.79	U	0.92	U					0.726	U
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Fluorene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Indeno(1,2,3-cd)pyrene	0.69	U	0.28	J	0.79	U	0.79	U	0.92	U					0.726	U
Naphthalene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
N-Nitrosodiphenylamine	0.69	U	0.33	J	0.79	U	0.79	U	0.92	U					0.726	U
Phenanthrene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Phenol	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Pyrene	0.69	U	0.73	U	0.79	U	0.79	U	0.92	U					0.726	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.035	U	0.035	UJ	0.038	U	0.038	U	0.045	U					0.01	U
Aldrin	0.018	U	0.018	UJ	0.019	U	0.019	U	0.022	U					0.01	U
Alpha-BHC	0.018	U	0.018	UJ	0.019	U	0.019	U	0.022	U					0.01	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH29 BH29 6/11/1991 4-6 ft		BH30 BH30 6/11/1991 8-10 ft		BH31 BH31 6/11/1991 3-5 ft		BH39 BH39 2/6/1992 4-6 ft		BH40 BH40 2/6/1992 4-6 ft		E1, 40, 3-4 E1.40 4/16/1998 3-4 ft		E1, 45, 1.5 E1.45 4/16/1998 1.5-1.5 ft		E1.5, 6-7 E1.50 4/17/1998 6-7 ft	
Alpha-Chlordane	0.18	U	0.18	UJ	0.19	U	0.19	U	0.22	U						
Beta-BHC	0.018	U	0.018	UJ	0.019	U	0.019	U	0.022	U					0.01	U
Chlordane (technical)	0.18	U	0.18	UJ	0.19	U	0.19	U	0.22	U						
Endosulfan sulfate	0.035	U	0.035	UJ	0.038	U	0.038	U	0.045	U					0.01	U
Endrin	0.035	U	0.035	UJ	0.038	U	0.038	U	0.045	U					0.01	U
Gamma-BHC/Lindane	0.018	U	0.018	UJ	0.019	U	0.019	U	0.022	U					0.01	U
Aroclor-1260	0.35	U	0.35	UJ	0.38	U	0.38	U	0.45	U						
Inorganics (mg/Kg)																
Aluminum	3800		4400		3400		5300		4700		200		688		1520	
Antimony	20	U	20	U	20	U	20	U	20	U	12	U	12	U	1.15	U
Arsenic	**4.7**		**5.5**		**5.7**		**4.3**		2.2		2	U	2	U	1.3	
Barium	7.3		12		5.2		9.8		17		40	U	40	U		
Beryllium	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1	U	1	U	0.4	U
Cadmium	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Calcium	460		1600		150		210		680		23000		1000	U		
Chromium	8.2		6.3		11		6.3		6.3		2240		22.8		219	
Chromium, Hexavalent																
Cobalt	2.1		3		1.9		1.6	J	2.4	J	10	U	10	U		
Copper	5.2		6		3.1		3.2		2.7		5	U	5	U	3.6	
Iron	5000		5900		7700		3700		3600		644		1870			
Lead	10	U	10	U	10	U	10	U	10	U	4.4		1.3		10	U
Magnesium	1000		1400		910		820		1100		1000	U	1000	U		
Manganese	44		59		30		26		35		6.1		13.7			
Mercury	0.1	U	0.1	U	0.1	U	0.11	U	0.13	U	0.4		0.12	U	0.1	U
Nickel	4.6	J	5.5	J	4	UJ	4.7		4.8		8	U	8	U	3.1	
Potassium	440		700		200		250		530		1000	U	1000	U		
Selenium	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.58	U
Silver	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	2	U	2	U	2	U
Sodium	54		130		55		21		34		25300		25600		11300	
Thallium	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2	U	2	U	1.15	U
Tin																
Vanadium	6.2		8.6		7		5.8		5.5		10	U	10	U		
Zinc	12		18		8		33		47		12.2		7		5.9	
Chloride	40	UJ	40	UJ	90	J	40	U	40	U	2.06		1.03		123	
Cyanide, Total	2	UJ	2	UJ	2	UJ	2	U	2	U						
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	8	UJ	8	UJ	400	J	24		29		121		62.1		120	
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH29 BH29 6/11/1991 4-6 ft		BH30 BH30 6/11/1991 8-10 ft		BH31 BH31 6/11/1991 3-5 ft		BH39 BH39 2/6/1992 4-6 ft		BH40 BH40 2/6/1992 4-6 ft		E1, 40, 3-4 E1.40 4/16/1998 3-4 ft		E1, 45, 1.5 E1.45 4/16/1998 1.5-1.5 ft		E1.5, 6-7 E1.50 4/17/1998 6-7 ft	
pH **(pH units)**																
Sulfate	80	J	58	J	20	UJ	34		27	U	285000		108000		37000	
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	E1.5, 8-8.5 E1.50 4/17/1998 8-8.5 ft		E1.75, 6-7 E1.75 4/20/1998 6-7 ft		E1.75,8.5-9.5 E1.75 4/20/1998 8.5-9.5 ft		E2.22, 7-8 E2.22 4/21/1998 7-8 ft		E2.70, 9.2 E2.70 4/20/1998 9.2-9.2 ft		ECS-1 ECS-1 1/29/2004 5-7 ft		ECS-3 ECS-3 1/29/2004 5-7 ft		ECS-5 ECS-5a 1/29/2004 5-7 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
1,2,4-Trichlorobenzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
1,2,4-Trimethylbenzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
1,2-Dichlorobenzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
1,2-Dichloroethane	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
1,3,5-Trimethylbenzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
1,4-Dichlorobenzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
2,4,4-Trimethyl-1-pentene																
2,4,4-Trimethyl-2-pentene																
2-Butanone	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U						
2-Hexanone	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U						
4-iso-Propyltoluene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
4-Methyl-2-pentanone	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U						
Acetone	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U						
Benzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Carbon disulfide	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Carbon tetrachloride	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Chlorobenzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Chloroform	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Chloromethane	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U						
Ethyl benzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Formaldehyde																
Isopropylbenzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Methylene chloride	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Naphthalene	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U						
Propylbenzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
sec-Butylbenzene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Styrene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Tetrachloroethene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Tetrahydrofuran																
Toluene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Trichloroethene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Trichlorofluoromethane	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Xylene, o																
Xylenes (m&p)																
Xylenes, Total	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U						
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
1,2-Dichlorobenzene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
1,4-Dichlorobenzene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	E1.5, 8-8.5 E1.50 4/17/1998 8-8.5 ft		E1.75, 6-7 E1.75 4/20/1998 6-7 ft		E1.75,8.5-9.5 E1.75 4/20/1998 8.5-9.5 ft		E2.22, 7-8 E2.22 4/21/1998 7-8 ft		E2.70, 9.2 E2.70 4/20/1998 9.2-9.2 ft		ECS-1 ECS-1 1/29/2004 5-7 ft		ECS-3 ECS-3 1/29/2004 5-7 ft		ECS-5 ECS-5a 1/29/2004 5-7 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
2-Methylnaphthalene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Acenaphthene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Acenaphthylene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Acetophenone																
Aniline	3.63	U	1.65	U	1.65	U	1.65	U	1.65	U						
Anthracene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Benzaldehyde																
Benzo(a)anthracene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Benzo(a)pyrene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Benzo(b)fluoranthene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Benzo(ghi)perylene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Benzo(k)fluoranthene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Benzoic Acid	3.63	U	1.65	U			1.65	U	1.65	U						
Biphenyl																
Bis(2-Ethylhexyl)phthalate	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Butylbenzylphthalate	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Carbazole																
Chrysene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Dibenz(a,h)anthracene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Dibenzofuran	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Diethylphthalate	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Di-n-butylphthalate	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Di-n-octylphthalate	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Fluorene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Indeno(1,2,3-cd)pyrene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Naphthalene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
N-Nitrosodiphenylamine	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Phenanthrene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Phenol	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Pyrene	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U						
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U						
Aldrin	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U						
Alpha-BHC	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U						

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	E1.5, 8-8.5 E1.50 4/17/1998 8-8.5 ft		E1.75, 6-7 E1.75 4/20/1998 6-7 ft		E1.75,8.5-9.5 E1.75 4/20/1998 8.5-9.5 ft		E2.22, 7-8 E2.22 4/21/1998 7-8 ft		E2.70, 9.2 E2.70 4/20/1998 9.2-9.2 ft		ECS-1 ECS-1 1/29/2004 5-7 ft		ECS-3 ECS-3 1/29/2004 5-7 ft		ECS-5 ECS-5a 1/29/2004 5-7 ft	
Alpha-Chlordane																
Beta-BHC	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U						
Chlordane (technical)																
Endosulfan sulfate	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U						
Endrin	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U						
Gamma-BHC/Lindane	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U						
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	1130		1170		2490		2790		1020							
Antimony	0.5	U	1	U	1	U	1	U	1	U						
Arsenic	0.81	U	1.4		1.9		**2.6**		1	U						
Barium																
Beryllium	0.81	U	0.4	U	0.4	U	0.4	U	0.4	U						
Cadmium	1	U	1	U	1	U	1	U	1	U						
Calcium																
Chromium	39		92.1		64.1		27		47.6							
Chromium, Hexavalent																
Cobalt																
Copper	2	U	2	U	3.1		2	U	2	U						
Iron																
Lead	10	U	10	U	10	U	10	U	10	U						
Magnesium																
Manganese																
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U						
Nickel	3	U	3		4.2		3.5		3	U						
Potassium																
Selenium	0.51	U	1	U	1	U	1	U	1	U						
Silver	2	U	2	U	2	U	2	U	2	U						
Sodium	1160		5500		1060		75.4		3780							
Thallium	1.02	U	2	U	2	U	2	U	2	U						
Tin																
Vanadium																
Zinc	4.1		4.9		11.3		8.4		7.4							
Chloride	81.8		7.73		12.2		32.4		10.9							
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	95.9		19.7		6.64		5.4	U	5.4	U						
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	E1.5, 8-8.5 E1.50 4/17/1998 8-8.5 ft	E1.75, 6-7 E1.75 4/20/1998 6-7 ft	E1.75,8.5-9.5 E1.75 4/20/1998 8.5-9.5 ft	E2.22, 7-8 E2.22 4/21/1998 7-8 ft	E2.70, 9.2 E2.70 4/20/1998 9.2-9.2 ft	ECS-1 ECS-1 1/29/2004 5-7 ft	ECS-3 ECS-3 1/29/2004 5-7 ft	ECS-5 ECS-5a 1/29/2004 5-7 ft
pH **(pH units)**								
Sulfate	1300	665	542	456	331			
Sulfate **(mg/L)**								
Total Organic Carbon								
Urea								
TCLP Metals (mg/L)								
Chromium								
VPH (mg/Kg)								
Ethyl benzene						0.0996 U	0.0823 U	0.0681 U
Toluene						0.0996 U	0.0823 U	0.0681 U
Xylenes, Total						0.199 U	0.165 U	0.136 U
C5-C8 Aliphatics						1.49 U	1.23 U	1.02 U
C5-C8 Aliphatics (unadj.)						1.49 U	1.23 U	1.02 U
C9-C10 Aromatics						0.498 U	0.411 U	0.34 U
C9-C12 Aliphatics						0.498 U	0.411 U	0.34 U
C9-C12 Aliphatics (unadj.)						0.498 U	0.411 U	0.34 U
Volatile Petroleum Hydrocarbons, Total								
EPH (mg/Kg)								
Acenaphthene								
Acenaphthylene								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(ghi)perylene								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
C9-C18 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								
Specialty Compounds (mg/Kg)								
Hydrazine								
Acetaldehyde								
Formaldehyde								
Phthalic Acid/Phthalic anhydride								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	ECS-8 ECS-8 1/30/2004 5-7 ft		LPB-2(7-8) LPB-2 1/18/1995 7-8 ft		LPB-2(8-9) LPB-2 1/18/1995 8-9 ft		LPB-41-BLW LPB-41 12/10/2003 5-9.5 ft		LPB-41-VI LPB-41 12/10/2003 1.5-3.5 ft		LPB-42-BLW LPB-42 12/10/2003 9-10 ft		LPB-42-OVR LPB-42 12/10/2003 0-3.5 ft		LPB-42-VI LPB-42 12/10/2003 3.5-5 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane			0.006	U	0.002	J										
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene			0.93		10											
2,4,4-Trimethyl-2-pentene			0.28		3.3											
2-Butanone			0.021		0.017	U										
2-Hexanone			0.018	U	0.017	U										
4-iso-Propyltoluene																
4-Methyl-2-pentanone			0.018	U	0.017	U										
Acetone			0.14	B	0.026	B										
Benzene			0.006	U	0.006	U										
Carbon disulfide			0.012	U	0.011	U										
Carbon tetrachloride			0.006	U	0.006	U										
Chlorobenzene			0.006	U	0.006	U										
Chloroform			0.006	U	0.006	U										
Chloromethane			0.012	U	0.011	U										
Ethyl benzene			0.015		0.057											
Formaldehyde							0.11	U	0.13	U	0.19		0.11	U	0.15	
Isopropylbenzene																
Methylene chloride			0.004	JB	0.002	JB										
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene			0.001	J	0.006	U										
Tetrachloroethene			0.006	U	0.006	U										
Tetrahydrofuran																
Toluene			0.004	J	0.007	J										
Trichloroethene			0.006	U	0.006	U										
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total			0.003	J	0.091											
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene			0.4	U	0.088	J										
1,2-Dichlorobenzene			0.4	U	0.17	J										
1,4-Dichlorobenzene			0.4	U	0.23	J										

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	ECS-8 ECS-8 1/30/2004 5-7 ft		LPB-2(7-8) LPB-2 1/18/1995 7-8 ft		LPB-2(8-9) LPB-2 1/18/1995 8-9 ft		LPB-41-BLW LPB-41 12/10/2003 5-9.5 ft		LPB-41-VI LPB-41 12/10/2003 1.5-3.5 ft		LPB-42-BLW LPB-42 12/10/2003 9-10 ft		LPB-42-OVR LPB-42 12/10/2003 0-3.5 ft		LPB-42-VI LPB-42 12/10/2003 3.5-5 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol			0.4	U	0.83	U										
2-Methylnaphthalene			0.4	U	0.83	U										
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether			0.4	U	0.17	J										
Acenaphthene			0.4	U	0.83	U										
Acenaphthylene			0.4	U	0.83	U										
Acetophenone																
Aniline																
Anthracene			0.4	U	0.83	U										
Benzaldehyde																
Benzo(a)anthracene			0.4	U	0.83	U										
Benzo(a)pyrene			0.4	U	0.83	U										
Benzo(b)fluoranthene			0.4	U	0.83	U										
Benzo(ghi)perylene			0.4	U	0.83	U										
Benzo(k)fluoranthene			0.4	U	0.83	U										
Benzoic Acid																
Biphenyl																
Bis(2-Ethylhexyl)phthalate			1.8		**260**											
Butylbenzylphthalate			0.4	U	0.83	U										
Carbazole			0.4	U	0.83	U										
Chrysene			0.4	U	0.83	U										
Dibenz(a,h)anthracene			0.4	U	0.83	U										
Dibenzofuran			0.4	U	0.095	J										
Diethylphthalate			0.4	U	0.83	U										
Di-n-butylphthalate			0.032	JB	9.1	B										
Di-n-octylphthalate			0.4	U	0.11	J										
Diphenyl ether																
Diphenylamine																
Fluoranthene			0.4	U	0.082	J										
Fluorene			0.4	U	0.83	U										
Indeno(1,2,3-cd)pyrene			0.4	U	0.83	U										
Naphthalene			0.4	U	0.092	J										
N-Nitrosodiphenylamine			140		300											
Phenanthrene			0.4	U	0.28	J										
Phenol			0.4	U	0.055	J										
Pyrene			0.4	U	0.098	J										
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	ECS-8 ECS-8 1/30/2004 5-7 ft		LPB-2(7-8) LPB-2 1/18/1995 7-8 ft		LPB-2(8-9) LPB-2 1/18/1995 8-9 ft		LPB-41-BLW LPB-41 12/10/2003 5-9.5 ft		LPB-41-VI LPB-41 12/10/2003 1.5-3.5 ft		LPB-42-BLW LPB-42 12/10/2003 9-10 ft		LPB-42-OVR LPB-42 12/10/2003 0-3.5 ft		LPB-42-VI LPB-42 12/10/2003 3.5-5 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum			4700		2500											
Antimony			0.5	U	0.5	U										
Arsenic			**4**		**2.5**											
Barium			8.4		13											
Beryllium			0.5	U	0.5	U										
Cadmium			1	U	1	U										
Calcium			480		420											
Chromium			68		1300											
Chromium, Hexavalent																
Cobalt			3	U	3	U										
Copper			3.4		3.9											
Iron			5300		5200											
Lead			5.7		13											
Magnesium			1300		880											
Manganese			44		41											
Mercury			0.1	U	0.52											
Nickel			4	U	4.7											
Potassium			290		260											
Selenium			0.5	U	0.5	U										
Silver			1.5	U	1.5	U										
Sodium			76		39											
Thallium			0.5	U	0.5	U										
Tin																
Vanadium			6.8		4.8											
Zinc			13		28											
Chloride			40	U	40	U										
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia			390		170											
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	ECS-8 ECS-8 1/30/2004 5-7 ft		LPB-2(7-8) LPB-2 1/18/1995 7-8 ft		LPB-2(8-9) LPB-2 1/18/1995 8-9 ft		LPB-41-BLW LPB-41 12/10/2003 5-9.5 ft		LPB-41-VI LPB-41 12/10/2003 1.5-3.5 ft		LPB-42-BLW LPB-42 12/10/2003 9-10 ft		LPB-42-OVR LPB-42 12/10/2003 0-3.5 ft		LPB-42-VI LPB-42 12/10/2003 3.5-5 ft	
pH **(pH units)**																
Sulfate			44		85											
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene	0.0877	U														
Toluene	0.0877	U														
Xylenes, Total	0.175	U														
C5-C8 Aliphatics	1.32	U														
C5-C8 Aliphatics (unadj.)	1.32	U														
C9-C10 Aromatics	0.439	U														
C9-C12 Aliphatics	0.439	U														
C9-C12 Aliphatics (unadj.)	0.439	U														
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine							0.27	UG	0.35	UG	0.28	UG	0.28	UG	0.27	UG
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-43-BLW LPB-43 12/10/2003 8.7-10 ft		LPB-43-OVR LPB-43 12/10/2003 1-3.5 ft		LPB-43-VI LPB-43 12/10/2003 3.5-5 ft		LPB-48-BLW LPB-48 12/10/2003 8-20 ft		LPB-48-OVR LPB-48 12/10/2003 2.5-5 ft		LPB-48-VI LPB-48 12/10/2003 5-8 ft		LPB-50-BLW LPB-50 12/10/2003 8.4-10 ft		LPB-50-OVR LPB-50 12/10/2003 2.5-5 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane																
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene																
2,4,4-Trimethyl-2-pentene																
2-Butanone																
2-Hexanone																
4-iso-Propyltoluene																
4-Methyl-2-pentanone																
Acetone																
Benzene																
Carbon disulfide																
Carbon tetrachloride																
Chlorobenzene																
Chloroform																
Chloromethane																
Ethyl benzene																
Formaldehyde	0.16		0.11	U	0.13		0.12	U	0.11	U	1.2		0.13		0.11	U
Isopropylbenzene																
Methylene chloride																
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene																
Tetrachloroethene																
Tetrahydrofuran																
Toluene																
Trichloroethene																
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene																
1,2-Dichlorobenzene																
1,4-Dichlorobenzene																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-43-BLW LPB-43 12/10/2003 8.7-10 ft	LPB-43-OVR LPB-43 12/10/2003 1-3.5 ft	LPB-43-VI LPB-43 12/10/2003 3.5-5 ft	LPB-48-BLW LPB-48 12/10/2003 8-20 ft	LPB-48-OVR LPB-48 12/10/2003 2.5-5 ft	LPB-48-VI LPB-48 12/10/2003 5-8 ft	LPB-50-BLW LPB-50 12/10/2003 8.4-10 ft	LPB-50-OVR LPB-50 12/10/2003 2.5-5 ft
1-Methylnaphthalene								
2,4-Dimethylphenol								
2-Methylnaphthalene								
3 & 4 Methylphenol								
4-Chlorophenyl phenyl ether								
Acenaphthene								
Acenaphthylene								
Acetophenone								
Aniline								
Anthracene								
Benzaldehyde								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(b)fluoranthene								
Benzo(ghi)perylene								
Benzo(k)fluoranthene								
Benzoic Acid								
Biphenyl								
Bis(2-Ethylhexyl)phthalate								
Butylbenzylphthalate								
Carbazole								
Chrysene								
Dibenz(a,h)anthracene								
Dibenzofuran								
Diethylphthalate								
Di-n-butylphthalate								
Di-n-octylphthalate								
Diphenyl ether								
Diphenylamine								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
N-Nitrosodiphenylamine								
Phenanthrene								
Phenol								
Pyrene								
Pesticides/PCBs (mg/Kg)								
4,4'-DDD								
Aldrin								
Alpha-BHC								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-43-BLW LPB-43 12/10/2003 8.7-10 ft	LPB-43-OVR LPB-43 12/10/2003 1-3.5 ft	LPB-43-VI LPB-43 12/10/2003 3.5-5 ft	LPB-48-BLW LPB-48 12/10/2003 8-20 ft	LPB-48-OVR LPB-48 12/10/2003 2.5-5 ft	LPB-48-VI LPB-48 12/10/2003 5-8 ft	LPB-50-BLW LPB-50 12/10/2003 8.4-10 ft	LPB-50-OVR LPB-50 12/10/2003 2.5-5 ft
Alpha-Chlordane								
Beta-BHC								
Chlordane (technical)								
Endosulfan sulfate								
Endrin								
Gamma-BHC/Lindane								
Aroclor-1260								
Inorganics (mg/Kg)								
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Chromium, Hexavalent								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Tin								
Vanadium								
Zinc								
Chloride								
Cyanide, Total								
Eh **(mV)**								
Flash Point **(°F)**								
Lab Specific Conductance **(mS/cm)**								
Nitrate as N								
Nitrogen, as Ammonia								
Oxidation Reduction Potential **(mV)**								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-43-BLW LPB-43 12/10/2003 8.7-10 ft		LPB-43-OVR LPB-43 12/10/2003 1-3.5 ft		LPB-43-VI LPB-43 12/10/2003 3.5-5 ft		LPB-48-BLW LPB-48 12/10/2003 8-20 ft		LPB-48-OVR LPB-48 12/10/2003 2.5-5 ft		LPB-48-VI LPB-48 12/10/2003 5-8 ft		LPB-50-BLW LPB-50 12/10/2003 8.4-10 ft		LPB-50-OVR LPB-50 12/10/2003 2.5-5 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine	0.28	UG	0.28	UG	0.32	UG	0.28	UG	0.27	UG	**1.9**	Q	0.28	UG	0.27	UG
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-50-VI LPB-50 12/10/2003 7.5-8.4 ft		LP-BOT-A LP-BOT-A 6/9/2004 7.5-9 ft		LP-BOT-B LP-BOT-B 6/9/2004 7-9 ft		LP-BOT-C LP-BOT-C 6/9/2004 5-9 ft		LP-C02 LP-C02 6/9/2004 5-6.5 ft		LP-C03 LP-C03 6/9/2004 5-7 ft		LP-C04 LP-C04 6/9/2004 5-7 ft		LP-C05 LP-C05 6/9/2004 4.5-5.5 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane																
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene																
2,4,4-Trimethyl-2-pentene																
2-Butanone																
2-Hexanone																
4-iso-Propyltoluene																
4-Methyl-2-pentanone																
Acetone																
Benzene																
Carbon disulfide																
Carbon tetrachloride																
Chlorobenzene																
Chloroform																
Chloromethane																
Ethyl benzene																
Formaldehyde	0.12	U														
Isopropylbenzene																
Methylene chloride																
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene																
Tetrachloroethene																
Tetrahydrofuran																
Toluene																
Trichloroethene																
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene																
1,2-Dichlorobenzene																
1,4-Dichlorobenzene																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-50-VI LPB-50 12/10/2003 7.5-8.4 ft		LP-BOT-A LP-BOT-A 6/9/2004 7.5-9 ft		LP-BOT-B LP-BOT-B 6/9/2004 7-9 ft		LP-BOT-C LP-BOT-C 6/9/2004 5-9 ft		LP-C02 LP-C02 6/9/2004 5-6.5 ft		LP-C03 LP-C03 6/9/2004 5-7 ft		LP-C04 LP-C04 6/9/2004 5-7 ft		LP-C05 LP-C05 6/9/2004 4.5-5.5 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol																
2-Methylnaphthalene																
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether																
Acenaphthene																
Acenaphthylene																
Acetophenone																
Aniline																
Anthracene																
Benzaldehyde																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(b)fluoranthene																
Benzo(ghi)perylene																
Benzo(k)fluoranthene																
Benzoic Acid																
Biphenyl																
Bis(2-Ethylhexyl)phthalate																
Butylbenzylphthalate																
Carbazole																
Chrysene																
Dibenz(a,h)anthracene																
Dibenzofuran																
Diethylphthalate																
Di-n-butylphthalate																
Di-n-octylphthalate																
Diphenyl ether																
Diphenylamine																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
N-Nitrosodiphenylamine																
Phenanthrene																
Phenol																
Pyrene																
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-50-VI LPB-50 12/10/2003 7.5-8.4 ft		LP-BOT-A LP-BOT-A 6/9/2004 7.5-9 ft		LP-BOT-B LP-BOT-B 6/9/2004 7-9 ft		LP-BOT-C LP-BOT-C 6/9/2004 5-9 ft		LP-C02 LP-C02 6/9/2004 5-6.5 ft		LP-C03 LP-C03 6/9/2004 5-7 ft		LP-C04 LP-C04 6/9/2004 5-7 ft		LP-C05 LP-C05 6/9/2004 4.5-5.5 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium			780		640		930		12		16		41		24	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia			110	J	2200	J	4700	J	3.6	J	64	J	46	J	58	J
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LPB-50-VI LPB-50 12/10/2003 7.5-8.4 ft		LP-BOT-A LP-BOT-A 6/9/2004 7.5-9 ft		LP-BOT-B LP-BOT-B 6/9/2004 7-9 ft		LP-BOT-C LP-BOT-C 6/9/2004 5-9 ft		LP-C02 LP-C02 6/9/2004 5-6.5 ft		LP-C03 LP-C03 6/9/2004 5-7 ft		LP-C04 LP-C04 6/9/2004 5-7 ft		LP-C05 LP-C05 6/9/2004 4.5-5.5 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine	0.3	UG														
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LP-C06 LP-C06 6/9/2004 4-6 ft	LP-C07 LP-C07 6/9/2004 4.5-6.5 ft	LP-C08 LP-C08 6/9/2004 5-7 ft	LP-C09 LP-C09 6/15/2004 5.5-7.5 ft	PLD1-5-8 PLD-1 3/8/2004 5-8 ft	PLD1A-0-4 (GW-306) GW-306 3/8/2004 0-4 ft	PLD2-5-8 PLD-2 3/8/2004 5-8 ft	PLD2A-0-4 (GW-307) GW-307 3/8/2004 0-4 ft
Volatile Organics (mg/Kg)								
1,2,3-Trichlorobenzene								
1,2,4-Trichlorobenzene								
1,2,4-Trimethylbenzene								
1,2-Dichlorobenzene								
1,2-Dichloroethane								
1,3,5-Trimethylbenzene								
1,4-Dichlorobenzene								
2,4,4-Trimethyl-1-pentene								
2,4,4-Trimethyl-2-pentene								
2-Butanone								
2-Hexanone								
4-iso-Propyltoluene								
4-Methyl-2-pentanone								
Acetone								
Benzene								
Carbon disulfide								
Carbon tetrachloride								
Chlorobenzene								
Chloroform								
Chloromethane								
Ethyl benzene								
Formaldehyde					0.12 U	0.25 J	0.74	0.11 U
Isopropylbenzene								
Methylene chloride								
Naphthalene								
Propylbenzene								
sec-Butylbenzene								
Styrene								
Tetrachloroethene								
Tetrahydrofuran								
Toluene								
Trichloroethene								
Trichlorofluoromethane								
Xylene, o								
Xylenes (m&p)								
Xylenes, Total								
Semivolatile Organics (mg/Kg)								
1,2,4-Trichlorobenzene								
1,2-Dichlorobenzene								
1,4-Dichlorobenzene								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LP-C06 LP-C06 6/9/2004 4-6 ft	LP-C07 LP-C07 6/9/2004 4.5-6.5 ft	LP-C08 LP-C08 6/9/2004 5-7 ft	LP-C09 LP-C09 6/15/2004 5.5-7.5 ft	PLD1-5-8 PLD-1 3/8/2004 5-8 ft	PLD1A-0-4 (GW-306) GW-306 3/8/2004 0-4 ft	PLD2-5-8 PLD-2 3/8/2004 5-8 ft	PLD2A-0-4 (GW-307) GW-307 3/8/2004 0-4 ft
1-Methylnaphthalene								
2,4-Dimethylphenol								
2-Methylnaphthalene								
3 & 4 Methylphenol								
4-Chlorophenyl phenyl ether								
Acenaphthene								
Acenaphthylene								
Acetophenone								
Aniline								
Anthracene								
Benzaldehyde								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(b)fluoranthene								
Benzo(ghi)perylene								
Benzo(k)fluoranthene								
Benzoic Acid								
Biphenyl								
Bis(2-Ethylhexyl)phthalate								
Butylbenzylphthalate								
Carbazole								
Chrysene								
Dibenz(a,h)anthracene								
Dibenzofuran								
Diethylphthalate								
Di-n-butylphthalate								
Di-n-octylphthalate								
Diphenyl ether								
Diphenylamine								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
N-Nitrosodiphenylamine								
Phenanthrene								
Phenol								
Pyrene								
Pesticides/PCBs (mg/Kg)								
4,4'-DDD								
Aldrin								
Alpha-BHC								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LP-C06 LP-C06 6/9/2004 4-6 ft		LP-C07 LP-C07 6/9/2004 4.5-6.5 ft		LP-C08 LP-C08 6/9/2004 5-7 ft		LP-C09 LP-C09 6/15/2004 5.5-7.5 ft		PLD1-5-8 PLD-1 3/8/2004 5-8 ft		PLD1A-0-4 (GW-306) GW-306 3/8/2004 0-4 ft		PLD2-5-8 PLD-2 3/8/2004 5-8 ft		PLD2A-0-4 (GW-307) GW-307 3/8/2004 0-4 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium	3100		340		7900		30									
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	4100	J	270	J	41	J	25	J								
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	LP-C06 LP-C06 6/9/2004 4-6 ft	LP-C07 LP-C07 6/9/2004 4.5-6.5 ft	LP-C08 LP-C08 6/9/2004 5-7 ft	LP-C09 LP-C09 6/15/2004 5.5-7.5 ft	PLD1-5-8 PLD-1 3/8/2004 5-8 ft	PLD1A-0-4 (GW-306) GW-306 3/8/2004 0-4 ft	PLD2-5-8 PLD-2 3/8/2004 5-8 ft	PLD2A-0-4 (GW-307) GW-307 3/8/2004 0-4 ft
pH **(pH units)**								
Sulfate								
Sulfate **(mg/L)**								
Total Organic Carbon								
Urea								
TCLP Metals (mg/L)								
Chromium								
VPH (mg/Kg)								
Ethyl benzene								
Toluene								
Xylenes, Total								
C5-C8 Aliphatics								
C5-C8 Aliphatics (unadj.)								
C9-C10 Aromatics								
C9-C12 Aliphatics								
C9-C12 Aliphatics (unadj.)								
Volatile Petroleum Hydrocarbons, Total								
EPH (mg/Kg)								
Acenaphthene								
Acenaphthylene								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(ghi)perylene								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
C9-C18 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								
Specialty Compounds (mg/Kg)								
Hydrazine					0.3 U	0.31 U	0.3 U	0.31 U
Acetaldehyde								
Formaldehyde								
Phthalic Acid/Phthalic anhydride								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	PLD3-0-4 PLD-3 3/8/2004 0-4 ft	PLD3-5-8 PLD-3 3/8/2004 5-8 ft	RSO-01-S1 (0-3 FT) RSO-01 1/25/2000 0-3 ft	RSO-01-S1 (0-3) RSO-01 1/25/2000 0-3 ft	RSO-01-S2 (3-6 FT) RSO-01 1/25/2000 3-6 ft	RSO-01-S2 (3-6) RSO-01 1/25/2000 3-6 ft	RSO-02-S1 (0-3 FT) RSO-02 1/25/2000 0-3 ft	RSO-02-S1 (0-3) RSO-02 1/25/2000 0-3 ft
Volatile Organics (mg/Kg)								
1,2,3-Trichlorobenzene								
1,2,4-Trichlorobenzene								
1,2,4-Trimethylbenzene								
1,2-Dichlorobenzene								
1,2-Dichloroethane				0.006 U		0.006 U		0.005 U
1,3,5-Trimethylbenzene								
1,4-Dichlorobenzene								
2,4,4-Trimethyl-1-pentene				0.006 U		0.006 U		0.005 U
2,4,4-Trimethyl-2-pentene				0.006 U		0.006 U		0.005 U
2-Butanone				0.012 U		0.012 U		0.011 U
2-Hexanone				0.012 UJ		0.012 UJ		0.011 U
4-iso-Propyltoluene								
4-Methyl-2-pentanone				0.012 U		0.012 U		0.011 U
Acetone				0.012 U		0.012 U		0.011 U
Benzene				0.006 U		0.006 U		0.005 U
Carbon disulfide				0.006 U		0.006 U		0.005 U
Carbon tetrachloride				0.006 U		0.006 U		0.005 U
Chlorobenzene				0.006 UJ		0.006 UJ		0.005 U
Chloroform				0.006 U		0.006 U		0.005 U
Chloromethane				0.012 U		0.012 U		0.011 U
Ethyl benzene				0.006 U		0.006 U		0.005 U
Formaldehyde	0.16 J	0.14 J						
Isopropylbenzene								
Methylene chloride				0.006 U		0.006 U		0.005 U
Naphthalene								
Propylbenzene								
sec-Butylbenzene								
Styrene				0.006 U		0.006 U		0.005 U
Tetrachloroethene				0.006 U		0.006 U		0.005 U
Tetrahydrofuran								
Toluene				0.006 U		0.006 U		0.005 U
Trichloroethene				0.006 U		0.006 U		0.005 U
Trichlorofluoromethane								
Xylene, o								
Xylenes (m&p)								
Xylenes, Total				0.006 U		0.006 U		0.005 U
Semivolatile Organics (mg/Kg)								
1,2,4-Trichlorobenzene				0.36 U		0.36 U		0.36 U
1,2-Dichlorobenzene				0.36 U		0.36 U		0.36 U
1,4-Dichlorobenzene				0.36 U		0.36 U		0.36 U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	PLD3-0-4 PLD-3 3/8/2004 0-4 ft	PLD3-5-8 PLD-3 3/8/2004 5-8 ft	RSO-01-S1 (0-3 FT) RSO-01 1/25/2000 0-3 ft	RSO-01-S1 (0-3) RSO-01 1/25/2000 0-3 ft	RSO-01-S2 (3-6 FT) RSO-01 1/25/2000 3-6 ft	RSO-01-S2 (3-6) RSO-01 1/25/2000 3-6 ft	RSO-02-S1 (0-3 FT) RSO-02 1/25/2000 0-3 ft	RSO-02-S1 (0-3) RSO-02 1/25/2000 0-3 ft
1-Methylnaphthalene								
2,4-Dimethylphenol				0.36 U		0.36 U		0.36 U
2-Methylnaphthalene				0.36 U		0.36 U		0.36 U
3 & 4 Methylphenol								
4-Chlorophenyl phenyl ether				0.36 U		0.36 U		0.36 U
Acenaphthene				0.36 U		0.36 U		0.36 U
Acenaphthylene				0.36 U		0.36 U		0.36 U
Acetophenone								
Aniline								
Anthracene				0.36 U		0.36 U		0.36 U
Benzaldehyde								
Benzo(a)anthracene				0.36 U		0.36 U		0.36 U
Benzo(a)pyrene				0.36 U		0.36 U		0.36 U
Benzo(b)fluoranthene				0.36 U		0.36 U		0.36 U
Benzo(ghi)perylene				0.36 U		0.36 U		0.36 U
Benzo(k)fluoranthene				0.36 U		0.36 U		0.36 U
Benzoic Acid				1.7 U		1.8 U		1.7 U
Biphenyl								
Bis(2-Ethylhexyl)phthalate				0.36 U		0.36 U		0.36 U
Butylbenzylphthalate				0.36 U		0.36 U		0.36 U
Carbazole				0.36 U		0.36 U		0.36 U
Chrysene				0.36 U		0.36 U		0.36 U
Dibenz(a,h)anthracene				0.36 U		0.36 U		0.36 U
Dibenzofuran				0.36 U		0.36 U		0.36 U
Diethylphthalate				0.36 U		0.36 U		0.36 U
Di-n-butylphthalate				0.36 U		0.36 U		0.36 U
Di-n-octylphthalate				0.36 U		0.36 U		0.36 U
Diphenyl ether								
Diphenylamine								
Fluoranthene				0.36 U		0.36 U		0.36 U
Fluorene				0.36 U		0.36 U		0.36 U
Indeno(1,2,3-cd)pyrene				0.36 U		0.36 U		0.36 U
Naphthalene				0.36 U		0.36 U		0.36 U
N-Nitrosodiphenylamine				0.36 U		0.36 U		0.36 U
Phenanthrene				0.36 U		0.36 U		0.36 U
Phenol				0.36 U		0.36 U		0.36 U
Pyrene				0.36 U		0.36 U		0.36 U
Pesticides/PCBs (mg/Kg)								
4,4'-DDD								
Aldrin								
Alpha-BHC								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	PLD3-0-4 PLD-3 3/8/2004 0-4 ft		PLD3-5-8 PLD-3 3/8/2004 5-8 ft		RSO-01-S1 (0-3 FT) RSO-01 1/25/2000 0-3 ft		RSO-01-S1 (0-3) RSO-01 1/25/2000 0-3 ft		RSO-01-S2 (3-6 FT) RSO-01 1/25/2000 3-6 ft		RSO-01-S2 (3-6) RSO-01 1/25/2000 3-6 ft		RSO-02-S1 (0-3 FT) RSO-02 1/25/2000 0-3 ft		RSO-02-S1 (0-3) RSO-02 1/25/2000 0-3 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum					6700				4000				7300			
Antimony					1	U			1	U			1	U		
Arsenic																
Barium					9.3				5.6				5.9			
Beryllium					0.14				0.1	U			0.14			
Cadmium					0.1	U			0.1	U			0.1	U		
Calcium					310				380				170			
Chromium					8.1				6.6				8.3			
Chromium, Hexavalent																
Cobalt					2.6				2				2.3			
Copper					3.8				3.1				3.2			
Iron					6300				3800				5700			
Lead					3.7				2.2				4.2			
Magnesium					1200				1000				950			
Manganese					59				43				41			
Mercury					0.05	U			0.05	U			0.05	U		
Nickel					5.1				4.4				5.5			
Potassium					470				340				190			
Selenium					0.7	U			0.7	U			0.7	U		
Silver					0.7	U			0.7	U			0.7	U		
Sodium					68	U			70	U			66	U		
Thallium					0.7	U			0.7	U			0.7	U		
Tin																
Vanadium					9.1				5.6				9.5			
Zinc					14				10				16			
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	PLD3-0-4 PLD-3 3/8/2004 0-4 ft		PLD3-5-8 PLD-3 3/8/2004 5-8 ft		RSO-01-S1 (0-3 FT) RSO-01 1/25/2000 0-3 ft		RSO-01-S1 (0-3) RSO-01 1/25/2000 0-3 ft		RSO-01-S2 (3-6 FT) RSO-01 1/25/2000 3-6 ft		RSO-01-S2 (3-6) RSO-01 1/25/2000 3-6 ft		RSO-02-S1 (0-3 FT) RSO-02 1/25/2000 0-3 ft		RSO-02-S1 (0-3) RSO-02 1/25/2000 0-3 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine	0.42		0.3	U												
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-02-S2 (3-6 FT) RSO-02 1/25/2000 3-6 ft		RSO-02-S2 (3-6) RSO-02 1/25/2000 3-6 ft		RSO-03-S1 (0-3 FT) RSO-03 1/25/2000 0-3 ft		RSO-03-S1 (0-3) RSO-03 1/25/2000 0-3 ft		RSO-03-S2 (3-6 FT) RSO-03 1/25/2000 3-6 ft		RSO-03-S2 (3-6) RSO-03 1/25/2000 3-6 ft		RSO-04-S1 (0-3 FT) RSO-04 1/25/2000 0-3 ft		RSO-04-S1 (0-3) RSO-04 1/25/2000 0-3 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane			0.006	U			0.005	U			0.006	U			0.005	U
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene			0.006	U			0.005	U			0.006	U			0.005	U
2,4,4-Trimethyl-2-pentene			0.006	U			0.005	U			0.006	U			0.005	U
2-Butanone			0.011	U			0.011	U			0.012	U			0.01	U
2-Hexanone			0.011	UJ			0.011	UJ			0.012	U			0.01	UJ
4-iso-Propyltoluene																
4-Methyl-2-pentanone			0.011	U			0.011	U			0.012	U			0.01	U
Acetone			0.011	U			0.011	U			0.018	U			0.01	U
Benzene			0.006	U			0.005	U			0.006	U			0.005	U
Carbon disulfide			0.006	U			0.005	U			0.006	U			0.005	U
Carbon tetrachloride			0.006	U			0.005	U			0.006	U			0.005	U
Chlorobenzene			0.006	UJ			0.005	UJ			0.006	U			0.005	UJ
Chloroform			0.006	U			0.005	U			0.006	U			0.005	U
Chloromethane			0.011	U			0.011	U			0.012	U			0.01	U
Ethyl benzene			0.006	U			0.005	U			0.006	U			0.005	U
Formaldehyde																
Isopropylbenzene																
Methylene chloride			0.006	U			0.005	U			0.006	U			0.005	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene			0.006	U			0.005	U			0.006	U			0.005	U
Tetrachloroethene			0.006	U			0.005	U			0.006	U			0.005	U
Tetrahydrofuran																
Toluene			0.006	U			0.005	U			0.006	U			0.005	U
Trichloroethene			0.006	U			0.005	U			0.006	U			0.005	U
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total			0.006	U			0.005	U			0.006	U			0.005	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene			0.36	U			0.36	U			0.4	U			0.35	U
1,2-Dichlorobenzene			0.36	U			0.36	U			0.4	U			0.35	U
1,4-Dichlorobenzene			0.36	U			0.36	U			0.4	U			0.35	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-02-S2 (3-6 FT) RSO-02 1/25/2000 3-6 ft		RSO-02-S2 (3-6) RSO-02 1/25/2000 3-6 ft		RSO-03-S1 (0-3 FT) RSO-03 1/25/2000 0-3 ft		RSO-03-S1 (0-3) RSO-03 1/25/2000 0-3 ft		RSO-03-S2 (3-6 FT) RSO-03 1/25/2000 3-6 ft		RSO-03-S2 (3-6) RSO-03 1/25/2000 3-6 ft		RSO-04-S1 (0-3 FT) RSO-04 1/25/2000 0-3 ft		RSO-04-S1 (0-3) RSO-04 1/25/2000 0-3 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol			0.36	U			0.36	U			0.4	U			0.35	U
2-Methylnaphthalene			0.36	U			0.36	U			0.4	U			0.35	U
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether			0.36	U			0.36	U			0.4	U			0.35	U
Acenaphthene			0.36	U			0.36	U			0.4	U			0.35	U
Acenaphthylene			0.36	U			0.36	U			0.4	U			0.35	U
Acetophenone																
Aniline																
Anthracene			0.36	U			0.36	U			0.4	U			0.35	U
Benzaldehyde																
Benzo(a)anthracene			0.36	U			0.36	U			0.4	U			0.35	U
Benzo(a)pyrene			0.36	U			0.36	U			0.4	U			0.35	U
Benzo(b)fluoranthene			0.36	U			0.36	U			0.4	U			0.35	U
Benzo(ghi)perylene			0.36	U			0.36	U			0.4	U			0.35	U
Benzo(k)fluoranthene			0.36	U			0.36	U			0.4	U			0.35	U
Benzoic Acid			1.7	U			1.7	U			1.9	U			1.7	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate			0.36	U			0.5				0.4	U			0.35	U
Butylbenzylphthalate			0.36	U			0.36	U			0.4	U			0.35	U
Carbazole			0.36	U			0.36	U			0.4	U			0.35	U
Chrysene			0.36	U			0.36	U			0.4	U			0.35	U
Dibenz(a,h)anthracene			0.36	U			0.36	U			0.4	U			0.35	U
Dibenzofuran			0.36	U			0.36	U			0.4	U			0.35	U
Diethylphthalate			0.36	U			0.36	U			0.4	U			0.35	U
Di-n-butylphthalate			0.36	U			0.36	U			0.4	U			0.35	U
Di-n-octylphthalate			0.36	U			0.36	U			0.4	U			0.35	U
Diphenyl ether																
Diphenylamine																
Fluoranthene			0.36	U			0.36	U			0.4	U			0.35	U
Fluorene			0.36	U			0.36	U			0.4	U			0.35	U
Indeno(1,2,3-cd)pyrene			0.36	U			0.36	U			0.4	U			0.35	U
Naphthalene			0.36	U			0.36	U			0.4	U			0.35	U
N-Nitrosodiphenylamine			0.36	U			0.36	U			0.49				0.35	U
Phenanthrene			0.36	U			0.36	U			0.4	U			0.35	U
Phenol			0.36	U			0.36	U			0.4	U			0.35	U
Pyrene			0.36	U			0.36	U			0.4	U			0.35	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-02-S2 (3-6 FT) RSO-02 1/25/2000 3-6 ft		RSO-02-S2 (3-6) RSO-02 1/25/2000 3-6 ft		RSO-03-S1 (0-3 FT) RSO-03 1/25/2000 0-3 ft		RSO-03-S1 (0-3) RSO-03 1/25/2000 0-3 ft		RSO-03-S2 (3-6 FT) RSO-03 1/25/2000 3-6 ft		RSO-03-S2 (3-6) RSO-03 1/25/2000 3-6 ft		RSO-04-S1 (0-3 FT) RSO-04 1/25/2000 0-3 ft		RSO-04-S1 (0-3) RSO-04 1/25/2000 0-3 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	6000				7100				5300				3800			
Antimony	1	U			1	U			1	U			1	U		
Arsenic																
Barium	5.4				15				9.1				8.3			
Beryllium	0.1	U			0.15				0.12				0.13			
Cadmium	0.1	U			0.14				0.1	U			0.1	U		
Calcium	180				550				680				440			
Chromium	9.1				12				12				7			
Chromium, Hexavalent																
Cobalt	2.4				2.3				1.3				2			
Copper	4				7.1				5.3				3.5			
Iron	5100				6700				3600				4800			
Lead	2.4				20				6				4.4			
Magnesium	1400				1500				890				1100			
Manganese	50				57				47				59			
Mercury	0.05	U			0.05	U			0.22				0.05	U		
Nickel	4.8				5.4				3.5				4.5			
Potassium	300				590				430				360			
Selenium	0.6	U			0.6	U			0.6	U			0.6	U		
Silver	0.6	U			0.6	U			0.6	U			0.6	U		
Sodium	57	U			12				64	U			57	U		
Thallium	0.6	U			0.6	U			0.6	U			0.6	U		
Tin																
Vanadium	8.6				1	U			6				7			
Zinc	12				0.6	U			9.8				13			
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-02-S2 (3-6 FT) RSO-02 1/25/2000 3-6 ft		RSO-02-S2 (3-6) RSO-02 1/25/2000 3-6 ft		RSO-03-S1 (0-3 FT) RSO-03 1/25/2000 0-3 ft		RSO-03-S1 (0-3) RSO-03 1/25/2000 0-3 ft		RSO-03-S2 (3-6 FT) RSO-03 1/25/2000 3-6 ft		RSO-03-S2 (3-6) RSO-03 1/25/2000 3-6 ft		RSO-04-S1 (0-3 FT) RSO-04 1/25/2000 0-3 ft		RSO-04-S1 (0-3) RSO-04 1/25/2000 0-3 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-04-S2 (3-6 FT) RSO-04 1/25/2000 3-6 ft		RSO-04-S2 (3-6) RSO-04 1/25/2000 3-6 ft		RSO-05-S1 (0-3 FT) RSO-05 1/25/2000 0-3 ft		RSO-05-S1 (0-3) RSO-05 1/25/2000 0-3 ft		RSO-05-S2 (3-6 FT) RSO-05 1/25/2000 3-6 ft		RSO-05-S2 (3-6) RSO-05 1/25/2000 3-6 ft		RSO-08-S1 (0-3 FT) RSO-08 1/25/2000 0-3 ft		RSO-08-S1 (0-3) RSO-08 1/25/2000 0-3 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane			0.006	U			0.007	U			0.006	U			0.005	U
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene			0.006	U			0.007	U			0.006	U			0.005	U
2,4,4-Trimethyl-2-pentene			0.006	U			0.007	U			0.006	U			0.005	U
2-Butanone			0.013	U			0.014	U			0.011	U			0.01	U
2-Hexanone			0.013	UJ			0.014	UJ			0.011	U			0.01	UJ
4-iso-Propyltoluene																
4-Methyl-2-pentanone			0.013	U			0.014	U			0.011	U			0.01	U
Acetone			0.013	U			0.03	U			0.011	U			0.01	U
Benzene			0.006	U			0.007	U			0.006	U			0.005	U
Carbon disulfide			0.006	U			0.007	U			0.006	U			0.005	U
Carbon tetrachloride			0.006	U			0.007	U			0.006	U			0.005	U
Chlorobenzene			0.006	UJ			0.007	UJ			0.006	UJ			0.005	UJ
Chloroform			0.006	U			0.007	U			0.006	U			0.005	U
Chloromethane			0.013	U			0.014	U			0.011	U			0.01	U
Ethyl benzene			0.006	U			0.007	U			0.006	U			0.005	U
Formaldehyde																
Isopropylbenzene																
Methylene chloride			0.006	U			0.007	U			0.006	U			0.005	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene			0.006	U			0.007	U			0.006	U			0.005	U
Tetrachloroethene			0.006	U			0.007	U			0.006	U			0.005	U
Tetrahydrofuran																
Toluene			0.006	U			0.007	U			0.006	U			0.005	U
Trichloroethene			0.006	U			0.007	U			0.006	U			0.005	U
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total			0.006	U			0.007	U			0.006	U			0.005	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene			0.36	U			0.38	U			0.36	U			0.34	U
1,2-Dichlorobenzene			0.36	U			0.38	U			0.36	U			0.34	U
1,4-Dichlorobenzene			0.36	U			0.38	U			0.36	U			0.34	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-04-S2 (3-6 FT) RSO-04 1/25/2000 3-6 ft		RSO-04-S2 (3-6) RSO-04 1/25/2000 3-6 ft		RSO-05-S1 (0-3 FT) RSO-05 1/25/2000 0-3 ft		RSO-05-S1 (0-3) RSO-05 1/25/2000 0-3 ft		RSO-05-S2 (3-6 FT) RSO-05 1/25/2000 3-6 ft		RSO-05-S2 (3-6) RSO-05 1/25/2000 3-6 ft		RSO-08-S1 (0-3 FT) RSO-08 1/25/2000 0-3 ft		RSO-08-S1 (0-3) RSO-08 1/25/2000 0-3 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol			0.36	U			0.38	U			0.36	U			0.34	U
2-Methylnaphthalene			0.36	U			0.38	U			0.36	U			0.34	U
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether			0.36	U			0.38	U			0.36	U			0.34	U
Acenaphthene			0.36	U			0.38	U			0.36	U			0.34	U
Acenaphthylene			0.36	U			0.38	U			0.36	U			0.34	U
Acetophenone																
Aniline																
Anthracene			0.36	U			0.38	U			0.36	U			0.34	U
Benzaldehyde																
Benzo(a)anthracene			0.36	U			0.38	U			0.36	U			0.34	U
Benzo(a)pyrene			0.36	U			0.38	U			0.36	U			0.34	U
Benzo(b)fluoranthene			0.36	U			0.38	U			0.36	U			0.34	U
Benzo(ghi)perylene			0.36	U			0.38	U			0.36	U			0.34	U
Benzo(k)fluoranthene			0.36	U			0.38	U			0.36	U			0.34	U
Benzoic Acid			1.8	U			1.8	U			1.7	U			1.7	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate			0.36	U			0.38	U			0.36	U			0.34	U
Butylbenzylphthalate			0.36	U			0.38	U			0.36	U			0.34	U
Carbazole			0.36	U			0.38	U			0.36	U			0.34	U
Chrysene			0.36	U			0.38	U			0.36	U			0.34	U
Dibenz(a,h)anthracene			0.36	U			0.38	U			0.36	U			0.34	U
Dibenzofuran			0.36	U			0.38	U			0.36	U			0.34	U
Diethylphthalate			0.36	U			0.38	U			0.36	U			0.34	U
Di-n-butylphthalate			0.36	U			0.38	U			0.36	U			0.34	U
Di-n-octylphthalate			0.36	U			0.38	U			0.36	U			0.34	U
Diphenyl ether																
Diphenylamine																
Fluoranthene			0.36	U			0.38	U			0.36	U			0.34	U
Fluorene			0.36	U			0.38	U			0.36	U			0.34	U
Indeno(1,2,3-cd)pyrene			0.36	U			0.38	U			0.36	U			0.34	U
Naphthalene			0.36	U			0.38	U			0.36	U			0.34	U
N-Nitrosodiphenylamine			0.36	U			0.38	U			0.36	U			0.34	U
Phenanthrene			0.36	U			0.38	U			0.36	U			0.34	U
Phenol			0.36	U			0.38	U			0.36	U			0.34	U
Pyrene			0.36	U			0.38	U			0.36	U			0.34	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-04-S2 (3-6 FT) RSO-04 1/25/2000 3-6 ft		RSO-04-S2 (3-6) RSO-04 1/25/2000 3-6 ft		RSO-05-S1 (0-3 FT) RSO-05 1/25/2000 0-3 ft		RSO-05-S1 (0-3) RSO-05 1/25/2000 0-3 ft		RSO-05-S2 (3-6 FT) RSO-05 1/25/2000 3-6 ft		RSO-05-S2 (3-6) RSO-05 1/25/2000 3-6 ft		RSO-08-S1 (0-3 FT) RSO-08 1/25/2000 0-3 ft		RSO-08-S1 (0-3) RSO-08 1/25/2000 0-3 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	4500				9000				5700				4100			
Antimony	1	U			1	U			1	U			1	U		
Arsenic																
Barium	11				9				10				6.7			
Beryllium	0.15				0.22				0.21				0.13			
Cadmium	0.1	U			0.1	U			0.1	U			0.1	U		
Calcium	910				220				4500				260			
Chromium	13				11				34				61			
Chromium, Hexavalent																
Cobalt	3.3				1.8				3.3				2.3			
Copper	5.8				3.6				5.4				3.2			
Iron	6800				6400				6900				4400			
Lead	2.2				6				6.2				3			
Magnesium	1900				750				3000				900			
Manganese	98				41				130				45			
Mercury	0.05	U			0.05	U			0.05	U			0.05	U		
Nickel	8				4.6				7.7				4.5			
Potassium	580				180				280				310			
Selenium	0.6	U			0.6	U			0.6	U			0.6	U		
Silver	0.6	U			0.6	U			0.6	U			0.6	U		
Sodium	73				64	U			56	U			57	U		
Thallium	0.6	U			0.6	U			0.6	U			0.6	U		
Tin																
Vanadium	9.6				9.6				13				6.1			
Zinc	13				15				13				15			
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-04-S2 (3-6 FT) RSO-04 1/25/2000 3-6 ft		RSO-04-S2 (3-6) RSO-04 1/25/2000 3-6 ft		RSO-05-S1 (0-3 FT) RSO-05 1/25/2000 0-3 ft		RSO-05-S1 (0-3) RSO-05 1/25/2000 0-3 ft		RSO-05-S2 (3-6 FT) RSO-05 1/25/2000 3-6 ft		RSO-05-S2 (3-6) RSO-05 1/25/2000 3-6 ft		RSO-08-S1 (0-3 FT) RSO-08 1/25/2000 0-3 ft		RSO-08-S1 (0-3) RSO-08 1/25/2000 0-3 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-08-S2 (3-6 FT) RSO-08 1/25/2000 3-6 ft		RSO-08-S2 (3-6) RSO-08 1/25/2000 3-6 ft		RSO-09-S1 (0-3 FT) RSO-09 1/24/2000 0-3 ft		RSO-09-S1 (0-3) RSO-09 1/24/2000 0-3 ft		RSO-09-S2 (3-6 FT) RSO-09 1/24/2000 3-6 ft		RSO-09-S2 (3-6) RSO-09 1/24/2000 3-6 ft		RSO-10-S1 (0-3 FT) RSO-10 1/24/2000 0-3 ft		RSO-10-S1 (0-3) RSO-10 1/24/2000 0-3 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane			0.006	U			0.005	UJ			0.005	U			0.005	U
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene			0.006	U			0.031	J			0.055				0.005	U
2,4,4-Trimethyl-2-pentene			0.006	U			0.023	J			0.18				0.005	U
2-Butanone			0.012	U			0.01	UJ			0.015				0.01	U
2-Hexanone			0.012	UJ			0.01	UJ			0.01	UJ			0.01	UJ
4-iso-Propyltoluene																
4-Methyl-2-pentanone			0.012	U			0.01	UJ			0.01	U			0.01	U
Acetone			0.012	U			0.01	UJ			0.018				0.01	U
Benzene			0.006	U			0.005	UJ			0.005	U			0.005	U
Carbon disulfide			0.006	U			0.005	UJ			0.005	U			0.005	U
Carbon tetrachloride			0.006	U			0.005	UJ			0.005	U			0.005	U
Chlorobenzene			0.006	UJ			0.005	UJ			0.005	UJ			0.005	UJ
Chloroform			0.006	U			0.005	UJ			0.005	U			0.005	U
Chloromethane			0.012	U			0.01	UJ			0.01	U			0.01	U
Ethyl benzene			0.006	U			0.005	UJ			0.005	U			0.005	U
Formaldehyde																
Isopropylbenzene																
Methylene chloride			0.006	U			0.005	UJ			0.005	U			0.005	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene			0.006	U			0.005	UJ			0.005	U			0.005	U
Tetrachloroethene			0.006	U			0.005	UJ			0.005	U			0.005	U
Tetrahydrofuran																
Toluene			0.006	U			0.005	UJ			0.005	U			0.005	U
Trichloroethene			0.006	U			0.005	UJ			0.005	U			0.005	U
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total			0.006	U			0.005	UJ			0.005	U			0.005	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene			0.35	U			0.78	U			0.39	U			0.35	U
1,2-Dichlorobenzene			0.35	U			0.78	U			0.39	U			0.35	U
1,4-Dichlorobenzene			0.35	U			0.78	U			0.39	U			0.35	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-08-S2 (3-6 FT) RSO-08 1/25/2000 3-6 ft		RSO-08-S2 (3-6) RSO-08 1/25/2000 3-6 ft		RSO-09-S1 (0-3 FT) RSO-09 1/24/2000 0-3 ft		RSO-09-S1 (0-3) RSO-09 1/24/2000 0-3 ft		RSO-09-S2 (3-6 FT) RSO-09 1/24/2000 3-6 ft		RSO-09-S2 (3-6) RSO-09 1/24/2000 3-6 ft		RSO-10-S1 (0-3 FT) RSO-10 1/24/2000 0-3 ft		RSO-10-S1 (0-3) RSO-10 1/24/2000 0-3 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol			0.35	U			0.78	U			0.39	U			0.35	U
2-Methylnaphthalene			0.35	U			0.78	U			0.39	U			0.35	U
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether			0.35	U			0.78	U			0.39	U			0.35	U
Acenaphthene			0.35	U			0.78	U			0.39	U			0.35	U
Acenaphthylene			0.35	U			0.78	U			0.39	U			0.35	U
Acetophenone																
Aniline																
Anthracene			0.35	U			0.78	U			0.39	U			0.35	U
Benzaldehyde																
Benzo(a)anthracene			0.35	U			0.78	U			0.39	U			0.35	U
Benzo(a)pyrene			0.35	U			0.78	U			0.39	U			0.35	U
Benzo(b)fluoranthene			0.35	U			0.78	U			0.39	U			0.35	U
Benzo(ghi)perylene			0.35	U			0.78	U			0.39	U			0.35	U
Benzo(k)fluoranthene			0.35	U			0.78	U			0.39	U			0.35	U
Benzoic Acid			1.7	U			3.8	U			1.9	U			1.7	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate			0.35	U			1.2				0.39	U			0.35	U
Butylbenzylphthalate			0.35	U			0.78	U			0.39	U			0.35	U
Carbazole			0.35	U			0.78	U			0.39	U			0.35	U
Chrysene			0.35	U			0.78	U			0.39	U			0.35	U
Dibenz(a,h)anthracene			0.35	U			0.78	U			0.39	U			0.35	U
Dibenzofuran			0.35	U			0.78	U			0.39	U			0.35	U
Diethylphthalate			0.35	U			0.78	U			0.39	U			0.35	U
Di-n-butylphthalate			0.35	U			0.78	U			0.39	U			0.35	U
Di-n-octylphthalate			0.35	U			0.78	U			0.39	U			0.35	U
Diphenyl ether																
Diphenylamine																
Fluoranthene			0.35	U			0.78	U			0.39	U			0.35	U
Fluorene			0.35	U			0.78	U			0.39	U			0.35	U
Indeno(1,2,3-cd)pyrene			0.35	U			0.78	U			0.39	U			0.35	U
Naphthalene			0.35	U			0.78	U			0.39	U			0.35	U
N-Nitrosodiphenylamine			0.35	U			0.78	U			0.39	U			0.35	U
Phenanthrene			0.35	U			0.78	U			0.39	U			0.35	U
Phenol			0.35	U			0.78	U			0.39	U			0.35	U
Pyrene			0.35	U			0.78	U			0.39	U			0.35	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-08-S2 (3-6 FT) RSO-08 1/25/2000 3-6 ft		RSO-08-S2 (3-6) RSO-08 1/25/2000 3-6 ft		RSO-09-S1 (0-3 FT) RSO-09 1/24/2000 0-3 ft		RSO-09-S1 (0-3) RSO-09 1/24/2000 0-3 ft		RSO-09-S2 (3-6 FT) RSO-09 1/24/2000 3-6 ft		RSO-09-S2 (3-6) RSO-09 1/24/2000 3-6 ft		RSO-10-S1 (0-3 FT) RSO-10 1/24/2000 0-3 ft		RSO-10-S1 (0-3) RSO-10 1/24/2000 0-3 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	3400				7500				7000				4300			
Antimony	1.1				1	U			1	U			1	UJ		
Arsenic																
Barium	6.1				18				5.5				11	J		
Beryllium	0.1	U			0.44				0.14				0.1			
Cadmium	0.1	U			0.2				0.1	U			0.1	U		
Calcium	340				1000				300				390			
Chromium	130				16				7.7				12	J		
Chromium, Hexavalent																
Cobalt	1.7				3.2				1.9				1.7			
Copper	2.9				20	U			18				16	UJ		
Iron	4400				7200				4900				6400			
Lead	2				10				3.5				3.4			
Magnesium	950				1600				780				1400	J		
Manganese	50				63				29				47	J		
Mercury	0.05	U			0.06	U			0.05	U			0.05	U		
Nickel	4.1				11				6.1				6.2	J		
Potassium	340				370				210				480	J		
Selenium	0.6	U			0.7	U			0.6	U			0.5	U		
Silver	0.6	U			0.7	U			0.6	U			0.5	U		
Sodium	57	U			240				100				54	U		
Thallium	0.6	U			0.7	U			0.6	U			0.5	U		
Tin																
Vanadium	6				19				8.8				10			
Zinc	11				61				38				31			
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-08-S2 (3-6 FT) RSO-08 1/25/2000 3-6 ft		RSO-08-S2 (3-6) RSO-08 1/25/2000 3-6 ft		RSO-09-S1 (0-3 FT) RSO-09 1/24/2000 0-3 ft		RSO-09-S1 (0-3) RSO-09 1/24/2000 0-3 ft		RSO-09-S2 (3-6 FT) RSO-09 1/24/2000 3-6 ft		RSO-09-S2 (3-6) RSO-09 1/24/2000 3-6 ft		RSO-10-S1 (0-3 FT) RSO-10 1/24/2000 0-3 ft		RSO-10-S1 (0-3) RSO-10 1/24/2000 0-3 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-10-S2 (3-6 FT) RSO-10 1/24/2000 3-6 ft		RSO-10-S2 (3-6) RSO-10 1/24/2000 3-6 ft		RSO-11-S1 (0-3 FT) RSO-11 1/24/2000 0-3 ft		RSO-11-S1 (0-3) RSO-11 1/24/2000 0-3 ft		RSO-11-S2 (3-6 FT) RSO-11 1/24/2000 3-6 ft		RSO-11-S2 (3-6) RSO-11 1/24/2000 3-6 ft		SB101XXLPX LP-101 11/24/1998 6-8 ft		SB102XXLPX LP-102 11/24/1998 6-8 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane			0.005	U			0.005	U			0.005	U				
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene			0.005	U			0.005	U			0.005	U				
2,4,4-Trimethyl-2-pentene			0.005	U			0.005	U			0.005	U				
2-Butanone			0.01	U			0.01	U			0.01	U				
2-Hexanone			0.01	UJ			0.01	UJ			0.01	UJ				
4-iso-Propyltoluene																
4-Methyl-2-pentanone			0.01	U			0.01	U			0.01	U				
Acetone			0.01	U			0.01	U			0.01	U				
Benzene			0.005	U			0.005	U			0.005	U				
Carbon disulfide			0.005	U			0.005	U			0.005	U				
Carbon tetrachloride			0.005	U			0.005	U			0.005	U				
Chlorobenzene			0.005	UJ			0.005	UJ			0.005	UJ				
Chloroform			0.005	U			0.005	U			0.005	U				
Chloromethane			0.01	U			0.01	U			0.01	U				
Ethyl benzene			0.005	U			0.005	U			0.005	U				
Formaldehyde																
Isopropylbenzene																
Methylene chloride			0.005	U			0.005	U			0.005	U				
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene			0.005	U			0.005	U			0.005	U				
Tetrachloroethene			0.005	U			0.005	U			0.005	U				
Tetrahydrofuran																
Toluene			0.005	U			0.005	U			0.005	U				
Trichloroethene			0.005	U			0.005	U			0.005	U				
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total			0.005	U			0.005	U			0.005	U				
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene			0.37	U			0.7	U			0.74	U				
1,2-Dichlorobenzene			0.37	U			0.7	U			0.74	U				
1,4-Dichlorobenzene			0.37	U			0.7	U			0.74	U				

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-10-S2 (3-6 FT) RSO-10 1/24/2000 3-6 ft		RSO-10-S2 (3-6) RSO-10 1/24/2000 3-6 ft		RSO-11-S1 (0-3 FT) RSO-11 1/24/2000 0-3 ft		RSO-11-S1 (0-3) RSO-11 1/24/2000 0-3 ft		RSO-11-S2 (3-6 FT) RSO-11 1/24/2000 3-6 ft		RSO-11-S2 (3-6) RSO-11 1/24/2000 3-6 ft		SB101XXLPX LP-101 11/24/1998 6-8 ft		SB102XXLPX LP-102 11/24/1998 6-8 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol			0.37	U			0.7	U			0.74	U				
2-Methylnaphthalene			0.37	U			0.7	U			0.74	U				
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether			0.37	U			0.7	U			0.74	U				
Acenaphthene			0.37	U			0.7	U			0.74	U				
Acenaphthylene			0.37	U			0.7	U			0.74	U				
Acetophenone																
Aniline																
Anthracene			0.37	U			0.7	U			0.74	U				
Benzaldehyde																
Benzo(a)anthracene			0.37	U			0.7	U			0.74	U				
Benzo(a)pyrene			0.37	U			0.7	U			0.74	U				
Benzo(b)fluoranthene			0.37	U			0.7	U			0.74	U				
Benzo(ghi)perylene			0.37	U			0.7	U			0.74	U				
Benzo(k)fluoranthene			0.37	U			0.7	U			0.74	U				
Benzoic Acid			1.8	U			3.4	U			3.6	U				
Biphenyl																
Bis(2-Ethylhexyl)phthalate			0.37	U			2.4				2.3					
Butylbenzylphthalate			0.37	U			0.7	U			0.74	U				
Carbazole			0.37	U			0.7	U			0.74	U				
Chrysene			0.37	U			0.7	U			0.74	U				
Dibenz(a,h)anthracene			0.37	U			0.7	U			0.74	U				
Dibenzofuran			0.37	U			0.7	U			0.74	U				
Diethylphthalate			0.37	U			0.7	U			0.74	U				
Di-n-butylphthalate			0.37	U			0.7	U			0.74	U				
Di-n-octylphthalate			0.37	U			0.7	U			0.74	U				
Diphenyl ether																
Diphenylamine																
Fluoranthene			0.37	U			0.7	U			0.74	U				
Fluorene			0.37	U			0.7	U			0.74	U				
Indeno(1,2,3-cd)pyrene			0.37	U			0.7	U			0.74	U				
Naphthalene			0.37	U			0.7	U			0.74	U				
N-Nitrosodiphenylamine			0.37	U			0.7	U			0.74	U				
Phenanthrene			0.37	U			0.7	U			0.74	U				
Phenol			0.37	U			0.7	U			0.74	U				
Pyrene			0.37	U			0.7	U			0.74	U				
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-10-S2 (3-6 FT) RSO-10 1/24/2000 3-6 ft		RSO-10-S2 (3-6) RSO-10 1/24/2000 3-6 ft		RSO-11-S1 (0-3 FT) RSO-11 1/24/2000 0-3 ft		RSO-11-S1 (0-3) RSO-11 1/24/2000 0-3 ft		RSO-11-S2 (3-6 FT) RSO-11 1/24/2000 3-6 ft		RSO-11-S2 (3-6) RSO-11 1/24/2000 3-6 ft		SB101XXLPX LP-101 11/24/1998 6-8 ft		SB102XXLPX LP-102 11/24/1998 6-8 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	1900				5700				5600							
Antimony	1	U			2	U			2	U						
Arsenic																
Barium	9.2				12				7.2							
Beryllium	0.06	U			0.16				0.16							
Cadmium	0.1	U			0.2	U			0.2	U						
Calcium	360				710				340							
Chromium	7.2				22				17				1270		322	
Chromium, Hexavalent													**14.5**	T	2.78	T
Cobalt	0.94				2				1.8							
Copper	18	U			17	U			17	U						
Iron	2800				9000				5100							
Lead	2.4				8.1				4.1							
Magnesium	400				1400				910							
Manganese	23				52				37							
Mercury	0.05	U			0.05	U			0.05	U						
Nickel	2.5				5.7				4.8							
Potassium	200				430				260							
Selenium	0.6	U			1	U			1	U						
Silver	0.6	U			1	U			1	U						
Sodium	63				62				57	U						
Thallium	0.6	U			1	U			1	U						
Tin																
Vanadium	4.6				11				8.4							
Zinc	11				19				14							
Chloride																
Cyanide, Total																
Eh **(mV)**													201		56.2	
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-10-S2 (3-6 FT) RSO-10 1/24/2000 3-6 ft		RSO-10-S2 (3-6) RSO-10 1/24/2000 3-6 ft		RSO-11-S1 (0-3 FT) RSO-11 1/24/2000 0-3 ft		RSO-11-S1 (0-3) RSO-11 1/24/2000 0-3 ft		RSO-11-S2 (3-6 FT) RSO-11 1/24/2000 3-6 ft		RSO-11-S2 (3-6) RSO-11 1/24/2000 3-6 ft		SB101XXLPX LP-101 11/24/1998 6-8 ft		SB102XXLPX LP-102 11/24/1998 6-8 ft	
pH **(pH units)**													6.6		6.7	
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon													4700		3840	
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SB103XXLPX LP-103 11/24/1998 6-8 ft		SB105XXLPX LP-105 11/24/1998 6-8 ft		SVE 12-6-8 SVE-12 11/14/2000 6-8 ft		SVE 13-9 SVE-13 11/14/2000 9-9 ft		SVE 14-8-9 SVE-14 11/15/2000 8-9 ft		SVE 15-9-9.5 SVE-15 11/15/2000 9-9.5 ft		SVE 16-8 SVE-16 11/15/2000 8-8 ft		SVE-11 S2 7-9 SVE-11 10/25/2000 7-9 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
2,4,4-Trimethyl-2-pentene					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
2-Butanone					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
2-Hexanone					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
4-iso-Propyltoluene																
4-Methyl-2-pentanone					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Acetone					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Benzene					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Carbon disulfide					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Carbon tetrachloride					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Chlorobenzene					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Chloroform					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Chloromethane					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Ethyl benzene					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Formaldehyde																
Isopropylbenzene																
Methylene chloride					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Tetrachloroethene					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Tetrahydrofuran																
Toluene					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Trichloroethene					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total					3	U	1.6	U	18	U	1.7	U	89	U	1.7	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
1,2-Dichlorobenzene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
1,4-Dichlorobenzene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SB103XXLPX LP-103 11/24/1998 6-8 ft		SB105XXLPX LP-105 11/24/1998 6-8 ft		SVE 12-6-8 SVE-12 11/14/2000 6-8 ft		SVE 13-9 SVE-13 11/14/2000 9-9 ft		SVE 14-8-9 SVE-14 11/15/2000 8-9 ft		SVE 15-9-9.5 SVE-15 11/15/2000 9-9.5 ft		SVE 16-8 SVE-16 11/15/2000 8-8 ft		SVE-11 S2 7-9 SVE-11 10/25/2000 7-9 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
2-Methylnaphthalene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
3 & 4 Methylphenol					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
4-Chlorophenyl phenyl ether					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Acenaphthene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Acenaphthylene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Acetophenone																
Aniline					1.8	U	1.8	U	1.9	U	1.8	U	9.8	U		
Anthracene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Benzaldehyde																
Benzo(a)anthracene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Benzo(a)pyrene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Benzo(b)fluoranthene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Benzo(ghi)perylene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Benzo(k)fluoranthene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Benzoic Acid					1.8	U	1.8	U	1.9	U	1.8	U	9.8	U		
Biphenyl																
Bis(2-Ethylhexyl)phthalate					3.3		5.4		2.4		0.65		11			
Butylbenzylphthalate					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Carbazole																
Chrysene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Dibenz(a,h)anthracene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Dibenzofuran					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Diethylphthalate					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Di-n-butylphthalate					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Di-n-octylphthalate					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Diphenyl ether																
Diphenylamine																
Fluoranthene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Fluorene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Indeno(1,2,3-cd)pyrene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Naphthalene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
N-Nitrosodiphenylamine					0.36	J	0.36	U	0.37	U	0.36	U	2	U		
Phenanthrene					0.37	U	0.36	U	0.37	U	0.36	U	2.3			
Phenol					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Pyrene					0.37	U	0.36	U	0.37	U	0.36	U	2	U		
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SB103XXLPX LP-103 11/24/1998 6-8 ft		SB105XXLPX LP-105 11/24/1998 6-8 ft		SVE 12-6-8 SVE-12 11/14/2000 6-8 ft		SVE 13-9 SVE-13 11/14/2000 9-9 ft		SVE 14-8-9 SVE-14 11/15/2000 8-9 ft		SVE 15-9-9.5 SVE-15 11/15/2000 9-9.5 ft		SVE 16-8 SVE-16 11/15/2000 8-8 ft		SVE-11 S2 7-9 SVE-11 10/25/2000 7-9 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium	407		9.4													
Chromium, Hexavalent	1.76	T	0.47	T												
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**	202		221													
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SB103XXLPX LP-103 11/24/1998 6-8 ft		SB105XXLPX LP-105 11/24/1998 6-8 ft		SVE 12-6-8 SVE-12 11/14/2000 6-8 ft		SVE 13-9 SVE-13 11/14/2000 9-9 ft		SVE 14-8-9 SVE-14 11/15/2000 8-9 ft		SVE 15-9-9.5 SVE-15 11/15/2000 9-9.5 ft		SVE 16-8 SVE-16 11/15/2000 8-8 ft		SVE-11 S2 7-9 SVE-11 10/25/2000 7-9 ft	
pH **(pH units)**	7.67		6.45													
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon	13600		2370													
Urea					220		350		20	U	20	U	20	U		
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene									0.3	U	0.3	U	2.8		0.3	U
Toluene									0.3	U	0.3	U	0.3	U	0.3	U
Xylenes, Total									0.3	U	0.3	U	0.3	U	0.3	U
C5-C8 Aliphatics									3.1		2.7	U	**1000**		2.8	U
C5-C8 Aliphatics (unadj.)									3.1		2.7	U	**1000**		2.8	U
C9-C10 Aromatics									5.2		2.7	U	3.7		2.8	U
C9-C12 Aliphatics									4.5		2.7	U	7.3		2.8	U
C9-C12 Aliphatics (unadj.)									9.8		2.7	U	14		2.8	U
Volatile Petroleum Hydrocarbons, Total									13		2.7	U	1100		2.8	U
EPH (mg/Kg)																
Acenaphthene					0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Acenaphthylene					0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Benzo(a)anthracene					0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Benzo(a)pyrene					0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Benzo(ghi)perylene					0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Fluoranthene					0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Fluorene					0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Indeno(1,2,3-cd)pyrene					0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.38	J
Naphthalene					0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
C11-C22 Aromatics					65		96		30		3.6	U	310		360	
C11-C22 Aromatics (unadj.)					65		96		30		3.6	U	310		360	
C19-C36 Aliphatics					3.6	U	10		3.7	U	3.6	U	3.9	U	3.8	U
C9-C18 Aliphatics					13		28		5.3		3.6	U	14		27	
Extractable Petroleum Hydrocarbons, Total					78		130		35		3.6	U	330		390	
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SVE-6B S2 8 SVE-6B 10/17/2000 8-8 ft		SVESB1-8-10 SVESB-1 7/16/2004 8-10 ft		SVESB2-6-8 SVESB-2 7/16/2004 6-8 ft		SVESB-3-6-8 SVESB-3 7/16/2004 6-8 ft		SVESB4-4-6.5 SVESB-4 7/16/2004 4-6.5 ft		SVESB-5-6-8 SVESB-5 7/16/2004 6-8 ft		SVESB-5-8-11 SVESB-5 7/16/2004 8-11 ft		SVESB-6-8-10 SVESB-6 7/16/2004 8-10 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane	1.6	U														
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene	1.5	J	13		0.15	U	0.27		0.15	U	**410**		**50**		**63**	
2,4,4-Trimethyl-2-pentene	1.6	U	5.1		0.15	U	0.13	U	0.15	U	**140**		24		27	
2-Butanone	1.6	U														
2-Hexanone	1.6	U														
4-iso-Propyltoluene																
4-Methyl-2-pentanone	1.6	U														
Acetone	1.6	U														
Benzene	1.6	U														
Carbon disulfide	1.6	U														
Carbon tetrachloride	1.6	U														
Chlorobenzene	1.6	U														
Chloroform	1.6	U														
Chloromethane	1.6	U														
Ethyl benzene	1.6	U														
Formaldehyde																
Isopropylbenzene																
Methylene chloride	1.6	U														
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene	1.6	U														
Tetrachloroethene	1.6	U														
Tetrahydrofuran																
Toluene	1.6	U														
Trichloroethene	1.6	U														
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total	1.6	U														
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene																
1,2-Dichlorobenzene																
1,4-Dichlorobenzene																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SVE-6B S2 8 SVE-6B 10/17/2000 8-8 ft		SVESB1-8-10 SVESB-1 7/16/2004 8-10 ft		SVESB2-6-8 SVESB-2 7/16/2004 6-8 ft		SVESB-3-6-8 SVESB-3 7/16/2004 6-8 ft		SVESB4-4-6.5 SVESB-4 7/16/2004 4-6.5 ft		SVESB-5-6-8 SVESB-5 7/16/2004 6-8 ft		SVESB-5-8-11 SVESB-5 7/16/2004 8-11 ft		SVESB-6-8-10 SVESB-6 7/16/2004 8-10 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol																
2-Methylnaphthalene																
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether																
Acenaphthene																
Acenaphthylene																
Acetophenone																
Aniline																
Anthracene																
Benzaldehyde																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(b)fluoranthene																
Benzo(ghi)perylene																
Benzo(k)fluoranthene																
Benzoic Acid																
Biphenyl																
Bis(2-Ethylhexyl)phthalate																
Butylbenzylphthalate																
Carbazole																
Chrysene																
Dibenz(a,h)anthracene																
Dibenzofuran																
Diethylphthalate																
Di-n-butylphthalate																
Di-n-octylphthalate																
Diphenyl ether																
Diphenylamine																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
N-Nitrosodiphenylamine																
Phenanthrene																
Phenol																
Pyrene																
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SVE-6B S2 8 SVE-6B 10/17/2000 8-8 ft		SVESB1-8-10 SVESB-1 7/16/2004 8-10 ft		SVESB2-6-8 SVESB-2 7/16/2004 6-8 ft		SVESB-3-6-8 SVESB-3 7/16/2004 6-8 ft		SVESB4-4-6.5 SVESB-4 7/16/2004 4-6.5 ft		SVESB-5-6-8 SVESB-5 7/16/2004 6-8 ft		SVESB-5-8-11 SVESB-5 7/16/2004 8-11 ft		SVESB-6-8-10 SVESB-6 7/16/2004 8-10 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium																
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SVE-6B S2 8 SVE-6B 10/17/2000 8-8 ft		SVESB1-8-10 SVESB-1 7/16/2004 8-10 ft		SVESB2-6-8 SVESB-2 7/16/2004 6-8 ft		SVESB-3-6-8 SVESB-3 7/16/2004 6-8 ft		SVESB4-4-6.5 SVESB-4 7/16/2004 4-6.5 ft		SVESB-5-6-8 SVESB-5 7/16/2004 6-8 ft		SVESB-5-8-11 SVESB-5 7/16/2004 8-11 ft		SVESB-6-8-10 SVESB-6 7/16/2004 8-10 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene	0.3	U	0.48	U	0.38	U	0.27	U	0.38	U	0.27	U	3.3		0.55	
Toluene	0.3	U	0.48	U	0.38	U	0.27	U	0.38	U	0.27	U	0.26	U	0.29	U
Xylenes, Total	0.3	U	0.48	U	0.38	U	0.27	U	0.38	U	0.27	U	0.26	U	0.29	U
C5-C8 Aliphatics	2.6	U	13		5		2.7	U	6.9		230		210		130	
C5-C8 Aliphatics (unadj.)	2.6	U	13		5		2.7	U	6.9		230		210		130	
C9-C10 Aromatics	2.6	U	4.8	U	3.8	U	69		12		49		22		31	
C9-C12 Aliphatics	2.6	U	4.8	U	3.8	U	2.7	U	3.8	U	2.7	U	2.6	U	2.9	U
C9-C12 Aliphatics (unadj.)	2.6	U	4.8	U	3.8	U	59		11		38		21		24	
Volatile Petroleum Hydrocarbons, Total	2.6	U	13		5		69		18		280		240		160	
EPH (mg/Kg)																
Acenaphthene	0.4	U														
Acenaphthylene	0.4	U														
Benzo(a)anthracene	0.4	U														
Benzo(a)pyrene	**0.45**															
Benzo(ghi)perylene	0.55															
Fluoranthene	0.4	U														
Fluorene	0.4	U														
Indeno(1,2,3-cd)pyrene	0.81															
Naphthalene	0.4	U														
C11-C22 Aromatics	640															
C11-C22 Aromatics (unadj.)	640															
C19-C36 Aliphatics	140															
C9-C18 Aliphatics	81															
Extractable Petroleum Hydrocarbons, Total	850															
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SVESB7-8-10 SVESB-7 7/16/2004 8-10 ft	SVESB-8-8-10 SVESB-8 7/16/2004 8-10 ft	TP-1 S-1 9.5 B-10 11/1/2000 9.5-9.5 ft	TP-1, 6-9` B-10 11/1/2000 6-9 ft	W1.35, 6-7 W1.35 4/15/1998 6-7 ft	W1.35, 7.5-8.5 W1.35 4/15/1998 7.5-8.5 ft	WSL1-6-10 (GW-303) GW-303 3/10/2004 6-10 ft	WSL3-5-9 (GW-305) GW-305 3/11/2004 5-9 ft
Volatile Organics (mg/Kg)								
1,2,3-Trichlorobenzene					0.005 U	0.005 U		
1,2,4-Trichlorobenzene					0.005 U	0.005 U		
1,2,4-Trimethylbenzene					0.005 U	0.005 U		
1,2-Dichlorobenzene					0.005 U	0.005 U		
1,2-Dichloroethane			35 U	320 U	0.005 U	0.005 U		
1,3,5-Trimethylbenzene					0.005 U	0.005 U		
1,4-Dichlorobenzene					0.005 U	0.005 U		
2,4,4-Trimethyl-1-pentene	0.14 U	**56**	**130**	**1000**				
2,4,4-Trimethyl-2-pentene	0.14 U	26	**51**	**3700**				
2-Butanone			35 U	320 U	0.1 U	0.1 U		
2-Hexanone			35 U	320 U	0.02 U	0.02 U		
4-iso-Propyltoluene					0.005 U	0.005 U		
4-Methyl-2-pentanone			35 U	320 U	0.02 U	0.02 U		
Acetone			22 J	180 J	0.1 U	0.1 U		
Benzene			35 U	320 U	0.005 U	0.005 U		
Carbon disulfide			35 U	320 U	0.005 U	0.005 U		
Carbon tetrachloride			35 U	320 U	0.005 U	0.005 U		
Chlorobenzene			35 U	320 U	0.005 U	0.005 U		
Chloroform			35 U	320 U	0.005 U	0.005 U		
Chloromethane			35 U	320 U	0.01 U	0.01 U		
Ethyl benzene			35 U	320 U	0.005 U	0.005 U		
Formaldehyde							0.36	0.24 J
Isopropylbenzene					0.005 U	0.005 U		
Methylene chloride			35 U	320 U	0.005 U	0.005 U		
Naphthalene					0.05 U	0.05 U		
Propylbenzene					0.005 U	0.005 U		
sec-Butylbenzene					0.005 U	0.005 U		
Styrene			35 U	320 U	0.005 U	0.005 U		
Tetrachloroethene			35 U	320 U	0.005 U	0.005 U		
Tetrahydrofuran								
Toluene			35 U	320 U	0.005 U	0.005 U		
Trichloroethene			35 U	320 U	0.005 U	0.005 U		
Trichlorofluoromethane					0.005 U	0.005 U		
Xylene, o								
Xylenes (m&p)								
Xylenes, Total			35 U	320 U	0.005 U	0.005 U		
Semivolatile Organics (mg/Kg)								
1,2,4-Trichlorobenzene			1.9 U	74 U	0.33 U	0.33 U		
1,2-Dichlorobenzene			1.9 U	74 U	0.33 U	0.33 U		
1,4-Dichlorobenzene			1.9 U	74 U	0.33 U	0.33 U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SVESB7-8-10 SVESB-7 7/16/2004 8-10 ft	SVESB-8-8-10 SVESB-8 7/16/2004 8-10 ft	TP-1 S-1 9.5 B-10 11/1/2000 9.5-9.5 ft	TP-1, 6-9` B-10 11/1/2000 6-9 ft	W1.35, 6-7 W1.35 4/15/1998 6-7 ft	W1.35, 7.5-8.5 W1.35 4/15/1998 7.5-8.5 ft	WSL1-6-10 (GW-303) GW-303 3/10/2004 6-10 ft	WSL3-5-9 (GW-305) GW-305 3/11/2004 5-9 ft
1-Methylnaphthalene								
2,4-Dimethylphenol			1.9 U	74 U	0.33 U	0.33 U		
2-Methylnaphthalene			1.9 U	74 U	0.33 U	0.33 U		
3 & 4 Methylphenol			1.9 U	74 U				
4-Chlorophenyl phenyl ether			1.9 U	74 U	0.33 U	0.33 U		
Acenaphthene			1.9 U	74 U	0.33 U	0.33 U		
Acenaphthylene			1.9 U	74 U	0.33 U	0.33 U		
Acetophenone								
Aniline			9.6 U	370 U	1.65 U	1.65 U		
Anthracene			1.9 U	74 U	0.33 U	0.33 U		
Benzaldehyde								
Benzo(a)anthracene			1.9 U	74 U	0.33 U	0.33 U		
Benzo(a)pyrene			1.9 U	74 U	0.33 U	0.33 U		
Benzo(b)fluoranthene			1.9 U	74 U	0.33 U	0.33 U		
Benzo(ghi)perylene			1.9 U	74 U	0.33 U	0.33 U		
Benzo(k)fluoranthene			1.9 U	74 U	0.33 U	0.33 U		
Benzoic Acid			9.6 U	370 U	1.65 U	1.65 U		
Biphenyl								
Bis(2-Ethylhexyl)phthalate			14	**580**	0.33 U	0.33 U		
Butylbenzylphthalate			1.9 U	74 U	0.33 U	0.33 U		
Carbazole								
Chrysene			1.9 U	74 U	0.33 U	0.33 U		
Dibenz(a,h)anthracene			1.9 U	74 U	0.33 U	0.33 U		
Dibenzofuran			1.9 U	74 U	0.33 U	0.33 U		
Diethylphthalate			1.9 U	74 U	0.33 U	0.33 U		
Di-n-butylphthalate			1.9 U	74 U	0.33 U	0.33 U		
Di-n-octylphthalate			1.9 U	74 U	0.33 U	0.33 U		
Diphenyl ether								
Diphenylamine								
Fluoranthene			1.9 U	74 U	0.33 U	0.33 U		
Fluorene			1.9 U	74 U	0.33 U	0.33 U		
Indeno(1,2,3-cd)pyrene			1.9 U	74 U	0.33 U	0.33 U		
Naphthalene			1.9 U	74 U	0.33 U	0.33 U		
N-Nitrosodiphenylamine			1.9 U	38 J	0.33 U	0.33 U		
Phenanthrene			1.9 U	74 U	0.33 U	0.33 U		
Phenol			1.9 U	74 U	0.33 U	0.33 U		
Pyrene			1.9 U	74 U	0.33 U	0.33 U		
Pesticides/PCBs (mg/Kg)								
4,4'-DDD					0.01 U	0.01 U		
Aldrin					0.01 U	0.01 U		
Alpha-BHC					0.01 U	0.01 U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SVESB7-8-10 SVESB-7 7/16/2004 8-10 ft	SVESB-8-8-10 SVESB-8 7/16/2004 8-10 ft	TP-1 S-1 9.5 B-10 11/1/2000 9.5-9.5 ft	TP-1, 6-9` B-10 11/1/2000 6-9 ft	W1.35, 6-7 W1.35 4/15/1998 6-7 ft	W1.35, 7.5-8.5 W1.35 4/15/1998 7.5-8.5 ft	WSL1-6-10 (GW-303) GW-303 3/10/2004 6-10 ft	WSL3-5-9 (GW-305) GW-305 3/11/2004 5-9 ft
Alpha-Chlordane								
Beta-BHC					0.01 U	0.01 U		
Chlordane (technical)								
Endosulfan sulfate					0.01 U	0.01 U		
Endrin					0.01 U	0.01 U		
Gamma-BHC/Lindane					0.01 U	0.01 U		
Aroclor-1260								
Inorganics (mg/Kg)								
Aluminum					1340	1370		
Antimony					1.02 U	1.04 U		
Arsenic					1.3	1.3		
Barium								
Beryllium					0.4 U	0.4 U		
Cadmium					1 U	1 U		
Calcium								
Chromium					101	84.2		
Chromium, Hexavalent								
Cobalt								
Copper					2 U	2 U		
Iron								
Lead					10 U	10 U		
Magnesium								
Manganese								
Mercury					0.1 U	0.1 U		
Nickel					3 U	3		
Potassium								
Selenium					0.51 U	0.52 U		
Silver					2 U	2 U		
Sodium					70	70		
Thallium					1.02 U	1.04 U		
Tin								
Vanadium								
Zinc					5.1	5.6		
Chloride					104	40		
Cyanide, Total								
Eh **(mV)**								
Flash Point **(°F)**								
Lab Specific Conductance **(mS/cm)**								
Nitrate as N								
Nitrogen, as Ammonia					45.5	14.5		
Oxidation Reduction Potential **(mV)**								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SVESB7-8-10 SVESB-7 7/16/2004 8-10 ft		SVESB-8-8-10 SVESB-8 7/16/2004 8-10 ft		TP-1 S-1 9.5 B-10 11/1/2000 9.5-9.5 ft		TP-1, 6-9` B-10 11/1/2000 6-9 ft		W1.35, 6-7 W1.35 4/15/1998 6-7 ft		W1.35, 7.5-8.5 W1.35 4/15/1998 7.5-8.5 ft		WSL1-6-10 (GW-303) GW-303 3/10/2004 6-10 ft		WSL3-5-9 (GW-305) GW-305 3/11/2004 5-9 ft	
pH **(pH units)**																
Sulfate									67		129					
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene	0.27	U	0.26	U	5.5		4.4									
Toluene	0.27	U	0.26	U	6		19									
Xylenes, Total	0.27	U	0.26	U	0.49		2.7									
C5-C8 Aliphatics	4		21		430		**1500**									
C5-C8 Aliphatics (unadj.)	4		21		440		**1600**									
C9-C10 Aromatics	2.7	U	26		15		13									
C9-C12 Aliphatics	2.7	U	2.6	U	21		21									
C9-C12 Aliphatics (unadj.)	2.7	U	24		42		41									
Volatile Petroleum Hydrocarbons, Total	4		47		470		1600									
EPH (mg/Kg)																
Acenaphthene					0.4	U	0.4	U								
Acenaphthylene					0.4	U	0.86									
Benzo(a)anthracene					0.4	U	**5.9**									
Benzo(a)pyrene					0.4	U	0.4	U								
Benzo(ghi)perylene					0.4	U	0.62									
Fluoranthene					0.4	U	0.51									
Fluorene					0.4	U	1.7									
Indeno(1,2,3-cd)pyrene					0.4	U	0.4	U								
Naphthalene					0.4	U	0.4	U								
C11-C22 Aromatics					38		1400									
C11-C22 Aromatics (unadj.)					38		1400									
C19-C36 Aliphatics					3.8	U	9									
C9-C18 Aliphatics					3.8	U	150									
Extractable Petroleum Hydrocarbons, Total					38		1500									
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	WSS1-2-4 (GW-301) GW-301 3/9/2004 2-4 ft		WSS2-2-4 WSS-2 3/9/2004 2-4 ft		WSS3-2-4 (GW-302) GW-302 3/9/2004 2-4 ft		OC-SB-400-5.0/7.0-XXX SB-400 8/26/2009 5-7 ft		OC-SB-401-7.5/9.5-XXX SB-401 8/26/2009 7.5-9.5 ft		OC-SB-402-7.5/9.5-XXX SB-402 8/26/2009 7.5-9.5 ft		OC-SB-403-6.0/8.0-XXX SB-403 8/26/2009 6-8 ft		OC-SB-404-5.0/7.0-XXX SB-404 8/26/2009 5-7 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
1,2,4-Trichlorobenzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
1,2,4-Trimethylbenzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
1,2-Dichlorobenzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
1,2-Dichloroethane							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
1,3,5-Trimethylbenzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
1,4-Dichlorobenzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
2,4,4-Trimethyl-1-pentene							0.0049	U	0.0044	U	0.0057	U	0.012	U	0.0048	U
2,4,4-Trimethyl-2-pentene							0.0049	U	0.0044	U	0.0057	U	0.012	U	0.0048	U
2-Butanone							0.024	U	0.022	U	0.029	U	0.033	J	0.024	U
2-Hexanone							0.024	U	0.022	U	0.029	U	0.059	U	0.024	U
4-iso-Propyltoluene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
4-Methyl-2-pentanone							0.024	U	0.022	U	0.029	U	0.059	U	0.024	U
Acetone							0.24	UJ	0.22	UJ	0.29	UJ	0.59	UJ	0.24	UJ
Benzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Carbon disulfide							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Carbon tetrachloride							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Chlorobenzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Chloroform							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Chloromethane							0.0049	U	0.0044	U	0.0057	U	0.012	U	0.0048	U
Ethyl benzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Formaldehyde	0.21	J	0.31	J	0.39											
Isopropylbenzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Methylene chloride							0.0098	U	0.0088	U	0.011	U	0.024	U	0.0096	U
Naphthalene							0.024	U	0.022	U	0.029	U	0.059	U	0.024	U
Propylbenzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
sec-Butylbenzene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Styrene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Tetrachloroethene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Tetrahydrofuran							0.024	U	0.022	U	0.029	U	0.059	U	0.024	U
Toluene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Trichloroethene							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Trichlorofluoromethane							0.0049	U	0.0044	U	0.0057	U	0.012	U	0.0048	U
Xylene, o							0.0024	U	0.0022	U	0.0029	U	0.0059	U	0.0024	U
Xylenes (m&p)							0.0049	U	0.0044	U	0.0057	U	0.012	U	0.0048	U
Xylenes, Total							0.0049	U	0.0044	U	0.0057	U	0.012	U	0.0048	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
1,2-Dichlorobenzene							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
1,4-Dichlorobenzene							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
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Wilmington, Massachusetts

param.name	WSS1-2-4 (GW-301) GW-301 3/9/2004 2-4 ft		WSS2-2-4 WSS-2 3/9/2004 2-4 ft		WSS3-2-4 (GW-302) GW-302 3/9/2004 2-4 ft		OC-SB-400-5.0/7.0-XXX SB-400 8/26/2009 5-7 ft		OC-SB-401-7.5/9.5-XXX SB-401 8/26/2009 7.5-9.5 ft		OC-SB-402-7.5/9.5-XXX SB-402 8/26/2009 7.5-9.5 ft		OC-SB-403-6.0/8.0-XXX SB-403 8/26/2009 6-8 ft		OC-SB-404-5.0/7.0-XXX SB-404 8/26/2009 5-7 ft	
1-Methylnaphthalene							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
2,4-Dimethylphenol							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
2-Methylnaphthalene							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
3 & 4 Methylphenol							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
4-Chlorophenyl phenyl ether							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Acenaphthene							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Acenaphthylene							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Acetophenone							0.035	U	0.035	U	0.036	U	0.17	JEB	0.038	U
Aniline							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Anthracene							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Benzaldehyde							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Benzo(a)anthracene							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Benzo(a)pyrene							0.035	U	0.035	U	0.036	U	0.54	UJ	0.038	UJ
Benzo(b)fluoranthene							0.035	U	0.035	U	0.036	U	0.54	UJ	0.038	UJ
Benzo(ghi)perylene							0.035	U	0.035	U	0.036	U	0.54	UJ	0.038	UJ
Benzo(k)fluoranthene							0.035	U	0.035	U	0.036	U	0.54	UJ	0.038	UJ
Benzoic Acid								R		R		R	2.7	U		R
Biphenyl							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Bis(2-Ethylhexyl)phthalate							0.014	JEB	0.035	U	0.051	EB	0.54	U	0.013	JEB
Butylbenzylphthalate							0.035	U	0.035	U	0.053		0.54	U	0.038	U
Carbazole							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Chrysene							0.035	U	0.035	U	0.036	U	0.54	UJ	0.038	UJ
Dibenz(a,h)anthracene							0.035	U	0.035	U	0.036	U	0.54	UJ	0.038	UJ
Dibenzofuran							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Diethylphthalate							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Di-n-butylphthalate							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Di-n-octylphthalate							0.035	U	0.035	U	0.036	U	0.54	UJ	0.038	UJ
Diphenyl ether							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Diphenylamine											0.036	U	0.54	U	0.038	U
Fluoranthene							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Fluorene							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Indeno(1,2,3-cd)pyrene							0.035	U	0.035	U	0.036	U	0.54	UJ	0.038	UJ
Naphthalene							0.084	U	0.085	U	0.087	U	1.3	U	0.092	U
N-Nitrosodiphenylamine							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Phenanthrene							0.042	U	0.043	U	0.015	J	0.65	U	0.046	U
Phenol							0.035	U	0.035	U	0.036	U	0.54	U	0.038	U
Pyrene							0.035	U	0.035	U	0.015	J	0.54	U	0.038	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	WSS1-2-4 (GW-301) GW-301 3/9/2004 2-4 ft		WSS2-2-4 WSS-2 3/9/2004 2-4 ft		WSS3-2-4 (GW-302) GW-302 3/9/2004 2-4 ft		OC-SB-400-5.0/7.0-XXX SB-400 8/26/2009 5-7 ft		OC-SB-401-7.5/9.5-XXX SB-401 8/26/2009 7.5-9.5 ft		OC-SB-402-7.5/9.5-XXX SB-402 8/26/2009 7.5-9.5 ft		OC-SB-403-6.0/8.0-XXX SB-403 8/26/2009 6-8 ft		OC-SB-404-5.0/7.0-XXX SB-404 8/26/2009 5-7 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum							4700		3300		3900		8200		4400	
Antimony							0.68	UJ	0.61	UJ	0.63	UJ	1	UJ	0.72	UJ
Arsenic							**3.5**		**3.2**		**3.8**		**4.4**		1.5	
Barium							8.1		7.5		8.3		31		6.6	
Beryllium							0.17	J	0.13	J	0.14	J	0.37	J	0.11	J
Cadmium							0.072	J	0.07	J	0.19	J	0.26	J	0.06	J
Calcium							390		650		620		7800		590	
Chromium							5	J	6	J	12	J	7.2		5.8	
Chromium, Hexavalent																
Cobalt							1.9		1.9		1.8		1.9		1.3	
Copper							2.4	J	3	J	3.4	J	11		2.3	
Iron							4100		4600		4700		4800		3700	
Lead							3.5		1.3		1.4		22		1.5	
Magnesium							740	J	990	J	980	J	750		930	
Manganese							44		38		35		61		32	
Mercury							0.16	U	0.16	U	0.17	U	0.21	U	0.2	U
Nickel							3.9		4.6		4.7		6.7		4.7	
Potassium							500	J	650	J	480	J	370	J	550	
Selenium							0.68	U	0.61	U	0.63	U	0.73	J	0.72	U
Silver							0.68	U	0.61	U	0.63	U	1	U	0.72	U
Sodium							140	U	25	J	130	U	200	U	31	J
Thallium							1.4	U	1.2	U	1.3	U	2	U	1.4	U
Tin							6.8	UJ	6.1	UJ	4.5	J	3	J	7.2	U
Vanadium							5.3		5.8		5.7		18		5.7	
Zinc							38		7.4		16		25		6.3	
Chloride							21	U	22	U	22	U	32	U	23	U
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia							6.7	U	7	U	7.2	U	440		17	
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	WSS1-2-4 (GW-301) GW-301 3/9/2004 2-4 ft		WSS2-2-4 WSS-2 3/9/2004 2-4 ft		WSS3-2-4 (GW-302) GW-302 3/9/2004 2-4 ft		OC-SB-400-5.0/7.0-XXX SB-400 8/26/2009 5-7 ft		OC-SB-401-7.5/9.5-XXX SB-401 8/26/2009 7.5-9.5 ft		OC-SB-402-7.5/9.5-XXX SB-402 8/26/2009 7.5-9.5 ft		OC-SB-403-6.0/8.0-XXX SB-403 8/26/2009 6-8 ft		OC-SB-404-5.0/7.0-XXX SB-404 8/26/2009 5-7 ft	
pH **(pH units)**																
Sulfate							43	U	44	U	45	U	64	U	47	U
Sulfate **(mg/L)**																
Total Organic Carbon											1000	U				
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics							2.5	U								
C5-C8 Aliphatics (unadj.)							2.5	U								
C9-C10 Aromatics							2.5	U								
C9-C12 Aliphatics							2.5	U								
C9-C12 Aliphatics (unadj.)							2.5	U								
Volatile Petroleum Hydrocarbons, Total							2.5	U								
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics							3.5	U								
C11-C22 Aromatics (unadj.)							3.5	U								
C19-C36 Aliphatics							3.5	U								
C9-C18 Aliphatics							3.5	U								
Extractable Petroleum Hydrocarbons, Total							3.5	U								
Specialty Compounds (mg/Kg)																
Hydrazine	0.27	U	0.3	U	0.3	U					0.0021	U	0.0034	U	0.0024	U
Acetaldehyde											0.038	J	0.32	U	0.23	U
Formaldehyde											0.11		0.43		0.22	
Phthalic Acid/Phthalic anhydride											0.1	U	0.16	U	0.12	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-405-8.0/9.0-XXX SB-405 8/18/2009 8-9 ft		OC-SB-407-8.0/10 XXX SB-407 8/26/2009 8-10 ft		OC-SB-408-7.0/9.0-XXX SB-408 8/26/2009 7-9 ft		OC-SB-409-6.0/8.0-XXX SB-409 8/26/2009 6-8 ft		OC-SB-410-6.0/8.0-XXX SB-410 8/27/2009 6-8 ft		OC-SB-411-4.7/6.7-XXX SB-411 8/26/2009 4.7-6.7 ft		OC-SB-412-6.0/7.0-XXX SB-412 8/18/2009 6-7 ft		OC-SB-414-6.0/8.0-XXX SB-414 8/26/2009 6-8 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
1,2,4-Trichlorobenzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
1,2,4-Trimethylbenzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
1,2-Dichlorobenzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
1,2-Dichloroethane	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
1,3,5-Trimethylbenzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
1,4-Dichlorobenzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
2,4,4-Trimethyl-1-pentene	**1200**	J	0.0052	U	0.0047	U	0.0049	U	0.0051	U	0.0054	U	0.0051	U	0.0052	U
2,4,4-Trimethyl-2-pentene	**310**		0.0052	U	0.0047	U	0.0049	U	0.0051	U	0.0054	U	0.0051	U	0.0052	U
2-Butanone	110	U	0.026	U	0.023	U	0.025	U	0.026	U	0.027	U	0.026	U	0.026	U
2-Hexanone	110	U	0.026	U	0.023	U	0.025	U	0.026	U	0.027	U	0.026	U	0.026	U
4-iso-Propyltoluene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
4-Methyl-2-pentanone	110	U	0.026	U	0.023	U	0.025	U	0.026	U	0.027	U	0.026	U	0.026	U
Acetone	1100	UJ	0.26	UJ	0.23	UJ	0.25	UJ	0.26	UJ	0.27	UJ	0.26	UJ	0.26	UJ
Benzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Carbon disulfide	11	U	0.0011	J	0.0023	U	0.0023	J	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Carbon tetrachloride	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Chlorobenzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Chloroform	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Chloromethane	23	U	0.0052	U	0.0047	U	0.0049	U	0.0051	U	0.0054	U	0.0051	U	0.0052	U
Ethyl benzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Formaldehyde																
Isopropylbenzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Methylene chloride	46	U	0.01	U	0.0093	U	0.0099	U	0.0074	J	0.011	U	0.01	U	0.01	U
Naphthalene	110	U	0.026	U	0.023	U	0.025	U	0.026	U	0.027	U	0.026	U	0.026	U
Propylbenzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
sec-Butylbenzene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Styrene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Tetrachloroethene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Tetrahydrofuran	110	U	0.026	U	0.023	U	0.025	U	0.026	U	0.027	U	0.026	U	0.026	U
Toluene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Trichloroethene	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Trichlorofluoromethane	23	U	0.0052	U	0.0047	U	0.0049	U	0.0051	U	0.0054	U	0.0051	U	0.0052	U
Xylene, o	11	U	0.0026	U	0.0023	U	0.0025	U	0.0026	U	0.0027	U	0.0026	U	0.0026	U
Xylenes (m&p)	23	U	0.0052	U	0.0047	U	0.0049	U	0.0051	U	0.0054	U	0.0051	U	0.0052	U
Xylenes, Total	23	U	0.0052	U	0.0047	U	0.0049	U	0.0051	U	0.0054	U	0.0051	U	0.0052	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
1,2-Dichlorobenzene	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
1,4-Dichlorobenzene	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-405-8.0/9.0-XXX SB-405 8/18/2009 8-9 ft		OC-SB-407-8.0/10 XXX SB-407 8/26/2009 8-10 ft		OC-SB-408-7.0/9.0-XXX SB-408 8/26/2009 7-9 ft		OC-SB-409-6.0/8.0-XXX SB-409 8/26/2009 6-8 ft		OC-SB-410-6.0/8.0-XXX SB-410 8/27/2009 6-8 ft		OC-SB-411-4.7/6.7-XXX SB-411 8/26/2009 4.7-6.7 ft		OC-SB-412-6.0/7.0-XXX SB-412 8/18/2009 6-7 ft		OC-SB-414-6.0/8.0-XXX SB-414 8/26/2009 6-8 ft	
1-Methylnaphthalene	0.035	UJ	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	UJ	0.037	U
2,4-Dimethylphenol	0.035	UJ	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	UJ	0.037	U
2-Methylnaphthalene	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
3 & 4 Methylphenol	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
4-Chlorophenyl phenyl ether	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
Acenaphthene	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.015	J
Acenaphthylene	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.014	J	0.037	U
Acetophenone	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
Aniline	0.035	UJ	0.04	U	0.038	UJ	0.042	UJ	0.042	UJ	0.034	UJ	0.038	UJ	0.037	UJ
Anthracene	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.015	JEB	0.029	JEB
Benzaldehyde	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
Benzo(a)anthracene	0.035	U	0.04	U	0.038	U	0.042	U	0.025	J	0.034	U	0.049		0.088	
Benzo(a)pyrene	0.035	U	0.04	U	0.038	U	0.042	U	0.025	J	0.034	U	**0.34**		0.074	
Benzo(b)fluoranthene	0.035	U	0.04	U	0.038	U	0.042	U	0.029	J	0.034	U	0.49		0.11	
Benzo(ghi)perylene	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.49		0.049	
Benzo(k)fluoranthene	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.22		0.035	J
Benzoic Acid	0.18	UJ	0.098	JEB		R		R		R		R	0.16	JEB		R
Biphenyl	0.035	UJ	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	UJ	0.037	U
Bis(2-Ethylhexyl)phthalate	28	EB	0.04	U	0.012	JEB	0.042	U	0.042	U	0.67	EB	1.5	EB	0.078	EB
Butylbenzylphthalate	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
Carbazole	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.017	J
Chrysene	0.035	U	0.04	U	0.038	U	0.042	U	0.023	J	0.034	U	0.089		0.089	
Dibenz(a,h)anthracene	0.035	U	0.04	U	0.038	U	0.042	UJ	0.042	UJ	0.034	UJ	0.15		0.037	U
Dibenzofuran	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
Diethylphthalate	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
Di-n-butylphthalate	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
Di-n-octylphthalate	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
Diphenyl ether	0.03	J	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	UJ	0.037	U
Diphenylamine			0.04	U			0.042	U	0.042	U	0.034	U	0.038	U		
Fluoranthene	0.022	J	0.04	U	0.038	U	0.042	U	0.041	J	0.034	U	0.033	J	0.2	
Fluorene	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.012	J
Indeno(1,2,3-cd)pyrene	0.035	U	0.04	U	0.038	U	0.042	U	0.013	J	0.034	U	0.43		0.047	
Naphthalene	0.085	U	0.096	U	0.092	U	0.1	U	0.1	U	0.082	U	0.092	U	0.089	U
N-Nitrosodiphenylamine	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
Phenanthrene	0.042	U	0.016	J	0.046	U	0.05	U	0.017	J	0.041	U	0.019	J	0.12	
Phenol	0.035	U	0.04	U	0.038	U	0.042	U	0.042	U	0.034	U	0.038	U	0.037	U
Pyrene	0.039		0.02	J	0.038	U	0.042	U	0.029	J	0.034	U	0.018	J	0.14	
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-405-8.0/9.0-XXX SB-405 8/18/2009 8-9 ft		OC-SB-407-8.0/10 XXX SB-407 8/26/2009 8-10 ft		OC-SB-408-7.0/9.0-XXX SB-408 8/26/2009 7-9 ft		OC-SB-409-6.0/8.0-XXX SB-409 8/26/2009 6-8 ft		OC-SB-410-6.0/8.0-XXX SB-410 8/27/2009 6-8 ft		OC-SB-411-4.7/6.7-XXX SB-411 8/26/2009 4.7-6.7 ft		OC-SB-412-6.0/7.0-XXX SB-412 8/18/2009 6-7 ft		OC-SB-414-6.0/8.0-XXX SB-414 8/26/2009 6-8 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	11000		5900		4300		3600		4500		4200		3800		6300	
Antimony	2.9	UJ	0.67	UJ	0.6	UJ	0.67	UJ	0.71	J	0.57	UJ	0.63	UJ	0.6	UJ
Arsenic	**4.3**		1.4		**3.7**		**3.4**		1.7		**3.7**		**3**		**3.6**	
Barium	47		7		8.2		10		8.6		8.7		8.2		9.7	
Beryllium	0.29		0.13	J	0.15	J	0.14	J	0.12	J	0.17	J	0.095	J	0.2	J
Cadmium	0.31		0.053	J	0.082	J	0.11	J	0.13	J	0.12	J	0.081	J	0.11	J
Calcium	3300		370		550		600		750		2000		630		740	
Chromium	21		6.6	J	8.2	J	6.4		8.4		6.9		21		12	J
Chromium, Hexavalent																
Cobalt	14		1.4		2		1.8		1.6		2.1		1.8		1.9	
Copper	33		2	J	3.5	J	3.5		6.8		2.9		4.9	EB	4.9	J
Iron	19000		3700		5500		4900		4500		5800		5000		6100	
Lead	3		1.6		1.4		1.4		1.8		1.6		18		15	
Magnesium	6700		980	J	1200	J	1000		1200		1100		1100		850	J
Manganese	250		32		43		37		44		85		40		43	
Mercury	0.14	U	0.15	U	0.2	U	0.22	U	0.17	U	0.17	U	0.18	U	0.16	U
Nickel	16		4.4		5.7		5.2		6.5		4.4		4.7		4.9	
Potassium	2400		540	J	660	J	650		680	J	520		550		410	J
Selenium	0.58	U	0.67	U	0.6	U	0.67	U	0.83	U	0.57	U	0.63	U	0.6	U
Silver	0.071	J	0.67	U	0.6	U	0.67	U	0.83	U	0.06	J	0.28	J	0.6	U
Sodium	180		22	J	120	U	29	J	170	U	60	J	130	U	120	U
Thallium	1.2	U	1.3	U	1.2	U	1.3	U	1.7	U	1.1	U	1.3	U	1.2	U
Tin	7.6	J	2.4	J	2.9	J	6.7	U	3.1	J	2.5	J	8.7	J	10	J
Vanadium	38		6.7		7.2		6.3		6.6		6.9		6.8		7.8	
Zinc	26		6.6		9.8		9.3		9.9		8.4		8.2		11	
Chloride	22	U	24	U	23	U	25	U	26	U	21	U	22	U	22	U
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	7.8	U	29		7.4	U	9.3		16		7.5		6.9	U	29	
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-405-8.0/9.0-XXX SB-405 8/18/2009 8-9 ft		OC-SB-407-8.0/10 XXX SB-407 8/26/2009 8-10 ft		OC-SB-408-7.0/9.0-XXX SB-408 8/26/2009 7-9 ft		OC-SB-409-6.0/8.0-XXX SB-409 8/26/2009 6-8 ft		OC-SB-410-6.0/8.0-XXX SB-410 8/27/2009 6-8 ft		OC-SB-411-4.7/6.7-XXX SB-411 8/26/2009 4.7-6.7 ft		OC-SB-412-6.0/7.0-XXX SB-412 8/18/2009 6-7 ft		OC-SB-414-6.0/8.0-XXX SB-414 8/26/2009 6-8 ft	
pH **(pH units)**																
Sulfate	54		48	U	46	U	51	U	52	U	42	U	44	U	44	U
Sulfate **(mg/L)**																
Total Organic Carbon			7700													
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine			0.0024	U			0.00084	J	0.0025	U	0.0028		0.00071	J		
Acetaldehyde			0.049	J			0.25	U	0.26	U	0.2	U	0.23	U		
Formaldehyde			0.2				2.1		0.6		0.26		0.38			
Phthalic Acid/Phthalic anhydride			0.11	U			0.12	U	0.13	UJ	0.1	U	0.11	UJ		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-415-5.0/7.0-XXX SB-415 8/20/2009 5-7 ft		OC-SB-416-8.0/9.0-XXX SB-416 8/18/2009 8-9 ft		OC-SB-418-8/10-XXX SB-418 8/27/2009 8-10 ft		OC-SB-419-3.0/5.0-XXX SB-419 8/19/2009 3-5 ft		OC-SB-420-6.5/8.5-XXX SB-420 8/18/2009 6.5-8.5 ft		OC-SB-421-8.0/10 XXX SB-421 8/19/2009 8-10 ft		OC-SB-422-6.0/8.0-XXX SB-422 8/25/2009 6-8 ft		OC-SB-423-5.0/6.0-XXX SB-423 8/18/2009 5-6 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
1,2,4-Trichlorobenzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
1,2,4-Trimethylbenzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
1,2-Dichlorobenzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
1,2-Dichloroethane	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
1,3,5-Trimethylbenzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
1,4-Dichlorobenzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
2,4,4-Trimethyl-1-pentene	0.0053	U	**140**	J	0.0045	U	0.0054	UJ	**240**	J	0.0046	U	0.0052	U	0.0046	U
2,4,4-Trimethyl-2-pentene	0.0053	U	36		0.0045	U	0.0054	U	**75**		0.0046	U	0.0052	U	0.0046	U
2-Butanone	0.027	U	1.1	U	0.023	U	0.027	U	28	U	0.023	U	0.026	U	0.023	U
2-Hexanone	0.027	U	1.1	U	0.023	U	0.027	U	28	U	0.023	U	0.026	U	0.023	U
4-iso-Propyltoluene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
4-Methyl-2-pentanone	0.027	U	1.1	U	0.023	U	0.027	U	28	U	0.023	U	0.026	U	0.023	U
Acetone	0.27	UJ	11	UJ	0.23	UJ	0.27	UJ	280	UJ	0.23	UJ	0.26	UJ	0.23	UJ
Benzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Carbon disulfide	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	J
Carbon tetrachloride	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Chlorobenzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Chloroform	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Chloromethane	0.0053	U	0.21	U	0.0045	U	0.0054	U	5.6	U	0.0046	U	0.0052	U	0.0046	U
Ethyl benzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Formaldehyde																
Isopropylbenzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Methylene chloride	0.011	U	0.42	U	0.009	U	0.021	U	11	U	0.0093	U	0.01	U	0.0092	U
Naphthalene	0.027	U	1.1	U	0.023	U	0.027	U	28	U	0.023	U	0.026	U	0.023	U
Propylbenzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
sec-Butylbenzene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Styrene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Tetrachloroethene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Tetrahydrofuran	0.027	U	1.1	U	0.023	U	0.027	U	28	U	0.023	U	0.026	U	0.023	U
Toluene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Trichloroethene	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Trichlorofluoromethane	0.0053	U	0.21	U	0.0045	U	0.0054	U	5.6	U	0.0046	U	0.0052	U	0.0046	U
Xylene, o	0.0027	U	0.11	U	0.0023	U	0.0027	U	2.8	U	0.0023	U	0.0026	U	0.0023	U
Xylenes (m&p)	0.0053	U	0.21	U	0.0045	U	0.0054	U	5.6	U	0.0046	U	0.0052	U	0.0046	U
Xylenes, Total	0.0053	U	0.21	U	0.0045	U	0.0054	U	5.6	U	0.0046	U	0.0052	U	0.0046	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
1,2-Dichlorobenzene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
1,4-Dichlorobenzene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-415-5.0/7.0-XXX SB-415 8/20/2009 5-7 ft		OC-SB-416-8.0/9.0-XXX SB-416 8/18/2009 8-9 ft		OC-SB-418-8/10-XXX SB-418 8/27/2009 8-10 ft		OC-SB-419-3.0/5.0-XXX SB-419 8/19/2009 3-5 ft		OC-SB-420-6.5/8.5-XXX SB-420 8/18/2009 6.5-8.5 ft		OC-SB-421-8.0/10 XXX SB-421 8/19/2009 8-10 ft		OC-SB-422-6.0/8.0-XXX SB-422 8/25/2009 6-8 ft		OC-SB-423-5.0/6.0-XXX SB-423 8/18/2009 5-6 ft	
1-Methylnaphthalene	0.037	U	0.035	UJ	0.036	U	0.036	U	0.035	UJ	0.35	U	0.038	U	0.035	UJ
2,4-Dimethylphenol	0.037	U	0.035	UJ	0.036	U	0.036	U	0.035	UJ	0.35	U	0.038	U	0.035	UJ
2-Methylnaphthalene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
3 & 4 Methylphenol	0.037	UJ	0.035	U	0.036	U	0.036	UJ	0.035	U	0.35	U	0.038	U	0.035	U
4-Chlorophenyl phenyl ether	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Acenaphthene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Acenaphthylene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Acetophenone	0.037	UJ	0.035	U	0.036	U	0.036	UJ	0.035	U	0.35	U	0.038	U	0.035	U
Aniline	0.037	UJ	0.035	UJ	0.036	UJ	0.036	UJ	0.035	UJ	0.35	UJ	0.038	UJ	0.035	UJ
Anthracene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Benzaldehyde	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Benzo(a)anthracene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Benzo(a)pyrene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Benzo(b)fluoranthene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Benzo(ghi)perylene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Benzo(k)fluoranthene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Benzoic Acid	0.18	UJ	0.18	UJ		R	0.18	UJ	0.18	UJ	1.8	UJ		R	0.18	UJ
Biphenyl	0.037	U	0.017	J	0.036	U	0.036	U	0.071	J	0.35	U	0.038	U	0.035	UJ
Bis(2-Ethylhexyl)phthalate	0.037	U	35	JEB	0.036	U	0.036	U	28	JEB	0.89	JEB	0.038	U	0.32	EB
Butylbenzylphthalate	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Carbazole	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Chrysene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Dibenz(a,h)anthracene	0.037	U	0.035	U	0.036	UJ	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Dibenzofuran	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Diethylphthalate	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Di-n-butylphthalate	0.037	U	0.035	U	0.036	U	0.036	U	0.11	U	0.35	U	0.038	U	0.035	U
Di-n-octylphthalate	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Diphenyl ether	0.037	U	0.36	J	0.036	U	0.036	U	3.1	J	0.35	U	0.038	U	0.035	UJ
Diphenylamine			0.1				0.036	U	0.038		0.035	U	0.038	U		
Fluoranthene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Fluorene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Indeno(1,2,3-cd)pyrene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Naphthalene	0.088	U	0.012	J	0.087	U	0.087	U	0.084	U	0.85	U	0.091	U	0.085	U
N-Nitrosodiphenylamine	0.037	U	0.035	U	0.036	U	0.036	U	0.018	JEB	0.035	U	0.038	U	0.011	JEB
Phenanthrene	0.044	U	0.043	U	0.044	U	0.043	U	0.042	U	0.42	U	0.045	U	0.042	U
Phenol	0.037	U	0.035	U	0.036	U	0.036	U	0.078		0.35	U	0.038	U	0.035	U
Pyrene	0.037	U	0.035	U	0.036	U	0.036	U	0.035	U	0.35	U	0.038	U	0.035	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-415-5.0/7.0-XXX SB-415 8/20/2009 5-7 ft		OC-SB-416-8.0/9.0-XXX SB-416 8/18/2009 8-9 ft		OC-SB-418-8/10-XXX SB-418 8/27/2009 8-10 ft		OC-SB-419-3.0/5.0-XXX SB-419 8/19/2009 3-5 ft		OC-SB-420-6.5/8.5-XXX SB-420 8/18/2009 6.5-8.5 ft		OC-SB-421-8.0/10 XXX SB-421 8/19/2009 8-10 ft		OC-SB-422-6.0/8.0-XXX SB-422 8/25/2009 6-8 ft		OC-SB-423-5.0/6.0-XXX SB-423 8/18/2009 5-6 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	4700		8500		9800		3400		10000		5900		6000		6500	
Antimony	0.74	UJ	0.6	UJ	0.66	UJ	0.59	UJ	0.35	J	0.62	UJ	0.68	UJ	0.26	J
Arsenic	**4.6**		**3**		**16**		**3.3**		**2.9**		**3.1**		**2.7**		2.4	
Barium	6.1		26		39		6.5		47		15		8.2		15	
Beryllium	0.16	J	0.3		0.43		0.14	J	0.35		0.14	J	0.17	J	0.13	J
Cadmium	0.075	J	0.23	J	0.29		0.076	J	0.27		0.28		0.087	J	0.19	J
Calcium	560		2300		2200		550		2600		2400		550		3800	
Chromium	6.6		16		14		5.4		18		12		5.9	J	33	
Chromium, Hexavalent																
Cobalt	1.7		8.7		7.5		1.7		10		5.1		1.5		8.4	
Copper	3.2		26		16		2.7		25		13		2.5	J	36	
Iron	4900		14000		15000		4800		16000		10000		4400		12000	
Lead	2.5		2.3	EB	3.9		1.5		2.1	EB	1.3		5.2		1.7	
Magnesium	870		4700		2500		930		5200		2700		830	J	2700	
Manganese	35		150		110		45		150		92		29		88	
Mercury	0.17	U	0.19	U	0.053	J	0.13	U	0.15	U	0.13	U	0.2	U	0.15	U
Nickel	4.5		13		13		4.4		17		8.3		4.3		12	
Potassium	430		1600		2000		530		2200		850		420	J	930	
Selenium	0.74	U	0.6	U	0.66	U	0.59	U	0.66	U	0.62	U	0.68	U	0.55	U
Silver	0.74	U	0.6	U	0.66	U	0.59	U	0.66	U	0.62	U	0.68	U	0.26	J
Sodium	150	U	82	J	110	J	120	U	120	J	160		140	U	380	
Thallium	1.5	U	1.2	U	1.3	U	1.2	U	0.15	J	1.2	U	1.4	U	1.1	U
Tin	2.3	J	5.6	J	4.6	J	5.9	U	6	J	4	J	6.8	UJ	13	J
Vanadium	6.3		26		18		5.6		28		19		6.4		28	
Zinc	9.7		26		23		8.3		25		29		11		13	
Chloride	22	U	21	U	22	U	21	U	18	U	22	U	23	U	21	U
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	6.5	U	7.3	U	15		7	U	7.7	U	7.2	U	24		7.4	
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-415-5.0/7.0-XXX SB-415 8/20/2009 5-7 ft		OC-SB-416-8.0/9.0-XXX SB-416 8/18/2009 8-9 ft		OC-SB-418-8/10-XXX SB-418 8/27/2009 8-10 ft		OC-SB-419-3.0/5.0-XXX SB-419 8/19/2009 3-5 ft		OC-SB-420-6.5/8.5-XXX SB-420 8/18/2009 6.5-8.5 ft		OC-SB-421-8.0/10 XXX SB-421 8/19/2009 8-10 ft		OC-SB-422-6.0/8.0-XXX SB-422 8/25/2009 6-8 ft		OC-SB-423-5.0/6.0-XXX SB-423 8/18/2009 5-6 ft	
pH **(pH units)**																
Sulfate	45	U	42	U	43	U	43	U	35	U	43	U	46	U	42	U
Sulfate **(mg/L)**																
Total Organic Carbon											1000	U				
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics											2.5	U				
C5-C8 Aliphatics (unadj.)											2.5	U				
C9-C10 Aromatics											2.5	UJ				
C9-C12 Aliphatics											2.5	U				
C9-C12 Aliphatics (unadj.)											2.5	U				
Volatile Petroleum Hydrocarbons, Total											2.5	UJ				
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics											23					
C11-C22 Aromatics (unadj.)											120					
C19-C36 Aliphatics											3.5	U				
C9-C18 Aliphatics											9.4					
Extractable Petroleum Hydrocarbons, Total											32					
Specialty Compounds (mg/Kg)																
Hydrazine			0.0021	U			0.0021	U	0.0021	U	0.00058	J	0.0023	U		
Acetaldehyde			0.21	U	0.22	U	0.21	U	0.21	U	0.21	U	0.04	J		
Formaldehyde			0.35		0.4		0.12		0.16		0.2		0.22			
Phthalic Acid/Phthalic anhydride			0.11	U			0.1	U	0.11	U	0.11	U	0.11	U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-424-7.0/9.0-XXX SB-424 8/19/2009 7-9 ft		OC-SB-425-6.0/8.0-XXX SB-425 8/19/2009 6-8 ft		OC-SB-426-5.0/7.0-XXX SB-426 8/19/2009 5-7 ft		OC-SB-430-8.0/10 XXX SB-430 8/25/2009 8-10 ft		OC-SB-431-7.0/9.0-XXX SB-431 8/20/2009 7-9 ft		OC-SB-432-5.0/7.0-XXX SB-432 8/20/2009 5-7 ft		OC-SB-433-5.0/7.0-XXX SB-433 8/24/2009 5-7 ft		OC-SB-436-6.0/8.0-XXX SB-436 8/20/2009 6-8 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.0022	U	0.0027	U	0.0026	U	0.0021	UJ	0.0021	U	0.14	U	0.0025	U	0.0027	U
1,2,4-Trichlorobenzene	0.0022	U	0.0027	U	0.0026	U	0.0021	UJ	0.0021	U	0.14	U	0.0025	U	0.0027	U
1,2,4-Trimethylbenzene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
1,2-Dichlorobenzene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
1,2-Dichloroethane	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
1,3,5-Trimethylbenzene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
1,4-Dichlorobenzene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
2,4,4-Trimethyl-1-pentene	0.0044	U	0.0054	U	0.0053	U	0.0043	U	0.0043	U	0.28	UJ	0.005	UJ	0.0055	U
2,4,4-Trimethyl-2-pentene	0.0044	U	0.0054	U	0.0053	U	0.0043	UJ	0.0043	U	0.28	U	0.005	U	0.0055	U
2-Butanone	0.022	U	0.027	U	0.026	U	0.021	U	0.021	U	1.4	U	0.025	U	0.027	U
2-Hexanone	0.022	U	0.027	U	0.026	U	0.021	U	0.021	U	1.4	U	0.025	U	0.027	U
4-iso-Propyltoluene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.55		0.0025	U	0.0027	U
4-Methyl-2-pentanone	0.022	U	0.027	U	0.026	U	0.021	U	0.021	U	1.4	U	0.025	U	0.027	U
Acetone	0.22	UJ	0.27	UJ	0.26	UJ	0.21	UJ	0.21	UJ	14	UJ	0.25	UJ	0.27	UJ
Benzene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Carbon disulfide	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Carbon tetrachloride	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Chlorobenzene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Chloroform	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Chloromethane	0.0044	U	0.0054	U	0.0053	U	0.0043	U	0.0043	U	0.28	U	0.005	U	0.0055	U
Ethyl benzene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Formaldehyde																
Isopropylbenzene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Methylene chloride	0.0087	U	0.011	U	0.011	U	0.0085	U	0.0085	U	0.56	U	0.01	U	0.011	U
Naphthalene	0.022	U	0.027	U	0.026	U	0.021	U	0.021	U	1.4	U	0.025	U	0.027	U
Propylbenzene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
sec-Butylbenzene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Styrene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Tetrachloroethene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Tetrahydrofuran	0.022	U	0.027	U	0.026	U	0.021	U	0.021	U	1.4	U	0.025	U	0.027	U
Toluene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Trichloroethene	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Trichlorofluoromethane	0.0044	U	0.0054	U	0.0053	U	0.0043	U	0.0043	U	0.28	U	0.005	U	0.0055	U
Xylene, o	0.0022	U	0.0027	U	0.0026	U	0.0021	U	0.0021	U	0.14	U	0.0025	U	0.0027	U
Xylenes (m&p)	0.0044	U	0.0054	U	0.0053	U	0.0043	U	0.0043	U	0.28	U	0.005	U	0.0055	U
Xylenes, Total	0.0044	U	0.0054	U	0.0053	U	0.0043	U	0.0043	U	0.28	U	0.005	U	0.0055	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
1,2-Dichlorobenzene	0.035	U	0.18	U	0.039	UJ	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
1,4-Dichlorobenzene	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-424-7.0/9.0-XXX SB-424 8/19/2009 7-9 ft		OC-SB-425-6.0/8.0-XXX SB-425 8/19/2009 6-8 ft		OC-SB-426-5.0/7.0-XXX SB-426 8/19/2009 5-7 ft		OC-SB-430-8.0/10 XXX SB-430 8/25/2009 8-10 ft		OC-SB-431-7.0/9.0-XXX SB-431 8/20/2009 7-9 ft		OC-SB-432-5.0/7.0-XXX SB-432 8/20/2009 5-7 ft		OC-SB-433-5.0/7.0-XXX SB-433 8/24/2009 5-7 ft		OC-SB-436-6.0/8.0-XXX SB-436 8/20/2009 6-8 ft	
1-Methylnaphthalene	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
2,4-Dimethylphenol	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
2-Methylnaphthalene	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
3 & 4 Methylphenol	0.035	U	0.18	U	0.039	UJ	0.035	U	0.037	UJ	0.38	U	0.038	U	0.036	UJ
4-Chlorophenyl phenyl ether	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Acenaphthene	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Acenaphthylene	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Acetophenone	0.034	JEB	0.18	U	0.039	UJ	0.035	U	0.037	UJ	0.38	U	0.038	U	0.036	UJ
Aniline	0.035	UJ	0.18	UJ	0.039	UJ	0.035	UJ	0.037	UJ	0.38	U	0.038	UJ	0.036	UJ
Anthracene	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Benzaldehyde	0.014	J	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Benzo(a)anthracene	0.035	U	0.18	U	0.039	U	0.035	UJ	0.037	U	0.38	U	0.038	U	0.036	U
Benzo(a)pyrene	0.035	U	0.18	U	0.039	U	0.035	UJ	0.037	U	0.38	U	0.038	U	0.036	U
Benzo(b)fluoranthene	0.035	U	0.18	U	0.039	U	0.035	UJ	0.037	U	0.38	U	0.038	U	0.036	U
Benzo(ghi)perylene	0.035	U	0.18	U	0.039	U	0.035	UJ	0.037	U	0.38	U	0.038	U	0.036	U
Benzo(k)fluoranthene	0.035	U	0.18	U	0.039	U	0.035	UJ	0.037	U	0.38	U	0.038	U	0.036	U
Benzoic Acid	0.17	UJ	0.9	UJ	0.19	UJ		R	0.18	UJ		R		R	0.18	UJ
Biphenyl	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Bis(2-Ethylhexyl)phthalate	0.017	JEB	0.18	U	0.039	U	0.022	JEB	0.037	U	39	EB	0.038	U	0.036	U
Butylbenzylphthalate	0.035	UJ	0.18	U	0.039	U	0.035	UJ	0.037	U	0.38	U	0.038	U	0.036	U
Carbazole	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Chrysene	0.035	U	0.18	U	0.039	U	0.035	UJ	0.037	U	0.38	U	0.038	U	0.036	U
Dibenz(a,h)anthracene	0.035	U	0.18	U	0.039	U	0.035	UJ	0.037	U	0.38	U	0.038	U	0.036	U
Dibenzofuran	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Diethylphthalate	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Di-n-butylphthalate	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Di-n-octylphthalate	0.035	UJ	0.18	U	0.039	U	0.035	UJ	0.037	U	0.38	U	0.021	J	0.036	U
Diphenyl ether	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Diphenylamine	0.25		0.18	U	0.039	U	0.035	U			0.38	U				
Fluoranthene	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Fluorene	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Indeno(1,2,3-cd)pyrene	0.035	U	0.18	U	0.039	U	0.035	UJ	0.037	U	0.38	U	0.038	U	0.036	U
Naphthalene	0.083	U	0.43	U	0.093	U	0.084	U	0.088	U	0.91	U	0.092	U	0.085	U
N-Nitrosodiphenylamine	0.17	EB	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.012	JEB
Phenanthrene	0.042	U	0.22	U	0.046	U	0.042	U	0.044	U	0.45	U	0.046	U	0.043	U
Phenol	0.035	U	0.18	U	0.039	U	0.035	U	0.037	U	0.38	U	0.038	U	0.036	U
Pyrene	0.035	U	0.18	U	0.039	U	0.035	UJ	0.037	U	0.38	U	0.038	U	0.036	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-424-7.0/9.0-XXX SB-424 8/19/2009 7-9 ft		OC-SB-425-6.0/8.0-XXX SB-425 8/19/2009 6-8 ft		OC-SB-426-5.0/7.0-XXX SB-426 8/19/2009 5-7 ft		OC-SB-430-8.0/10 XXX SB-430 8/25/2009 8-10 ft		OC-SB-431-7.0/9.0-XXX SB-431 8/20/2009 7-9 ft		OC-SB-432-5.0/7.0-XXX SB-432 8/20/2009 5-7 ft		OC-SB-433-5.0/7.0-XXX SB-433 8/24/2009 5-7 ft		OC-SB-436-6.0/8.0-XXX SB-436 8/20/2009 6-8 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	12000		3500		4300		4800		14000		340		3500		1200	
Antimony	0.61	UJ	0.69	UJ	0.29	J	0.99	J	1.2	UJ	0.76	UJ	0.72	UJ	0.57	UJ
Arsenic	**3.4**		**6.9**		**4.4**		1.7		**3.8**		0.9	J	**3.5**		1.5	
Barium	31		6.5		7		8.3		39		2.2	J	4.6		5.2	
Beryllium	0.35		0.15	J	0.18	J	0.19	J	0.47		0.3	U	0.13	J	0.046	J
Cadmium	0.48		0.088	J	0.083	J	0.13	J	0.4	J	0.019	J	0.068	J	0.055	J
Calcium	3100		480		660		870		2700		410		360		350	
Chromium	23		9.6		100		91	J	51		11		5.1		21	
Chromium, Hexavalent																
Cobalt	11		1.9		1.8		2.8		14		0.29	J	1.7		0.94	
Copper	45		4.1		3.9		18	J	22		2.9		3.2		3.8	
Iron	18000		6000		4900		6000		26000		990		4300		2800	
Lead	2.6		1.3		1.4		2.8		0.78	J	0.73	J	1.8		2.3	
Magnesium	5900		970		930		1600	J	6700		69	J	820	J	500	
Manganese	160		41		40		61		300		5.8		30		22	
Mercury	0.18	U	0.13	U	0.16	U	0.2	U	0.18	U	0.18	U	0.18	U	0.047	J
Nickel	20		5.9		5.4		6.3		20		0.93	J	4.8		2.8	
Potassium	1200		550		610		680	J	1500		270	J	430	J	410	
Selenium	0.61	U	0.69	U	0.64	U	0.64	U	1.2	U	0.76	U	0.72	U	0.57	U
Silver	0.61	U	0.69	U	1.5		1.4		0.29	J	0.76	U	0.72	U	0.21	J
Sodium	180		140	U	130	U	69	J	55	J	26	J	140	U	20	J
Thallium	1.2	U	1.4	U	1.3	U	1.3	U	2.3	U	1.5	UJ	1.4	U	1.1	U
Tin	8.2	J	3.6	J	46	J	39	J	19	J	4.9	J	7.2	UJ	8.8	J
Vanadium	34		6.7		6		10		31		0.89	J	5.6		3.1	
Zinc	43		13		14		13		17		3.7	J	13		7.6	
Chloride	19	U	20	U	23	U	21	U	22	U	22	U	23	U	22	U
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	11		7.5		18		19		20		12	EB	6.7	U	10	
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-424-7.0/9.0-XXX SB-424 8/19/2009 7-9 ft		OC-SB-425-6.0/8.0-XXX SB-425 8/19/2009 6-8 ft		OC-SB-426-5.0/7.0-XXX SB-426 8/19/2009 5-7 ft		OC-SB-430-8.0/10 XXX SB-430 8/25/2009 8-10 ft		OC-SB-431-7.0/9.0-XXX SB-431 8/20/2009 7-9 ft		OC-SB-432-5.0/7.0-XXX SB-432 8/20/2009 5-7 ft		OC-SB-433-5.0/7.0-XXX SB-433 8/24/2009 5-7 ft		OC-SB-436-6.0/8.0-XXX SB-436 8/20/2009 6-8 ft	
pH **(pH units)**																
Sulfate	39	U	41	U	47	U	42	U	44	U	45	U	47	U	44	U
Sulfate **(mg/L)**																
Total Organic Carbon					1200											
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics											28	UJ				
C5-C8 Aliphatics (unadj.)											28	UJ				
C9-C10 Aromatics											36	J				
C9-C12 Aliphatics											28	UJ				
C9-C12 Aliphatics (unadj.)											31	J				
Volatile Petroleum Hydrocarbons, Total											36	J				
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics											**4700**					
C11-C22 Aromatics (unadj.)											**4700**					
C19-C36 Aliphatics											69					
C9-C18 Aliphatics											40					
Extractable Petroleum Hydrocarbons, Total											4800					
Specialty Compounds (mg/Kg)																
Hydrazine			0.0007	J	0.00069	J	0.0022	U	0.0022	U	0.00076	J			0.0008	J
Acetaldehyde	0.21	U	0.21	U			0.037	J			0.23	UJ				
Formaldehyde	1.6		0.15				0.25				0.11	UJ				
Phthalic Acid/Phthalic anhydride	0.11	U	0.11	U	0.11	U	0.1	U			0.041	J				

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-437-5.0/7.0-XXX SB-437 8/21/2009 5-7 ft		OC-SB-438-5.0/7.0-XXX SB-438 8/24/2009 5-7 ft		OC-SB-439-8.0/10 XXX SB-439 8/24/2009 8-10 ft		OC-SB-440-6.0/8.0-XXX SB-440 8/24/2009 6-8 ft		OC-SB-443-6.0/8.0-XXX SB-443 8/20/2009 6-8 ft		OC-SB-444-5.0/7.0-XXX SB-444 8/27/2009 5-7 ft		OC-SB-445-8.0/10 XXX SB-445 8/21/2009 8-10 ft		OC-SB-446-5.0/7.0-XXX SB-446 8/25/2009 5-7 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
1,2,4-Trichlorobenzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
1,2,4-Trimethylbenzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
1,2-Dichlorobenzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
1,2-Dichloroethane	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
1,3,5-Trimethylbenzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
1,4-Dichlorobenzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
2,4,4-Trimethyl-1-pentene	0.0053	U	0.005	U	0.0053	UJ	0.0054	UJ	0.0051	U	0.0052	U	0.0048	U	0.0055	U
2,4,4-Trimethyl-2-pentene	0.0053	U	0.005	U	0.0053	U	0.0054	U	0.0051	U	0.0052	U	0.0048	U	0.0055	U
2-Butanone	0.027	U	0.025	U	0.026	U	0.027	U	0.025	U	0.026	U	0.024	U	0.027	U
2-Hexanone	0.027	U	0.025	U	0.026	U	0.027	U	0.025	U	0.026	U	0.024	U	0.027	UJ
4-iso-Propyltoluene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
4-Methyl-2-pentanone	0.027	U	0.025	U	0.026	U	0.027	U	0.025	U	0.026	U	0.024	U	0.027	U
Acetone	0.27	UJ	0.25	UJ	0.26	UJ	0.27	UJ	0.25	UJ	0.26	UJ	0.24	UJ	0.27	UJ
Benzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Carbon disulfide	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Carbon tetrachloride	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Chlorobenzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Chloroform	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Chloromethane	0.0053	U	0.005	U	0.0053	U	0.0054	U	0.0051	U	0.0052	U	0.0048	U	0.0055	U
Ethyl benzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Formaldehyde																
Isopropylbenzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Methylene chloride	0.011	U	0.01	U	0.011	U	0.011	U	0.016	U	0.01	U	0.016	U	0.011	U
Naphthalene	0.027	U	0.025	U	0.026	U	0.027	U	0.025	U	0.026	U	0.024	U	0.027	U
Propylbenzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
sec-Butylbenzene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Styrene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Tetrachloroethene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Tetrahydrofuran	0.027	U	0.025	U	0.026	U	0.027	U	0.025	U	0.026	U	0.024	U	0.027	U
Toluene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Trichloroethene	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Trichlorofluoromethane	0.0053	U	0.005	U	0.0053	U	0.0054	U	0.0051	U	0.0052	U	0.0048	U	0.0055	U
Xylene, o	0.0027	U	0.0025	U	0.0026	U	0.0027	U	0.0025	U	0.0026	U	0.0024	U	0.0027	U
Xylenes (m&p)	0.0053	U	0.005	U	0.0053	U	0.0054	U	0.0051	U	0.0052	U	0.0048	U	0.0055	U
Xylenes, Total	0.0053	U	0.005	U	0.0053	U	0.0054	U	0.0051	U	0.0052	U	0.0048	U	0.0055	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
1,2-Dichlorobenzene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
1,4-Dichlorobenzene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-437-5.0/7.0-XXX SB-437 8/21/2009 5-7 ft		OC-SB-438-5.0/7.0-XXX SB-438 8/24/2009 5-7 ft		OC-SB-439-8.0/10 XXX SB-439 8/24/2009 8-10 ft		OC-SB-440-6.0/8.0-XXX SB-440 8/24/2009 6-8 ft		OC-SB-443-6.0/8.0-XXX SB-443 8/20/2009 6-8 ft		OC-SB-444-5.0/7.0-XXX SB-444 8/27/2009 5-7 ft		OC-SB-445-8.0/10 XXX SB-445 8/21/2009 8-10 ft		OC-SB-446-5.0/7.0-XXX SB-446 8/25/2009 5-7 ft	
1-Methylnaphthalene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
2,4-Dimethylphenol	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
2-Methylnaphthalene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
3 & 4 Methylphenol	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
4-Chlorophenyl phenyl ether	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Acenaphthene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Acenaphthylene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Acetophenone	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Aniline	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	UJ	0.039	U	0.042	UJ
Anthracene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Benzaldehyde	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	UJ
Benzo(a)anthracene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Benzo(a)pyrene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Benzo(b)fluoranthene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Benzo(ghi)perylene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Benzo(k)fluoranthene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Benzoic Acid		R		R		R		R		R		R		R		R
Biphenyl	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Bis(2-Ethylhexyl)phthalate	0.037	U	0.037	U	0.051	EB	0.055	EB	0.038	U	0.037	U	0.039	U	0.021	JEB
Butylbenzylphthalate	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Carbazole	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Chrysene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Dibenz(a,h)anthracene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	UJ	0.039	U	0.042	U
Dibenzofuran	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Diethylphthalate	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Di-n-butylphthalate	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Di-n-octylphthalate	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Diphenyl ether	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Diphenylamine	0.037	U							0.038	U	0.037	U	0.039	U	0.042	U
Fluoranthene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Fluorene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Indeno(1,2,3-cd)pyrene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Naphthalene	0.015	J	0.09	U	0.099	U	0.086	U	0.09	U	0.088	U	0.093	U	0.1	U
N-Nitrosodiphenylamine	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Phenanthrene	0.045	U	0.045	U	0.05	U	0.043	U	0.045	U	0.044	U	0.047	U	0.051	U
Phenol	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Pyrene	0.037	U	0.037	U	0.041	U	0.036	U	0.038	U	0.037	U	0.039	U	0.042	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-437-5.0/7.0-XXX SB-437 8/21/2009 5-7 ft		OC-SB-438-5.0/7.0-XXX SB-438 8/24/2009 5-7 ft		OC-SB-439-8.0/10 XXX SB-439 8/24/2009 8-10 ft		OC-SB-440-6.0/8.0-XXX SB-440 8/24/2009 6-8 ft		OC-SB-443-6.0/8.0-XXX SB-443 8/20/2009 6-8 ft		OC-SB-444-5.0/7.0-XXX SB-444 8/27/2009 5-7 ft		OC-SB-445-8.0/10 XXX SB-445 8/21/2009 8-10 ft		OC-SB-446-5.0/7.0-XXX SB-446 8/25/2009 5-7 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	4200		3900		3300		5400		670		3600		3300		410	
Antimony	0.65	UJ	0.62	UJ	0.63	UJ	0.65	UJ	0.68	UJ	0.6	UJ	0.74	UJ	0.69	UJ
Arsenic	**4**		**4.2**		**3**		**4.6**		1.7		**3.1**		**5.2**		0.5	J
Barium	6.9	J	6.6		8.5		9.5		3.7	J	8.2		12	J	3.1	
Beryllium	0.15	J	0.25		0.11	J	0.18	J	0.037	J	0.1	J	0.09	J	0.28	U
Cadmium	0.069	J	0.076	J	0.099	J	0.14	J	0.036	J	0.094	J	0.11	J	0.021	J
Calcium	340		500		830		750		580		620		810		190	
Chromium	5.6		5.8		9.6		9.1		2.5		160		15		1.8	
Chromium, Hexavalent																
Cobalt	1.8		1.8		1.8		2.5		0.54	J	1.4		1.7		0.33	J
Copper	2.6		3.1		3.6		4.6		1.4	EB	3.8		4.7		0.46	J
Iron	4500		5200		5300		5900		2000		6000		7800		530	
Lead	1.4	J	1.2		1.8		3.4		0.81	J	1.4		1.9	J	1.2	
Magnesium	830	J	970	J	980	J	1100	J	290	J	1100		1100	J	63	J
Manganese	31		35		42		50		12		37		40		6.6	
Mercury	0.15	U	0.19	U	0.18	U	0.19	U	0.21	U	0.18	U	0.21	U	0.17	U
Nickel	5	J	5.2		5.2		7.6		1.5	J	4.9		5.4	J	1.4	U
Potassium	430	J	600	J	610	J	560	J	410	J	570		740	J	330	J
Selenium	0.65	U	0.62	U	0.63	U	0.65	U	0.68	U	0.6	U	0.74	U	0.69	U
Silver	0.65	U	0.62	U	0.63	U	0.65	U	0.68	U	2.9		0.74	U	0.69	U
Sodium	130	U	120	U	37	J	130	U	29	J	21	J	27	J	140	U
Thallium	1.3	UJ	1.2	U	1.3	U	1.3	U	1.4	UJ	1.2	U	1.5	UJ	1.4	U
Tin	6.5	U	6.2	UJ	3.7	J	3.5	J	6.8	U	67	J	5.5	J	6.9	UJ
Vanadium	6		6		6.8		20		2.2		6.4		9.7		1.2	J
Zinc	14		16		10		11		2.9	J	9		9.5		8.1	
Chloride	23	U	22	U	25	U	22	U	23	U	22	U	24	U	25	U
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	13	EB	6.7	U	7.9	U	19		7.1	U	7.2	U	46	EB	6.6	U
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-437-5.0/7.0-XXX SB-437 8/21/2009 5-7 ft		OC-SB-438-5.0/7.0-XXX SB-438 8/24/2009 5-7 ft		OC-SB-439-8.0/10 XXX SB-439 8/24/2009 8-10 ft		OC-SB-440-6.0/8.0-XXX SB-440 8/24/2009 6-8 ft		OC-SB-443-6.0/8.0-XXX SB-443 8/20/2009 6-8 ft		OC-SB-444-5.0/7.0-XXX SB-444 8/27/2009 5-7 ft		OC-SB-445-8.0/10 XXX SB-445 8/21/2009 8-10 ft		OC-SB-446-5.0/7.0-XXX SB-446 8/25/2009 5-7 ft	
pH **(pH units)**																
Sulfate	45	U	45	U	49	U	44	U	46	U	44	U	47	U	51	U
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics							3.1	UJ								
C5-C8 Aliphatics (unadj.)							3.1	UJ								
C9-C10 Aromatics							3.1	UJ								
C9-C12 Aliphatics							3.1	UJ								
C9-C12 Aliphatics (unadj.)							3.1	UJ								
Volatile Petroleum Hydrocarbons, Total							3.1	UJ								
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics							84									
C11-C22 Aromatics (unadj.)							84									
C19-C36 Aliphatics							130									
C9-C18 Aliphatics							34									
Extractable Petroleum Hydrocarbons, Total							250									
Specialty Compounds (mg/Kg)																
Hydrazine	0.0023	U							0.0024	U	0.0023	U	0.00065	J	0.0025	U
Acetaldehyde	0.22	U							0.21	U	0.037	J	0.23	U	0.042	J
Formaldehyde	0.11	U							0.15		0.11	J	0.2		0.14	
Phthalic Acid/Phthalic anhydride	0.11	U							0.11	U	0.11	U	0.11	U	0.12	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-447-3.0/5.0-XXX SB-447 8/31/2009 3-5 ft		OC-SB-448-8.0/10 XXX SB-448 8/25/2009 8-10 ft		OC-SB-449-6.0/8.0-XXX SB-449 8/27/2009 6-8 ft		OC-SB-450-8.0/10 XXX SB-450 9/9/2009 8-10 ft		OC-SB-451-2.5/4.5-XXX SB-451 8/28/2009 2.5-4.5 ft		OC-SB-452-5.0/7.0-XXX SB-452 8/31/2009 5-7 ft		OC-SB-454-6.0/8.0-XXX SB-454 8/27/2009 6-8 ft		OC-SB-455-6.0/8.0-XXX SB-455 8/28/2009 6-8 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
1,2,4-Trichlorobenzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
1,2,4-Trimethylbenzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
1,2-Dichlorobenzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
1,2-Dichloroethane	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	U	0.0025	U	0.0024	U	0.0033	UJ
1,3,5-Trimethylbenzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
1,4-Dichlorobenzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
2,4,4-Trimethyl-1-pentene	0.043		0.004	U	0.012	J	0.0051	U	0.0052	UJ	0.0049	UJ	0.0047	U	0.0065	UJ
2,4,4-Trimethyl-2-pentene	0.012		0.004	U	0.0013	J	0.0051	U	0.0052	UJ	0.0049	U	0.0047	U	0.0065	UJ
2-Butanone	0.043	UJ	0.02	U	0.026	U	0.026	U	0.026	UJ	0.025	UJ	0.024	U	0.033	UJ
2-Hexanone	0.043	U	0.02	U	0.026	U	0.026	U	0.026	U	0.025	U	0.024	U	0.033	U
4-iso-Propyltoluene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
4-Methyl-2-pentanone	0.043	U	0.02	U	0.026	U	0.026	U	0.026	U	0.025	U	0.024	U	0.033	U
Acetone	0.43	UJ	0.2	UJ	0.26	UJ	0.26	UJ	0.26	UJ	0.25	UJ	0.24	UJ	0.078	J
Benzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	U	0.0025	U	0.0024	U	0.0033	UJ
Carbon disulfide	0.0043	U	0.0013	J	0.0026	U	0.0026	U	0.0026	U	0.0025	U	0.0024	U	0.0033	UJ
Carbon tetrachloride	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
Chlorobenzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
Chloroform	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	U	0.0025	U	0.0024	U	0.0033	U
Chloromethane	0.0086	U	0.004	U	0.0051	U	0.0051	U	0.0052	U	0.0049	U	0.0047	U	0.0065	UJ
Ethyl benzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
Formaldehyde																
Isopropylbenzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
Methylene chloride	0.017	U	0.008	U	0.01	U	0.01	U	0.01	U	0.0098	U	0.0095	U	0.013	U
Naphthalene	0.043	U	0.02	U	0.026	U	0.026	U	0.026	UJ	0.025	U	0.024	U	0.033	UJ
Propylbenzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
sec-Butylbenzene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
Styrene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
Tetrachloroethene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
Tetrahydrofuran	0.043	UJ	0.02	U	0.026	U	0.026	U	0.026	UJ	0.025	UJ	0.024	U	0.033	UJ
Toluene	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
Trichloroethene	0.007		0.002	U	0.0026	U	0.0026	U	0.0026	U	0.0025	U	0.0024	U	0.0033	UJ
Trichlorofluoromethane	0.0086	U	0.004	U	0.0051	U	0.0051	U	0.0052	UJ	0.0049	UJ	0.0047	U	0.0065	UJ
Xylene, o	0.0043	U	0.002	U	0.0026	U	0.0026	U	0.0026	UJ	0.0025	U	0.0024	U	0.0033	UJ
Xylenes (m&p)	0.0086	U	0.004	U	0.0051	U	0.0051	U	0.0052	UJ	0.0049	U	0.0047	U	0.0065	UJ
Xylenes, Total	0.0086	U	0.004	U	0.0051	U	0.0051	U	0.0052	UJ	0.0049	U	0.0047	U	0.0065	UJ
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
1,2-Dichlorobenzene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
1,4-Dichlorobenzene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-447-3.0/5.0-XXX SB-447 8/31/2009 3-5 ft		OC-SB-448-8.0/10 XXX SB-448 8/25/2009 8-10 ft		OC-SB-449-6.0/8.0-XXX SB-449 8/27/2009 6-8 ft		OC-SB-450-8.0/10 XXX SB-450 9/9/2009 8-10 ft		OC-SB-451-2.5/4.5-XXX SB-451 8/28/2009 2.5-4.5 ft		OC-SB-452-5.0/7.0-XXX SB-452 8/31/2009 5-7 ft		OC-SB-454-6.0/8.0-XXX SB-454 8/27/2009 6-8 ft		OC-SB-455-6.0/8.0-XXX SB-455 8/28/2009 6-8 ft	
1-Methylnaphthalene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
2,4-Dimethylphenol	0.37	U	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
2-Methylnaphthalene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
3 & 4 Methylphenol	0.13	J	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
4-Chlorophenyl phenyl ether	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Acenaphthene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Acenaphthylene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Acetophenone	1.5	JEB	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Aniline	0.37	UJ	0.038	UJ	0.04	UJ	0.038	UJ	0.034	UJ	0.04	U	0.039	UJ	0.043	UJ
Anthracene	0.37	UJ	0.012	JEB	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Benzaldehyde	0.37	UJ	0.038	UJ	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Benzo(a)anthracene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Benzo(a)pyrene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	UJ	0.04	U	0.039	U	0.043	UJ
Benzo(b)fluoranthene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	UJ	0.04	U	0.039	U	0.043	UJ
Benzo(ghi)perylene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	UJ	0.04	U	0.039	U	0.043	UJ
Benzo(k)fluoranthene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	UJ	0.04	U	0.039	U	0.043	UJ
Benzoic Acid	1.9	UJ		R		R	0.19	U	0.17	UJ	0.2	U	0.19	UJ	0.22	UJ
Biphenyl	0.77	J	0.11		0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Bis(2-Ethylhexyl)phthalate	4.6	JEB	0.044	EB	0.039	JEB	0.3	U	0.15	EB	0.04	U	0.039	U	0.043	UJ
Butylbenzylphthalate	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Carbazole	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Chrysene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.012	J	0.04	U	0.039	U	0.043	UJ
Dibenz(a,h)anthracene	0.37	UJ	0.038	U	0.04	UJ	0.038	U	0.034	UJ	0.04	U	0.039	U	0.043	UJ
Dibenzofuran	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Diethylphthalate	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Di-n-butylphthalate	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Di-n-octylphthalate	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	UJ	0.04	U	0.039	U	0.043	UJ
Diphenyl ether	3.8	J	0.13		0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Diphenylamine			0.047				0.038	U	0.034	U	0.04	U				
Fluoranthene	0.37	UJ	0.015	J	0.04	U	0.038	U	0.015	J	0.04	U	0.039	U	0.043	UJ
Fluorene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Indeno(1,2,3-cd)pyrene	0.37	UJ	0.038	U	0.04	U	0.038	U	0.012	J	0.04	U	0.039	U	0.043	UJ
Naphthalene	0.9	UJ	0.09	U	0.095	U	0.091	U	0.082	U	0.095	U	0.093	U	0.1	UJ
N-Nitrosodiphenylamine	0.28	JEB	0.038	U	0.013	JEB	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Phenanthrene	0.45	UJ	0.032	J	0.048	U	0.046	U	0.041	U	0.048	U	0.046	U	0.052	UJ
Phenol	1.2		0.038	U	0.04	U	0.038	U	0.034	U	0.04	U	0.039	U	0.043	UJ
Pyrene	0.37	UJ	0.028	J	0.04	U	0.038	U	0.027	J	0.04	U	0.039	U	0.043	UJ
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-447-3.0/5.0-XXX SB-447 8/31/2009 3-5 ft		OC-SB-448-8.0/10 XXX SB-448 8/25/2009 8-10 ft		OC-SB-449-6.0/8.0-XXX SB-449 8/27/2009 6-8 ft		OC-SB-450-8.0/10 XXX SB-450 9/9/2009 8-10 ft		OC-SB-451-2.5/4.5-XXX SB-451 8/28/2009 2.5-4.5 ft		OC-SB-452-5.0/7.0-XXX SB-452 8/31/2009 5-7 ft		OC-SB-454-6.0/8.0-XXX SB-454 8/27/2009 6-8 ft		OC-SB-455-6.0/8.0-XXX SB-455 8/28/2009 6-8 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	5900		8200		3700		4000		880		2800		2700		15000	
Antimony	0.64	UJ	0.59	UJ	0.68	UJ	0.65	UJ	0.89	J	0.63	UJ	0.6	UJ	1.5	UJ
Arsenic	**2.8**		**3.1**		**5**		**4.1**		1.3		1	J	**3.1**		**5.3**	
Barium	11		30		6.4		4.9		6.6		9.3		6.2		5.9	
Beryllium	0.19	J	0.23	J	0.11	J	0.12	J	0.037	J	0.091	J	0.091	J	0.26	J
Cadmium	0.24	J	0.15	J	0.092	J	0.064	J	0.2	J	0.054	J	0.086	J	0.078	J
Calcium	1500		1600		590		300		580		840		470		570	
Chromium	19		1200		20		13		3.4		28		120		9.6	
Chromium, Hexavalent					2.4	U							**5.7**			
Cobalt	2.8		4.2		2		2		0.56	J	1.2		1.4		1.4	J
Copper	22		8.7		5.9		2.7		3.9		3.8		2.8		1.4	J
Iron	6900		9300		5600		5000		1700		3300		5300		6400	
Lead	7.1		3.2		2.5		1.6		3.9		1.2		1.7		3.4	
Magnesium	980		2700	J	930		860		280		830		950		700	
Manganese	46		100		37		36		13		32		35		32	
Mercury	0.33		0.14	U	0.21	U	0.18	U	0.19	U	0.2	U	0.19	U	0.18	U
Nickel	52		10		5.7		4.2		4		4.9		4		3.9	
Potassium	410		1800	J	600		510		270		550		620		330	J
Selenium	0.64	U	0.59	U	0.68	U	0.65	U	0.59	U	0.63	U	0.6	U	1.5	U
Silver	0.086	J	24		0.11	J	0.65	U	0.59	U	0.27	J	2.2		1.5	U
Sodium	130	U	100	J	140	U	130	U	120	U	50	J	21	J	290	U
Thallium	0.15	JEB	0.33	U	1.4	U	1.3	U	1.2	U	1.3	U	1.2	U	2.9	U
Tin	7.3	J	620	J	7.1	J	4.7	J	5.9	UJ	11	J	51	J	3.1	J
Vanadium	190		16		7.5		6.4		10		8.8		11		12	
Zinc	38		20		9.6		8.5		38		8.4		9.5		9.2	
Chloride	22	U	22	U	23	U	23	U	20	U	24	U	22	U	24	U
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	14		71		7.4		8.1	U	23		6.2	U	6.7	U	700	
Oxidation Reduction Potential **(mV)**					510								460			

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-447-3.0/5.0-XXX SB-447 8/31/2009 3-5 ft		OC-SB-448-8.0/10 XXX SB-448 8/25/2009 8-10 ft		OC-SB-449-6.0/8.0-XXX SB-449 8/27/2009 6-8 ft		OC-SB-450-8.0/10 XXX SB-450 9/9/2009 8-10 ft		OC-SB-451-2.5/4.5-XXX SB-451 8/28/2009 2.5-4.5 ft		OC-SB-452-5.0/7.0-XXX SB-452 8/31/2009 5-7 ft		OC-SB-454-6.0/8.0-XXX SB-454 8/27/2009 6-8 ft		OC-SB-455-6.0/8.0-XXX SB-455 8/28/2009 6-8 ft	
pH **(pH units)**					6.34								6.35			
Sulfate	44	U	45	U	47	U	46	U	39	U	48	U	44	U	49	U
Sulfate **(mg/L)**																
Total Organic Carbon	42000		1800													
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics	19	U														
C5-C8 Aliphatics (unadj.)	19	U														
C9-C10 Aromatics	19	U														
C9-C12 Aliphatics	19	U														
C9-C12 Aliphatics (unadj.)	19	U														
Volatile Petroleum Hydrocarbons, Total	19	U														
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics	360															
C11-C22 Aromatics (unadj.)	2400															
C19-C36 Aliphatics	36	U														
C9-C18 Aliphatics	36	U														
Extractable Petroleum Hydrocarbons, Total	360															
Specialty Compounds (mg/Kg)																
Hydrazine			0.0013	J			0.00067	J	0.0023		0.0032					
Acetaldehyde			0.043	J			0.23	U	0.21	UJ	0.049	J				
Formaldehyde			0.28				0.29		0.14	J	0.24					
Phthalic Acid/Phthalic anhydride			0.11	U			0.11	U	0.1	U	0.12	U				

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-456-7.0/9.0-XXX SB-456 9/11/2009 7-9 ft		OC-SB-457-8.0/10 XXX SB-457 9/11/2009 8-10 ft		OC-SB-458-5.0/7.0-XXX SB-458 8/31/2009 5-7 ft		OC-SB-459-6.0/8.0-XXX SB-459 9/3/2009 6-8 ft		OC-SB-460-5.5/7.5-XXX SB-460 9/1/2009 5.5-7.5 ft		OC-SB-461-5.0/7.0-XXX SB-461 9/3/2009 5-7 ft		OC-SB-462-4.0/6.0-XXX SB-462 9/3/2009 4-6 ft		OC-SB-463-6.0/8.0-XXX SB-463 9/1/2009 6-8 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
1,2,4-Trichlorobenzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
1,2,4-Trimethylbenzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
1,2-Dichlorobenzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
1,2-Dichloroethane	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
1,3,5-Trimethylbenzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
1,4-Dichlorobenzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
2,4,4-Trimethyl-1-pentene	0.0047	U	0.0045	U	0.0053	UJ	0.27	U	0.0058	UJ	0.0049	U	0.0051	U	0.0046	U
2,4,4-Trimethyl-2-pentene	0.0047	U	0.0045	U	0.0053	U	0.094	J	0.0058	U	0.0049	U	0.0051	U	0.0046	U
2-Butanone	0.023	U	0.022	U	0.027	UJ	1.4	U	0.029	UJ	0.025	U	0.026	U	0.023	U
2-Hexanone	0.023	U	0.022	U	0.027	U	1.4	U	0.029	U	0.025	U	0.026	U	0.023	U
4-iso-Propyltoluene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
4-Methyl-2-pentanone	0.023	U	0.022	U	0.027	U	1.4	U	0.029	U	0.025	U	0.026	U	0.023	U
Acetone	0.23	UJ	0.22	UJ	0.27	UJ	14	UJ	0.29	UJ	0.25	UJ	0.26	UJ	0.23	UJ
Benzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Carbon disulfide	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Carbon tetrachloride	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Chlorobenzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Chloroform	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Chloromethane	0.0047	U	0.0045	U	0.0053	U	0.27	U	0.0058	U	0.0049	U	0.0051	U	0.0046	U
Ethyl benzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Formaldehyde																
Isopropylbenzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Methylene chloride	0.0093	U	0.0089	U	0.011	U	0.55	U	0.012	U	0.0099	U	0.01	U	0.0091	U
Naphthalene	0.023	U	0.022	U	0.027	U	1.4	U	0.029	U	0.025	U	0.026	U	0.023	U
Propylbenzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
sec-Butylbenzene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Styrene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Tetrachloroethene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Tetrahydrofuran	0.023	U	0.022	U	0.027	UJ	1.4	U	0.029	UJ	0.007	J	0.026	U	0.023	U
Toluene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Trichloroethene	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Trichlorofluoromethane	0.0047	U	0.0045	U	0.0053	UJ	0.27	U	0.0058	UJ	0.0049	U	0.0051	U	0.0046	U
Xylene, o	0.0023	U	0.0022	U	0.0027	U	0.14	U	0.0029	U	0.0025	U	0.0026	U	0.0023	U
Xylenes (m&p)	0.0047	U	0.0045	U	0.0053	U	0.27	U	0.0058	U	0.0049	U	0.0051	U	0.0046	U
Xylenes, Total	0.0047	U	0.0045	U	0.0053	U	0.27	U	0.0058	U	0.0049	U	0.0051	U	0.0046	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
1,2-Dichlorobenzene	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
1,4-Dichlorobenzene	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-456-7.0/9.0-XXX SB-456 9/11/2009 7-9 ft		OC-SB-457-8.0/10 XXX SB-457 9/11/2009 8-10 ft		OC-SB-458-5.0/7.0-XXX SB-458 8/31/2009 5-7 ft		OC-SB-459-6.0/8.0-XXX SB-459 9/3/2009 6-8 ft		OC-SB-460-5.5/7.5-XXX SB-460 9/1/2009 5.5-7.5 ft		OC-SB-461-5.0/7.0-XXX SB-461 9/3/2009 5-7 ft		OC-SB-462-4.0/6.0-XXX SB-462 9/3/2009 4-6 ft		OC-SB-463-6.0/8.0-XXX SB-463 9/1/2009 6-8 ft	
1-Methylnaphthalene	0.036	U	0.036	U	0.04	U	0.38	U	0.031	J	0.038	U	0.39	U	0.039	U
2,4-Dimethylphenol	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
2-Methylnaphthalene	0.036	U	0.036	U	0.04	U	0.38	U	0.049		0.038	U	0.39	U	0.039	U
3 & 4 Methylphenol	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
4-Chlorophenyl phenyl ether	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Acenaphthene	0.036	U	0.036	U	0.04	U	0.38	U	0.014	J	0.038	U	0.39	U	0.039	U
Acenaphthylene	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Acetophenone	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Aniline	0.036	UJ	0.036	UJ	0.04	UJ	0.38	UJ	0.041	U	0.038	UJ	0.39	UJ	0.039	UJ
Anthracene	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Benzaldehyde	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Benzo(a)anthracene	0.036	U	0.036	U	0.04	U	0.38	UJ	0.041	U	0.038	U	0.39	U	0.039	U
Benzo(a)pyrene	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Benzo(b)fluoranthene	0.036	U	0.036	U	0.04	U		R	0.041	U	0.038	U	0.39	U	0.039	U
Benzo(ghi)perylene	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Benzo(k)fluoranthene	0.036	U	0.036	U	0.04	U		R	0.041	U	0.038	U	0.39	U	0.039	U
Benzoic Acid	0.18	U	0.18	U	0.2	U	1.9	UJ	0.2	U	0.19	U	1.9	UJ	0.19	U
Biphenyl	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.34	J	0.039	U
Bis(2-Ethylhexyl)phthalate	0.072	UJ	0.065	U	0.04	U	**720**	EB	0.019	JEB	0.14	U	7.2	EB	0.039	U
Butylbenzylphthalate	0.036	U	0.036	U	0.04	U	0.38	UJ	0.041	U	0.038	U	0.39	U	0.039	U
Carbazole	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Chrysene	0.036	U	0.036	U	0.04	U	0.38	UJ	0.041	U	0.038	U	0.39	U	0.039	U
Dibenz(a,h)anthracene	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Dibenzofuran	0.036	U	0.036	U	0.04	U	0.38	U	0.022	J	0.038	U	0.39	U	0.039	U
Diethylphthalate	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Di-n-butylphthalate	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Di-n-octylphthalate	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Diphenyl ether	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	1.5		0.085	
Diphenylamine	0.036	U	0.036	U	0.04	U	0.14	J								
Fluoranthene	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Fluorene	0.036	U	0.036	U	0.04	U	0.38	U	0.016	J	0.038	U	0.39	U	0.039	U
Indeno(1,2,3-cd)pyrene	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	0.39	U	0.039	U
Naphthalene	0.086	U	0.086	U	0.095	U	0.91	U	0.13		0.092	U	0.93	U	0.093	U
N-Nitrosodiphenylamine	0.036	U	0.036	U	0.04	U	0.12	JEB	0.041	U	0.038	U	0.39	U	0.039	U
Phenanthrene	0.043	U	0.043	U	0.048	U	0.46	U	0.052		0.046	U	0.46	U	0.047	U
Phenol	0.036	U	0.036	U	0.04	U	0.38	U	0.041	U	0.038	U	1.5		0.039	U
Pyrene	0.036	U	0.036	U	0.04	U	0.38	UJ	0.041	U	0.038	U	0.39	U	0.039	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-456-7.0/9.0-XXX SB-456 9/11/2009 7-9 ft		OC-SB-457-8.0/10 XXX SB-457 9/11/2009 8-10 ft		OC-SB-458-5.0/7.0-XXX SB-458 8/31/2009 5-7 ft		OC-SB-459-6.0/8.0-XXX SB-459 9/3/2009 6-8 ft		OC-SB-460-5.5/7.5-XXX SB-460 9/1/2009 5.5-7.5 ft		OC-SB-461-5.0/7.0-XXX SB-461 9/3/2009 5-7 ft		OC-SB-462-4.0/6.0-XXX SB-462 9/3/2009 4-6 ft		OC-SB-463-6.0/8.0-XXX SB-463 9/1/2009 6-8 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	2600		3600		7700		4600		11000		3000		9300		4200	
Antimony	0.64	UJ	0.6	UJ	0.76	UJ	0.71	UJ	0.63	UJ	0.71	UJ	0.65	UJ	0.67	UJ
Arsenic	**6.9**		1.9		**4**		**3.1**		**3.6**		**3.1**		**4.7**		**3.2**	
Barium	13		14		5.8		6.4		5.6		8.8		11		6.5	
Beryllium	0.097	J	0.076	J	0.2	J	0.11	J	0.23	J	0.17	J	0.23	J	0.17	J
Cadmium	0.095	J	0.082	J	0.09	J	0.086	J	0.068	J	0.08	J	0.13	J	0.084	J
Calcium	410		1400		270		310		290		410		770		300	
Chromium	100	J	64	J	7.1		7.4		11		11		18		5.9	J
Chromium, Hexavalent	3.9		4				2.3	U			2.4	U				
Cobalt	1.6		2.3		2.3		1.7		1.7		1.6		2		2.1	
Copper	3.9	J	3.4	J	5.2		3.7		2.2		2.9		4.2		2.7	
Iron	7600		6100		6900		5100		5500		4500		7600		5300	
Lead	1.8		1.3		2		2.4		2.9		1.2		8.5		1.4	
Magnesium	970		1200		950		850		740		960		850		940	
Manganese	39		49		49		34		27		49		46		33	
Mercury	0.19	U	0.16	J	0.2	U	0.14	U	0.17	U	0.17	U	0.18	U	0.17	U
Nickel	4		4.1		5.7		4.7		5		4.4		5.6		5.1	
Potassium	880	J	960	J	400		460		420		470		490		450	
Selenium	0.64	U	0.6	U	0.76	U	0.71	U	0.63	U	0.71	U	0.65	U	0.67	U
Silver	1.6		0.98		0.76	U	0.71	U	0.63	U	0.71	U	0.1	J	0.67	U
Sodium	130	U	17000		150	U	140	U	43	J	140	U	130	U	130	U
Thallium	1.3	U	1.2	U	1.5	U	1.4	U	1.3	U	1.4	U	1.3	U	1.3	U
Tin	42	J	26	J	2.4	J	2.6	J	3.8	J	4	J	6.6	J	6.7	UJ
Vanadium	24		8.6		8.1		6.9		8.8		5.4		10		5.8	
Zinc	8.9		11		21		12		9.8		7.8		14		12	
Chloride	22	U	22	U	24	U	21	U	25	U	22	U	21	U	24	U
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	6.7	UJ	33	J	13		18		30		7.6	U	36		8.3	UJ
Oxidation Reduction Potential **(mV)**	440		380				510				460					

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-456-7.0/9.0-XXX SB-456 9/11/2009 7-9 ft		OC-SB-457-8.0/10 XXX SB-457 9/11/2009 8-10 ft		OC-SB-458-5.0/7.0-XXX SB-458 8/31/2009 5-7 ft		OC-SB-459-6.0/8.0-XXX SB-459 9/3/2009 6-8 ft		OC-SB-460-5.5/7.5-XXX SB-460 9/1/2009 5.5-7.5 ft		OC-SB-461-5.0/7.0-XXX SB-461 9/3/2009 5-7 ft		OC-SB-462-4.0/6.0-XXX SB-462 9/3/2009 4-6 ft		OC-SB-463-6.0/8.0-XXX SB-463 9/1/2009 6-8 ft	
pH **(pH units)**	5.48		9.06				6.25	H			5.57	H				
Sulfate	43	U	37000		48	U	42	U	420		44	U	71		69	
Sulfate **(mg/L)**																
Total Organic Carbon							5400									
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics							14	U								
C5-C8 Aliphatics (unadj.)							14	U								
C9-C10 Aromatics							110									
C9-C12 Aliphatics							14	U								
C9-C12 Aliphatics (unadj.)							100									
Volatile Petroleum Hydrocarbons, Total							110									
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics							670									
C11-C22 Aromatics (unadj.)							1300									
C19-C36 Aliphatics							730									
C9-C18 Aliphatics							300									
Extractable Petroleum Hydrocarbons, Total							1700									
Specialty Compounds (mg/Kg)																
Hydrazine	0.0027		0.052				0.0086	J							0.0045	
Acetaldehyde	0.21	UJ	0.1	J	0.24	U	0.22	UJ								
Formaldehyde	0.28		1.8		0.12		0.2									
Phthalic Acid/Phthalic anhydride	0.11	UJ	0.11	U	0.12	U	0.11	U								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-464-5.0/7.0-XXX SB-464 9/1/2009 5-7 ft		OC-SB-465-8.0/10 XXX SB-465 9/2/2009 8-10 ft		OC-SB-466-6.0/8.0-XXX SB-466 9/8/2009 6-8 ft		OC-SB-467-6.0/8.0-XXX SB-467 9/2/2009 6-8 ft		OC-SB-468-8.0/10 XXX SB-468 9/2/2009 8-10 ft		OC-SB-469-7.0/9.0-XXX SB-469 9/9/2009 7-9 ft		OC-SB-470-7.0/9.0-XXX SB-470 9/4/2009 7-9 ft		OC-SB-471-3.0/5.0-XXX SB-471 9/2/2009 3-5 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
1,2,4-Trichlorobenzene	0.0024	U	0.0016	J	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
1,2,4-Trimethylbenzene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
1,2-Dichlorobenzene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
1,2-Dichloroethane	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
1,3,5-Trimethylbenzene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
1,4-Dichlorobenzene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
2,4,4-Trimethyl-1-pentene	0.0047	U	0.005	U	0.0047	U	0.0053	U	0.005	U	0.005	U	0.0053	U	0.0046	U
2,4,4-Trimethyl-2-pentene	0.0047	U	0.005	U	0.0047	U	0.0053	U	0.005	U	0.005	U	0.0053	U	0.0046	U
2-Butanone	0.024	U	0.025	U	0.024	U	0.027	U	0.025	U	0.025	U	0.026	U	0.023	U
2-Hexanone	0.024	U	0.025	U	0.024	U	0.027	U	0.025	U	0.025	U	0.026	U	0.023	U
4-iso-Propyltoluene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
4-Methyl-2-pentanone	0.024	U	0.025	U	0.024	U	0.027	U	0.025	U	0.025	U	0.026	U	0.023	U
Acetone	0.24	UJ	0.25	UJ	0.24	UJ	0.27	UJ	0.25	UJ	0.25	UJ	0.26	UJ	0.23	UJ
Benzene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Carbon disulfide	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Carbon tetrachloride	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Chlorobenzene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Chloroform	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Chloromethane	0.0047	U	0.005	U	0.0047	U	0.0053	U	0.005	U	0.005	U	0.0053	U	0.0046	U
Ethyl benzene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Formaldehyde																
Isopropylbenzene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Methylene chloride	0.0095	U	0.01	U	0.0094	U	0.011	U	0.01	U	0.01	U	0.011	U	0.0092	U
Naphthalene	0.024	U	0.025	U	0.024	U	0.027	U	0.025	U	0.025	U	0.026	U	0.023	U
Propylbenzene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
sec-Butylbenzene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Styrene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Tetrachloroethene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Tetrahydrofuran	0.024	U	0.025	U	0.024	U	0.027	U	0.025	U	0.007	J	0.0078	J	0.023	U
Toluene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Trichloroethene	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Trichlorofluoromethane	0.0047	U	0.005	U	0.0047	U	0.0053	U	0.005	U	0.005	U	0.0053	U	0.0046	U
Xylene, o	0.0024	U	0.0025	U	0.0024	U	0.0027	U	0.0025	U	0.0025	U	0.0026	U	0.0023	U
Xylenes (m&p)	0.0047	U	0.005	U	0.0047	U	0.0053	U	0.005	U	0.005	U	0.0053	U	0.0046	U
Xylenes, Total	0.0047	U	0.005	U	0.0047	U	0.0053	U	0.005	U	0.005	U	0.0053	U	0.0046	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
1,2-Dichlorobenzene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
1,4-Dichlorobenzene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-464-5.0/7.0-XXX SB-464 9/1/2009 5-7 ft		OC-SB-465-8.0/10 XXX SB-465 9/2/2009 8-10 ft		OC-SB-466-6.0/8.0-XXX SB-466 9/8/2009 6-8 ft		OC-SB-467-6.0/8.0-XXX SB-467 9/2/2009 6-8 ft		OC-SB-468-8.0/10 XXX SB-468 9/2/2009 8-10 ft		OC-SB-469-7.0/9.0-XXX SB-469 9/9/2009 7-9 ft		OC-SB-470-7.0/9.0-XXX SB-470 9/4/2009 7-9 ft		OC-SB-471-3.0/5.0-XXX SB-471 9/2/2009 3-5 ft	
1-Methylnaphthalene	0.037	U	0.038	UJ	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
2,4-Dimethylphenol	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
2-Methylnaphthalene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
3 & 4 Methylphenol	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
4-Chlorophenyl phenyl ether	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Acenaphthene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Acenaphthylene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Acetophenone	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Aniline	0.037	UJ	0.038	UJ	0.036	UJ	0.04	UJ	0.037	U	0.034	UJ	0.034	UJ	0.041	U
Anthracene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Benzaldehyde	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Benzo(a)anthracene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Benzo(a)pyrene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Benzo(b)fluoranthene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Benzo(ghi)perylene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Benzo(k)fluoranthene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Benzoic Acid	0.19	U	0.19	UJ	0.18	U	0.2	UJ	0.19	U	0.17	U	0.17	U	0.21	U
Biphenyl	0.037	U	0.038	UJ	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Bis(2-Ethylhexyl)phthalate	0.2	EB	0.038	U	0.19	U	0.52	JEB	0.055	U	0.16	U	0.078	U	0.29	EB
Butylbenzylphthalate	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Carbazole	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Chrysene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Dibenz(a,h)anthracene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Dibenzofuran	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Diethylphthalate	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Di-n-butylphthalate	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Di-n-octylphthalate	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Diphenyl ether	0.037	U	0.038	UJ	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Diphenylamine	0.037	U	0.038	U	0.036	U			0.037	U					0.041	U
Fluoranthene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Fluorene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Indeno(1,2,3-cd)pyrene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Naphthalene	0.09	U	0.09	U	0.085	U	0.095	U	0.09	U	0.081	U	0.082	U	0.098	U
N-Nitrosodiphenylamine	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Phenanthrene	0.045	U	0.045	U	0.043	U	0.048	U	0.045	U	0.041	U	0.041	U	0.049	U
Phenol	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Pyrene	0.037	U	0.038	U	0.036	U	0.04	U	0.037	U	0.034	U	0.034	U	0.041	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-464-5.0/7.0-XXX SB-464 9/1/2009 5-7 ft		OC-SB-465-8.0/10 XXX SB-465 9/2/2009 8-10 ft		OC-SB-466-6.0/8.0-XXX SB-466 9/8/2009 6-8 ft		OC-SB-467-6.0/8.0-XXX SB-467 9/2/2009 6-8 ft		OC-SB-468-8.0/10 XXX SB-468 9/2/2009 8-10 ft		OC-SB-469-7.0/9.0-XXX SB-469 9/9/2009 7-9 ft		OC-SB-470-7.0/9.0-XXX SB-470 9/4/2009 7-9 ft		OC-SB-471-3.0/5.0-XXX SB-471 9/2/2009 3-5 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260							0.12	U								
Inorganics (mg/Kg)																
Aluminum	2800		3800		3900		3700		3800		10000		6400		9500	
Antimony	0.73	UJ	0.46	J	0.7	UJ	0.72	UJ	0.59	UJ	0.61	UJ	0.6	UJ	0.75	UJ
Arsenic	**3.2**		**2.5**		2.3		**3.8**		1	J	**16**		**9.9**		**4.3**	
Barium	7.5		5.6		32		7.5		5.7		61		18		5.8	
Beryllium	0.086	J	0.12	J	0.12	J	0.15	J	0.088	J	0.28		0.21	J	0.2	J
Cadmium	0.074	J	0.084	J	0.067	J	0.079	J	0.047	J	0.2	J	0.15	J	0.14	J
Calcium	990		640		1300		530		630		1900		1600		480	
Chromium	40	J	6.8	J	10		5.8		5.6	J	13		280		7.9	J
Chromium, Hexavalent					2.1	U					2.1	U	**8.4**			
Cobalt	1.2		1.7		1.6		2.1		1.3		6.1		2.5		1.6	
Copper	3.5		2.2		2.8		3		1.2		9.2		6.7		1.6	
Iron	5200		5700		5100		5200		3500		16000		8800		7000	
Lead	3.1		1.4		2.7		1.4		1		3.2		3.1		2.7	
Magnesium	780		950		870		950		890		4000		1800		800	
Manganese	34		33		47		34		31		120		62		27	
Mercury	0.052	J	0.16	U	0.18	U	0.16	U	0.15	U	0.15	U	0.16	U	0.048	J
Nickel	6.3		5.9		3.3		5.1		4.9		9.5		5.6		4.4	
Potassium	380		630		1200		560		510		2700		890		330	
Selenium	0.73	U	0.74	U	0.7	U	0.72	U	0.59	U	0.61	U	0.6	U	0.75	U
Silver	0.5	J	0.74	U	0.7	U	0.72	U	0.59	U	0.61	U	4.5		0.081	J
Sodium	22	J	37	J	220		140	U	50	J	170		150		150	U
Thallium	1.5	U	1.5	U	1.4	U	1.4	U	1.2	U	1.2	U	1.2	U	1.5	U
Tin	16	J	2.2	J	3.5	J	7.2	UJ	5.9	UJ	3.8	J	120	J	2.5	J
Vanadium	5.7		6.4		6.1		6.1		4.9		23		12		9.2	
Zinc	7		7.5		11		13		6.4		20		11		16	
Chloride	23	U	23	U	22	U	19	U	23	U	21	U	17	U	24	U
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	11	J	75	J	7.6	U	8	U	92	J	5.6	U	30		6.4	UJ
Oxidation Reduction Potential **(mV)**					420						390		410			

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-464-5.0/7.0-XXX SB-464 9/1/2009 5-7 ft		OC-SB-465-8.0/10 XXX SB-465 9/2/2009 8-10 ft		OC-SB-466-6.0/8.0-XXX SB-466 9/8/2009 6-8 ft		OC-SB-467-6.0/8.0-XXX SB-467 9/2/2009 6-8 ft		OC-SB-468-8.0/10 XXX SB-468 9/2/2009 8-10 ft		OC-SB-469-7.0/9.0-XXX SB-469 9/9/2009 7-9 ft		OC-SB-470-7.0/9.0-XXX SB-470 9/4/2009 7-9 ft		OC-SB-471-3.0/5.0-XXX SB-471 9/2/2009 3-5 ft	
pH **(pH units)**					6.12	H					6.04		7.5	H		
Sulfate	45	U	45	U	43	U	39		46	U	110		34	U	48	U
Sulfate **(mg/L)**																
Total Organic Carbon			1000	U	1000	U										
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine	0.0028		0.21	J	0.0022	U			0.28	J					0.0023	J
Acetaldehyde	0.22	U	0.22	U	0.22	U			0.23	U					0.24	U
Formaldehyde	0.28		0.27		0.27				0.28						0.18	
Phthalic Acid/Phthalic anhydride	0.11	U	0.11	UJ	0.11	U			0.11	U					0.12	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-472-8.0/10 XXX SB-472 9/4/2009 8-10 ft		OC-SB-479-8.0/10 XXX SB-479 11/16/2010 8-10 ft		OC-SB-480-6.0/8.0-XXX SB-480 11/16/2010 6-8 ft		OC-SB-480-6.0/8.0-XXX SB-480 12/11/2012 6-8 ft		OC-SB-481-7.0/9.0-XXX SB-481 11/17/2010 7-9 ft		OC-SB-484-5.5/7.5-XXX SB-484 12/11/2012 5.5-7.5 ft		OC-SB-485-6.0/8.0-XXX SB-485 11/15/2010 6-8 ft		OC-SB-486-8.0/10 XXX SB-486 12/11/2012 8-10 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
1,2,4-Trichlorobenzene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
1,2,4-Trimethylbenzene	0.0025	U	0.0023	UJ	0.13	U			0.13	U			0.0021	UJ		
1,2-Dichlorobenzene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
1,2-Dichloroethane	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
1,3,5-Trimethylbenzene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
1,4-Dichlorobenzene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
2,4,4-Trimethyl-1-pentene	0.0049	U	0.0045	U	0.26	U	0.0049	UJ	0.26	U	0.0016	J	0.0042	U	3.7	J
2,4,4-Trimethyl-2-pentene	0.0049	U	0.0045	U	0.26	U	0.0049	U	0.26	U	0.0043	U	0.0042	U	0.85	J
2-Butanone	0.025	U	0.023	UJ	1.3	U			1.3	U			0.021	U		
2-Hexanone	0.025	U	0.023	U	1.3	U			1.3	U			0.021	U		
4-iso-Propyltoluene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
4-Methyl-2-pentanone	0.025	U	0.023	U	1.3	U			1.3	U			0.021	U		
Acetone	0.25	UJ	0.23	UJ	13	UJ			13	UJ			0.21	UJ		
Benzene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Carbon disulfide	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Carbon tetrachloride	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Chlorobenzene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Chloroform	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Chloromethane	0.0049	U	0.0045	U	0.26	U			0.26	U			0.0042	U		
Ethyl benzene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Formaldehyde																
Isopropylbenzene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Methylene chloride	0.0099	U	0.009	U	0.52	U			0.51	U			0.0085	U		
Naphthalene	0.025	U	0.023	U	1.3	U			1.3	U			0.021	U		
Propylbenzene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
sec-Butylbenzene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Styrene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Tetrachloroethene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Tetrahydrofuran	0.025	U	0.023	UJ	1.3	UJ			1.3	UJ			0.021	UJ		
Toluene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Trichloroethene	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Trichlorofluoromethane	0.0049	U	0.0045	U	0.26	U			0.26	UJ			0.0042	U		
Xylene, o	0.0025	U	0.0023	U	0.13	U			0.13	U			0.0021	U		
Xylenes (m&p)	0.0049	U	0.0045	U	0.26	U			0.26	U			0.0042	U		
Xylenes, Total	0.0049	U	0.0045	U	0.26	U			0.26	U			0.0042	U		
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
1,2-Dichlorobenzene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
1,4-Dichlorobenzene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-472-8.0/10 XXX SB-472 9/4/2009 8-10 ft		OC-SB-479-8.0/10 XXX SB-479 11/16/2010 8-10 ft		OC-SB-480-6.0/8.0-XXX SB-480 11/16/2010 6-8 ft		OC-SB-480-6.0/8.0-XXX SB-480 12/11/2012 6-8 ft		OC-SB-481-7.0/9.0-XXX SB-481 11/17/2010 7-9 ft		OC-SB-484-5.5/7.5-XXX SB-484 12/11/2012 5.5-7.5 ft		OC-SB-485-6.0/8.0-XXX SB-485 11/15/2010 6-8 ft		OC-SB-486-8.0/10 XXX SB-486 12/11/2012 8-10 ft	
1-Methylnaphthalene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
2,4-Dimethylphenol	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
2-Methylnaphthalene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
3 & 4 Methylphenol	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
4-Chlorophenyl phenyl ether	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Acenaphthene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Acenaphthylene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Acetophenone	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Aniline	0.039	UJ	0.036	U	0.18	U			0.18	U			0.036	U		
Anthracene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Benzaldehyde	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Benzo(a)anthracene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Benzo(a)pyrene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Benzo(b)fluoranthene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Benzo(ghi)perylene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Benzo(k)fluoranthene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Benzoic Acid	0.19	U	0.022	J	0.91	U			0.9	U			0.044	J		
Biphenyl	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Bis(2-Ethylhexyl)phthalate	0.17	U	0.036	U	0.18				0.45				0.036	U		
Butylbenzylphthalate	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Carbazole	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Chrysene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Dibenz(a,h)anthracene	0.039	U	0.036	UJ	0.18	UJ			0.18	UJ			0.036	U		
Dibenzofuran	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Diethylphthalate	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Di-n-butylphthalate	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Di-n-octylphthalate	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Diphenyl ether	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Diphenylamine	0.039	U														
Fluoranthene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Fluorene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Indeno(1,2,3-cd)pyrene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Naphthalene	0.093	U	0.086	U	0.44	U			0.43	U			0.086	U		
N-Nitrosodiphenylamine	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Phenanthrene	0.046	U	0.043	U	0.22	U			0.21	U			0.043	U		
Phenol	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Pyrene	0.039	U	0.036	U	0.18	U			0.18	U			0.036	U		
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-472-8.0/10 XXX SB-472 9/4/2009 8-10 ft		OC-SB-479-8.0/10 XXX SB-479 11/16/2010 8-10 ft		OC-SB-480-6.0/8.0-XXX SB-480 11/16/2010 6-8 ft		OC-SB-480-6.0/8.0-XXX SB-480 12/11/2012 6-8 ft		OC-SB-481-7.0/9.0-XXX SB-481 11/17/2010 7-9 ft		OC-SB-484-5.5/7.5-XXX SB-484 12/11/2012 5.5-7.5 ft		OC-SB-485-6.0/8.0-XXX SB-485 11/15/2010 6-8 ft		OC-SB-486-8.0/10 XXX SB-486 12/11/2012 8-10 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260	0.12	U														
Inorganics (mg/Kg)																
Aluminum	2200															
Antimony	0.73	UJ														
Arsenic	**4.3**															
Barium	9.5															
Beryllium	0.12	J														
Cadmium	0.071	J														
Calcium	1100															
Chromium	6.6															
Chromium, Hexavalent	2.4	U														
Cobalt	0.97															
Copper	2.6															
Iron	3500															
Lead	2.2															
Magnesium	500															
Manganese	23															
Mercury	0.17	U														
Nickel	2.6															
Potassium	490															
Selenium	0.73	U														
Silver	0.73	U														
Sodium	150	U														
Thallium	1.5	U														
Tin	7.3	UJ														
Vanadium	4.4															
Zinc	7.4															
Chloride	21	U														
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	7.3															
Oxidation Reduction Potential **(mV)**	290															

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-472-8.0/10 XXX SB-472 9/4/2009 8-10 ft		OC-SB-479-8.0/10 XXX SB-479 11/16/2010 8-10 ft		OC-SB-480-6.0/8.0-XXX SB-480 11/16/2010 6-8 ft		OC-SB-480-6.0/8.0-XXX SB-480 12/11/2012 6-8 ft		OC-SB-481-7.0/9.0-XXX SB-481 11/17/2010 7-9 ft		OC-SB-484-5.5/7.5-XXX SB-484 12/11/2012 5.5-7.5 ft		OC-SB-485-6.0/8.0-XXX SB-485 11/15/2010 6-8 ft		OC-SB-486-8.0/10 XXX SB-486 12/11/2012 8-10 ft	
pH **(pH units)**	7.27	H														
Sulfate	620															
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics			2.2	U	2.5	U			12	UJ			2.1	U		
C5-C8 Aliphatics (unadj.)			2.2	U	2.5	U			12	UJ			2.1	U		
C9-C10 Aromatics			2.2	U	3				13	J			2.1	U		
C9-C12 Aliphatics			2.2	U	2.5	U			12	UJ			2.1	U		
C9-C12 Aliphatics (unadj.)			2.2	U	4.3				13	J			2.1	U		
Volatile Petroleum Hydrocarbons, Total			2.2	U	3				13	J			2.1	U		
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics			3.6	U	110				140				3.5	U		
C11-C22 Aromatics (unadj.)			3.6	U	110				140				3.5	U		
C19-C36 Aliphatics			3.6	U	3.6	U			3.5	U			3.5	U		
C9-C18 Aliphatics			3.6	U	14				36				3.5	U		
Extractable Petroleum Hydrocarbons, Total			3.6	U	120				180				3.5	U		
Specialty Compounds (mg/Kg)																
Hydrazine	0.00078	J														
Acetaldehyde	0.23	U														
Formaldehyde	0.21															
Phthalic Acid/Phthalic anhydride	0.12	U														

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-488-7.0/9.0-XXX SB-488 11/15/2010 7-9 ft		OC-SB-490-7.0/9.0-XXX SB-490 11/16/2010 7-9 ft		OC-SB-491-6.0/8.0-XXX SB-491 12/11/2012 6-8 ft		OC-SB-494-6.0/8.0-XXX SB-494 11/16/2010 6-8 ft		OC-SB-495-4.0/6.0-XXX SB-495 11/16/2010 4-6 ft		OC-SB-496-5.0/6.5-XXX SB-496 11/16/2010 5-6.5 ft		OC-SB-497-6.0/8.0-XXX SB-497 11/17/2010 6-8 ft		OC-SB-500-0.5/3.0-XXX SB-500 11/17/2010 0.5-3 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
1,2,4-Trichlorobenzene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
1,2,4-Trimethylbenzene	0.0024	UJ	0.0022	UJ			0.0026	UJ	0.0022	UJ	0.0026	UJ	0.0024	UJ	0.0025	UJ
1,2-Dichlorobenzene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
1,2-Dichloroethane	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
1,3,5-Trimethylbenzene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
1,4-Dichlorobenzene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
2,4,4-Trimethyl-1-pentene	0.0049	U	0.0044	U	0.0049	UJ	0.0051	U	0.0045	U	0.0052	U	0.0049	U	0.0049	U
2,4,4-Trimethyl-2-pentene	0.0049	U	0.0044	U	0.0049	U	0.0051	U	0.0045	U	0.0052	U	0.0049	U	0.0012	J
2-Butanone	0.024	U	0.022	U			0.026	U	0.022	U	0.026	U	0.024	U	0.025	UJ
2-Hexanone	0.024	U	0.022	U			0.026	U	0.022	U	0.026	U	0.024	U	0.025	U
4-iso-Propyltoluene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
4-Methyl-2-pentanone	0.024	U	0.022	U			0.026	U	0.022	U	0.026	U	0.024	U	0.025	U
Acetone	0.24	UJ	0.22	UJ			0.26	UJ	0.22	UJ	0.26	UJ	0.24	UJ	0.25	UJ
Benzene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Carbon disulfide	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Carbon tetrachloride	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Chlorobenzene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Chloroform	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Chloromethane	0.0049	U	0.0044	U			0.0051	U	0.0045	U	0.0052	U	0.0049	U	0.0049	U
Ethyl benzene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Formaldehyde																
Isopropylbenzene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Methylene chloride	0.0098	U	0.0087	U			0.01	U	0.009	U	0.01	U	0.0098	U	0.0098	U
Naphthalene	0.024	U	0.022	U			0.026	U	0.022	U	0.026	U	0.024	U	0.025	U
Propylbenzene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
sec-Butylbenzene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Styrene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Tetrachloroethene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Tetrahydrofuran	0.024	UJ	0.022	UJ			0.026	UJ	0.022	UJ	0.026	UJ	0.024	UJ	0.025	UJ
Toluene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Trichloroethene	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Trichlorofluoromethane	0.0049	U	0.0044	U			0.0051	U	0.0045	U	0.0052	U	0.0049	U	0.0049	U
Xylene, o	0.0024	U	0.0022	U			0.0026	U	0.0022	U	0.0026	U	0.0024	U	0.0025	U
Xylenes (m&p)	0.0049	U	0.0044	U			0.0051	U	0.0045	U	0.0052	U	0.0049	U	0.0049	U
Xylenes, Total	0.0049	U	0.0044	U			0.0051	U	0.0045	U	0.0052	U	0.0049	U	0.0049	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
1,2-Dichlorobenzene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
1,4-Dichlorobenzene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-488-7.0/9.0-XXX SB-488 11/15/2010 7-9 ft		OC-SB-490-7.0/9.0-XXX SB-490 11/16/2010 7-9 ft		OC-SB-491-6.0/8.0-XXX SB-491 12/11/2012 6-8 ft		OC-SB-494-6.0/8.0-XXX SB-494 11/16/2010 6-8 ft		OC-SB-495-4.0/6.0-XXX SB-495 11/16/2010 4-6 ft		OC-SB-496-5.0/6.5-XXX SB-496 11/16/2010 5-6.5 ft		OC-SB-497-6.0/8.0-XXX SB-497 11/17/2010 6-8 ft		OC-SB-500-0.5/3.0-XXX SB-500 11/17/2010 0.5-3 ft	
1-Methylnaphthalene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
2,4-Dimethylphenol	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
2-Methylnaphthalene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
3 & 4 Methylphenol	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
4-Chlorophenyl phenyl ether	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Acenaphthene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Acenaphthylene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Acetophenone	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Aniline	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	UJ	0.036	U
Anthracene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Benzaldehyde	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Benzo(a)anthracene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Benzo(a)pyrene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	**0.97**		0.036	U
Benzo(b)fluoranthene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Benzo(ghi)perylene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Benzo(k)fluoranthene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Benzoic Acid	0.17	UJ	0.17	UJ			0.088	J	0.11	J	0.19	J	1.9	UJ	0.049	J
Biphenyl	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Bis(2-Ethylhexyl)phthalate	0.035	U	0.034	U			0.038	U	0.021	J	0.082		6.4		0.074	
Butylbenzylphthalate	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.039	
Carbazole	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Chrysene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Dibenz(a,h)anthracene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	UJ
Dibenzofuran	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Diethylphthalate	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Di-n-butylphthalate	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Di-n-octylphthalate	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Diphenyl ether	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Diphenylamine																
Fluoranthene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Fluorene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Indeno(1,2,3-cd)pyrene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Naphthalene	0.083	U	0.082	U			0.091	U	0.086	U	0.082	U	0.92	U	0.086	U
N-Nitrosodiphenylamine	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Phenanthrene	0.042	U	0.041	U			0.045	U	0.043	U	0.041	U	0.46	U	0.043	U
Phenol	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Pyrene	0.035	U	0.034	U			0.038	U	0.036	U	0.034	U	0.38	U	0.036	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-488-7.0/9.0-XXX SB-488 11/15/2010 7-9 ft		OC-SB-490-7.0/9.0-XXX SB-490 11/16/2010 7-9 ft		OC-SB-491-6.0/8.0-XXX SB-491 12/11/2012 6-8 ft		OC-SB-494-6.0/8.0-XXX SB-494 11/16/2010 6-8 ft		OC-SB-495-4.0/6.0-XXX SB-495 11/16/2010 4-6 ft		OC-SB-496-5.0/6.5-XXX SB-496 11/16/2010 5-6.5 ft		OC-SB-497-6.0/8.0-XXX SB-497 11/17/2010 6-8 ft		OC-SB-500-0.5/3.0-XXX SB-500 11/17/2010 0.5-3 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium																
Chromium, Hexavalent																
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-488-7.0/9.0-XXX SB-488 11/15/2010 7-9 ft		OC-SB-490-7.0/9.0-XXX SB-490 11/16/2010 7-9 ft		OC-SB-491-6.0/8.0-XXX SB-491 12/11/2012 6-8 ft		OC-SB-494-6.0/8.0-XXX SB-494 11/16/2010 6-8 ft		OC-SB-495-4.0/6.0-XXX SB-495 11/16/2010 4-6 ft		OC-SB-496-5.0/6.5-XXX SB-496 11/16/2010 5-6.5 ft		OC-SB-497-6.0/8.0-XXX SB-497 11/17/2010 6-8 ft		OC-SB-500-0.5/3.0-XXX SB-500 11/17/2010 0.5-3 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics	2.2	U	2.2	U			2.5	U	2.2	U	2.5	U	2.4	U	2.5	U
C5-C8 Aliphatics (unadj.)	2.2	U	2.2	U			2.5	U	2.2	U	2.5	U	2.4	U	2.5	U
C9-C10 Aromatics	2.2	U	2.2	U			2.5	U	2.2	U	2.5	U	2.4	U	2.5	U
C9-C12 Aliphatics	2.2	U	2.2	U			2.5	U	2.2	U	2.5	U	2.4	U	2.5	U
C9-C12 Aliphatics (unadj.)	2.2	U	2.2	U			2.5	U	2.2	U	2.5	U	2.4	U	2.5	U
Volatile Petroleum Hydrocarbons, Total	2.2	U	2.2	U			2.5	U	2.2	U	2.5	U	2.4	U	2.5	U
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics	3.5	U	3.3	U			3.7	U	3.5	U	3.7		44		12	
C11-C22 Aromatics (unadj.)	3.5	U	3.3	U			3.7	U	3.5	U	3.7		44		12	
C19-C36 Aliphatics	3.5	U	3.3	U			3.7	U	3.5	U	3.4	U	3.8	U	3.6	U
C9-C18 Aliphatics	3.5	U	3.3	U			3.7	U	3.5	U	3.4	U	6.7		3.6	U
Extractable Petroleum Hydrocarbons, Total	3.5	U	3.3	U			3.7	U	3.5	U	3.7		51		12	
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-501-0.5/3.0-XXX SB-501 11/17/2010 0.5-3 ft		OC-SB-502-3.0/5.0-XXX SB-502 11/17/2010 3-5 ft		OC-SB-503-6.0/8.0-XXX SB-503 12/10/2012 6-8 ft		OC-SB-504-7.5/9.5-XXX SB-504 12/11/2012 7.5-9.5 ft		OC-SB-505-5.0/7.0-XXX SB-505 12/11/2012 5-7 ft		OC-SB-506-6.0/8.0-XXX SB-506 12/10/2012 6-8 ft		OC-SB-507-6.0/8.0-XXX SB-507 12/10/2012 6-8 ft		OC-SB-510-7.0/9.0-XXX SB-510 12/13/2012 7-9 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.0024	U	0.0023	U												
1,2,4-Trichlorobenzene	0.0024	U	0.0023	U												
1,2,4-Trimethylbenzene	0.0024	UJ	0.0023	UJ												
1,2-Dichlorobenzene	0.0024	U	0.0023	U												
1,2-Dichloroethane	0.0024	U	0.0023	U												
1,3,5-Trimethylbenzene	0.0024	U	0.0023	U												
1,4-Dichlorobenzene	0.0024	U	0.0023	U												
2,4,4-Trimethyl-1-pentene	0.0048	U	0.0045	U												
2,4,4-Trimethyl-2-pentene	0.0048	U	0.0045	U												
2-Butanone	0.024	UJ	0.023	UJ												
2-Hexanone	0.024	U	0.023	U												
4-iso-Propyltoluene	0.0024	U	0.0023	U												
4-Methyl-2-pentanone	0.024	U	0.023	U												
Acetone	0.24	UJ	0.23	UJ												
Benzene	0.0024	U	0.0023	U												
Carbon disulfide	0.0024	U	0.0023	U												
Carbon tetrachloride	0.0024	U	0.0023	U												
Chlorobenzene	0.0024	U	0.0023	U												
Chloroform	0.0024	U	0.0023	U												
Chloromethane	0.0048	U	0.0045	U												
Ethyl benzene	0.0024	U	0.0023	U												
Formaldehyde																
Isopropylbenzene	0.0024	U	0.0023	U												
Methylene chloride	0.0097	U	0.0091	U												
Naphthalene	0.024	U	0.023	U												
Propylbenzene	0.0024	U	0.0023	U												
sec-Butylbenzene	0.0024	U	0.0023	U												
Styrene	0.0024	U	0.0023	U												
Tetrachloroethene	0.0024	U	0.0023	U												
Tetrahydrofuran	0.024	UJ	0.023	UJ												
Toluene	0.0024	U	0.0023	U												
Trichloroethene	0.0024	U	0.0023	U												
Trichlorofluoromethane	0.0048	U	0.0045	U												
Xylene, o	0.0024	U	0.0023	U												
Xylenes (m&p)	0.0048	U	0.0045	U												
Xylenes, Total	0.0048	U	0.0045	U												
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.036	U	0.036	U												
1,2-Dichlorobenzene	0.036	U	0.036	U												
1,4-Dichlorobenzene	0.036	U	0.036	U												

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-501-0.5/3.0-XXX SB-501 11/17/2010 0.5-3 ft		OC-SB-502-3.0/5.0-XXX SB-502 11/17/2010 3-5 ft		OC-SB-503-6.0/8.0-XXX SB-503 12/10/2012 6-8 ft		OC-SB-504-7.5/9.5-XXX SB-504 12/11/2012 7.5-9.5 ft		OC-SB-505-5.0/7.0-XXX SB-505 12/11/2012 5-7 ft		OC-SB-506-6.0/8.0-XXX SB-506 12/10/2012 6-8 ft		OC-SB-507-6.0/8.0-XXX SB-507 12/10/2012 6-8 ft		OC-SB-510-7.0/9.0-XXX SB-510 12/13/2012 7-9 ft	
1-Methylnaphthalene	0.036	U	0.036	U												
2,4-Dimethylphenol	0.036	U	0.036	U												
2-Methylnaphthalene	0.036	U	0.036	U												
3 & 4 Methylphenol	0.036	U	0.036	U												
4-Chlorophenyl phenyl ether	0.036	U	0.036	U												
Acenaphthene	0.036	U	0.036	U												
Acenaphthylene	0.036	U	0.036	U												
Acetophenone	0.036	U	0.036	U												
Aniline	0.036	U	0.036	U												
Anthracene	0.036	U	0.036	U												
Benzaldehyde	0.036	U	0.036	U												
Benzo(a)anthracene	0.036	U	0.036	U												
Benzo(a)pyrene	0.036	U	0.036	U												
Benzo(b)fluoranthene	0.036	U	0.036	U												
Benzo(ghi)perylene	0.036	U	0.036	U												
Benzo(k)fluoranthene	0.036	U	0.036	U												
Benzoic Acid	0.036	J	0.038	J												
Biphenyl	0.036	U	0.036	U												
Bis(2-Ethylhexyl)phthalate	0.037		0.036	U												
Butylbenzylphthalate	0.036	U	0.034	J												
Carbazole	0.036	U	0.036	U												
Chrysene	0.036	U	0.036	U												
Dibenz(a,h)anthracene	0.036	UJ	0.036	UJ												
Dibenzofuran	0.036	U	0.036	U												
Diethylphthalate	0.036	U	0.036	U												
Di-n-butylphthalate	0.036	U	0.036	U												
Di-n-octylphthalate	0.036	U	0.036	U												
Diphenyl ether	0.036	U	0.036	U												
Diphenylamine																
Fluoranthene	0.036	U	0.036	U												
Fluorene	0.036	U	0.036	U												
Indeno(1,2,3-cd)pyrene	0.036	U	0.036	U												
Naphthalene	0.087	U	0.086	U												
N-Nitrosodiphenylamine	0.036	U	0.036	U												
Phenanthrene	0.044	U	0.043	U												
Phenol	0.036	U	0.036	U												
Pyrene	0.036	U	0.036	U												
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-501-0.5/3.0-XXX SB-501 11/17/2010 0.5-3 ft		OC-SB-502-3.0/5.0-XXX SB-502 11/17/2010 3-5 ft		OC-SB-503-6.0/8.0-XXX SB-503 12/10/2012 6-8 ft		OC-SB-504-7.5/9.5-XXX SB-504 12/11/2012 7.5-9.5 ft		OC-SB-505-5.0/7.0-XXX SB-505 12/11/2012 5-7 ft		OC-SB-506-6.0/8.0-XXX SB-506 12/10/2012 6-8 ft		OC-SB-507-6.0/8.0-XXX SB-507 12/10/2012 6-8 ft		OC-SB-510-7.0/9.0-XXX SB-510 12/13/2012 7-9 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium																
Chromium, Hexavalent					2.5	U	0.26	UJ	0.58	J	0.23	U	0.25	U	**6**	J
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**					47		26		19		18		15		55	

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-501-0.5/3.0-XXX SB-501 11/17/2010 0.5-3 ft		OC-SB-502-3.0/5.0-XXX SB-502 11/17/2010 3-5 ft		OC-SB-503-6.0/8.0-XXX SB-503 12/10/2012 6-8 ft		OC-SB-504-7.5/9.5-XXX SB-504 12/11/2012 7.5-9.5 ft		OC-SB-505-5.0/7.0-XXX SB-505 12/11/2012 5-7 ft		OC-SB-506-6.0/8.0-XXX SB-506 12/10/2012 6-8 ft		OC-SB-507-6.0/8.0-XXX SB-507 12/10/2012 6-8 ft		OC-SB-510-7.0/9.0-XXX SB-510 12/13/2012 7-9 ft	
pH **(pH units)**					6.01		7.11		6.54		6.07		6.16		6.88	
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics	2.2	U	2.2	U												
C5-C8 Aliphatics (unadj.)	2.2	U	2.2	U												
C9-C10 Aromatics	2.2	U	2.2	U												
C9-C12 Aliphatics	2.2	U	2.2	U												
C9-C12 Aliphatics (unadj.)	2.2	U	2.2	U												
Volatile Petroleum Hydrocarbons, Total	2.2	U	2.2	U												
EPH (mg/Kg)																
Acenaphthene													1	U		
Acenaphthylene													1	U		
Benzo(a)anthracene													1	U		
Benzo(a)pyrene													1	U		
Benzo(ghi)perylene													1	U		
Fluoranthene													1	U		
Fluorene													1	U		
Indeno(1,2,3-cd)pyrene													1	U		
Naphthalene													1	U		
C11-C22 Aromatics	3.6	U	3.5	U									15			
C11-C22 Aromatics (unadj.)	3.6	U	3.5	U									15			
C19-C36 Aliphatics	5.5		3.5	U									20			
C9-C18 Aliphatics	3.6	U	3.5	U									10	U		
Extractable Petroleum Hydrocarbons, Total	5.5		3.5	U												
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-511-6.0/8.0-XXX SB-511 12/10/2012 6-8 ft		OC-SB-512-6.0/8.0-XXX SB-512 12/10/2012 6-8 ft		OC-SB-513-7.0/9.0-XXX SB-513 12/12/2012 7-9 ft		OC-SB-514-7.0/9.0-XXX SB-514 12/12/2012 7-9 ft		OC-SB-515-6.0/8.0-XXX SB-515 12/12/2012 6-8 ft		OC-SB-516-6.0/8.0-XXX SB-516 12/12/2012 6-8 ft		OC-SB-517-6.0/8.0-XXX SB-517 12/12/2012 6-8 ft		OC-SB-520-8.0/10 XXX SB-520 12/13/2012 8-10 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane																
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene									0.28	U	0.27	U	0.078	J	0.0048	UJ
2,4,4-Trimethyl-2-pentene									0.28	U	0.27	U	0.34	U	0.0014	J
2-Butanone																
2-Hexanone																
4-iso-Propyltoluene																
4-Methyl-2-pentanone																
Acetone																
Benzene																
Carbon disulfide																
Carbon tetrachloride																
Chlorobenzene																
Chloroform																
Chloromethane																
Ethyl benzene																
Formaldehyde																
Isopropylbenzene																
Methylene chloride																
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene																
Tetrachloroethene																
Tetrahydrofuran																
Toluene																
Trichloroethene																
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
1,2-Dichlorobenzene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
1,4-Dichlorobenzene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-511-6.0/8.0-XXX SB-511 12/10/2012 6-8 ft		OC-SB-512-6.0/8.0-XXX SB-512 12/10/2012 6-8 ft		OC-SB-513-7.0/9.0-XXX SB-513 12/12/2012 7-9 ft		OC-SB-514-7.0/9.0-XXX SB-514 12/12/2012 7-9 ft		OC-SB-515-6.0/8.0-XXX SB-515 12/12/2012 6-8 ft		OC-SB-516-6.0/8.0-XXX SB-516 12/12/2012 6-8 ft		OC-SB-517-6.0/8.0-XXX SB-517 12/12/2012 6-8 ft		OC-SB-520-8.0/10 XXX SB-520 12/13/2012 8-10 ft	
1-Methylnaphthalene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
2,4-Dimethylphenol							0.042	UJ	0.039	UJ	0.04	UJ	0.037	UJ	0.035	UJ
2-Methylnaphthalene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
3 & 4 Methylphenol							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
4-Chlorophenyl phenyl ether							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Acenaphthene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Acenaphthylene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Acetophenone							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Aniline							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Anthracene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Benzaldehyde							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Benzo(a)anthracene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Benzo(a)pyrene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Benzo(b)fluoranthene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Benzo(ghi)perylene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Benzo(k)fluoranthene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Benzoic Acid							0.21	UJ	0.2	UJ	0.2	UJ	0.18	UJ	0.18	U
Biphenyl							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Bis(2-Ethylhexyl)phthalate							0.21	U	0.2	U	0.2	U	3.3		0.18	U
Butylbenzylphthalate							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Carbazole							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Chrysene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Dibenz(a,h)anthracene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Dibenzofuran							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Diethylphthalate							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Di-n-butylphthalate							0.21	U	0.2	U	0.2	U	0.18	U	0.18	U
Di-n-octylphthalate							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Diphenyl ether							0.042	U	0.039	U	0.04	U	0.037	U	0.043	
Diphenylamine																
Fluoranthene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Fluorene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Indeno(1,2,3-cd)pyrene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Naphthalene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
N-Nitrosodiphenylamine							0.042	U	0.039	U	0.04	U	0.037	U	0.031	J
Phenanthrene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Phenol							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Pyrene							0.042	U	0.039	U	0.04	U	0.037	U	0.035	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-511-6.0/8.0-XXX SB-511 12/10/2012 6-8 ft		OC-SB-512-6.0/8.0-XXX SB-512 12/10/2012 6-8 ft		OC-SB-513-7.0/9.0-XXX SB-513 12/12/2012 7-9 ft		OC-SB-514-7.0/9.0-XXX SB-514 12/12/2012 7-9 ft		OC-SB-515-6.0/8.0-XXX SB-515 12/12/2012 6-8 ft		OC-SB-516-6.0/8.0-XXX SB-516 12/12/2012 6-8 ft		OC-SB-517-6.0/8.0-XXX SB-517 12/12/2012 6-8 ft		OC-SB-520-8.0/10 XXX SB-520 12/13/2012 8-10 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium																
Chromium, Hexavalent	0.5		0.87		1	J	0.21	J					0.32	J		
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**	31		26		32		27						20			

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-511-6.0/8.0-XXX SB-511 12/10/2012 6-8 ft		OC-SB-512-6.0/8.0-XXX SB-512 12/10/2012 6-8 ft		OC-SB-513-7.0/9.0-XXX SB-513 12/12/2012 7-9 ft		OC-SB-514-7.0/9.0-XXX SB-514 12/12/2012 7-9 ft		OC-SB-515-6.0/8.0-XXX SB-515 12/12/2012 6-8 ft		OC-SB-516-6.0/8.0-XXX SB-516 12/12/2012 6-8 ft		OC-SB-517-6.0/8.0-XXX SB-517 12/12/2012 6-8 ft		OC-SB-520-8.0/10 XXX SB-520 12/13/2012 8-10 ft	
pH **(pH units)**	5.91		5.65		6.13		5.21						5.56			
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene							1.2	U	1.1	U	1.1	U	1.1	U		
Acenaphthylene							1.2	U	1.1	U	1.1	U	1.1	U		
Benzo(a)anthracene							1.2	U	1.1	U	1.1	U	1.1	U		
Benzo(a)pyrene							1.2	U	1.1	U	1.1	U	1.1	U		
Benzo(ghi)perylene							1.2	U	1.1	U	1.1	U	1.1	U		
Fluoranthene							1.2	U	1.1	U	1.1	U	1.1	U		
Fluorene							1.2	U	1.1	U	1.1	U	1.1	U		
Indeno(1,2,3-cd)pyrene							1.2	U	1.1	U	1.1	U	1.1	U		
Naphthalene							1.2	U	1.1	U	1.1	U	1.1	U		
C11-C22 Aromatics							4.2	U	3.9	U	4	U	3.7	U		
C11-C22 Aromatics (unadj.)							12	U	11	U	11	U	11	U		
C19-C36 Aliphatics							12	U	11	U	11	U	11	U		
C9-C18 Aliphatics							12	U	11	U	11	U	11	U		
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-523-6.0/8.0-XXX SB-523 12/12/2012 6-8 ft		OC-SB-524-8.0/10 XXX SB-524 12/12/2012 8-10 ft		OC-SB-525-3.0/5.0-XXX SB-525 12/13/2012 3-5 ft		OC-SB-530-1.0-3.0-XXX SB-530 11/20/2012 1-3 ft		OC-SB-531-1.0-3.0-XXX SB-531 11/20/2012 1-3 ft		OC-SB-532-6.0/8.0-XXX SB-532 12/13/2012 6-8 ft		OC-SB-533-6.0/8.0-XXX SB-533 12/13/2012 6-8 ft		OC-SB-534-7.0/9.0-XXX SB-534 12/13/2012 7-9 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane																
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene																
2,4,4-Trimethyl-2-pentene																
2-Butanone																
2-Hexanone																
4-iso-Propyltoluene																
4-Methyl-2-pentanone																
Acetone																
Benzene																
Carbon disulfide																
Carbon tetrachloride																
Chlorobenzene																
Chloroform																
Chloromethane																
Ethyl benzene																
Formaldehyde																
Isopropylbenzene																
Methylene chloride																
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene																
Tetrachloroethene																
Tetrahydrofuran																
Toluene																
Trichloroethene																
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene																
1,2-Dichlorobenzene																
1,4-Dichlorobenzene																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-523-6.0/8.0-XXX SB-523 12/12/2012 6-8 ft		OC-SB-524-8.0/10 XXX SB-524 12/12/2012 8-10 ft		OC-SB-525-3.0/5.0-XXX SB-525 12/13/2012 3-5 ft		OC-SB-530-1.0-3.0-XXX SB-530 11/20/2012 1-3 ft		OC-SB-531-1.0-3.0-XXX SB-531 11/20/2012 1-3 ft		OC-SB-532-6.0/8.0-XXX SB-532 12/13/2012 6-8 ft		OC-SB-533-6.0/8.0-XXX SB-533 12/13/2012 6-8 ft		OC-SB-534-7.0/9.0-XXX SB-534 12/13/2012 7-9 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol																
2-Methylnaphthalene													0.99	U		
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether																
Acenaphthene													0.99	U		
Acenaphthylene													0.99	U		
Acetophenone																
Aniline																
Anthracene													0.99	U		
Benzaldehyde																
Benzo(a)anthracene													0.99	U		
Benzo(a)pyrene													0.99	U		
Benzo(b)fluoranthene													0.99	U		
Benzo(ghi)perylene													0.99	U		
Benzo(k)fluoranthene													0.99	U		
Benzoic Acid																
Biphenyl																
Bis(2-Ethylhexyl)phthalate																
Butylbenzylphthalate																
Carbazole																
Chrysene													0.99	U		
Dibenz(a,h)anthracene													0.99	U		
Dibenzofuran																
Diethylphthalate																
Di-n-butylphthalate																
Di-n-octylphthalate																
Diphenyl ether																
Diphenylamine																
Fluoranthene													0.99	U		
Fluorene													0.99	U		
Indeno(1,2,3-cd)pyrene													0.99	U		
Naphthalene													0.99	U		
N-Nitrosodiphenylamine																
Phenanthrene													0.99	U		
Phenol																
Pyrene													0.99	U		
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-523-6.0/8.0-XXX SB-523 12/12/2012 6-8 ft		OC-SB-524-8.0/10 XXX SB-524 12/12/2012 8-10 ft		OC-SB-525-3.0/5.0-XXX SB-525 12/13/2012 3-5 ft		OC-SB-530-1.0-3.0-XXX SB-530 11/20/2012 1-3 ft		OC-SB-531-1.0-3.0-XXX SB-531 11/20/2012 1-3 ft		OC-SB-532-6.0/8.0-XXX SB-532 12/13/2012 6-8 ft		OC-SB-533-6.0/8.0-XXX SB-533 12/13/2012 6-8 ft		OC-SB-534-7.0/9.0-XXX SB-534 12/13/2012 7-9 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260							**10**		0.3							
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium																
Chromium, Hexavalent	0.17	J	0.34	J	0.24	UJ										
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**	21		14		2											

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-523-6.0/8.0-XXX SB-523 12/12/2012 6-8 ft		OC-SB-524-8.0/10 XXX SB-524 12/12/2012 8-10 ft		OC-SB-525-3.0/5.0-XXX SB-525 12/13/2012 3-5 ft		OC-SB-530-1.0-3.0-XXX SB-530 11/20/2012 1-3 ft		OC-SB-531-1.0-3.0-XXX SB-531 11/20/2012 1-3 ft		OC-SB-532-6.0/8.0-XXX SB-532 12/13/2012 6-8 ft		OC-SB-533-6.0/8.0-XXX SB-533 12/13/2012 6-8 ft		OC-SB-534-7.0/9.0-XXX SB-534 12/13/2012 7-9 ft	
pH **(pH units)**	6.17		6.78		7.07											
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene											1.1	U			1	U
Acenaphthylene											1.1	U			1	U
Benzo(a)anthracene											1.1	U			1	U
Benzo(a)pyrene											1.1	U			1	U
Benzo(ghi)perylene											1.1	U			1	U
Fluoranthene											1.1	U			1	U
Fluorene											1.1	U			1	U
Indeno(1,2,3-cd)pyrene											1.1	U			1	U
Naphthalene											1.1	U			1	U
C11-C22 Aromatics											3.9	U	120		3.6	U
C11-C22 Aromatics (unadj.)											11	U	110		10	U
C19-C36 Aliphatics											11	U	73		10	U
C9-C18 Aliphatics											11	U	10	U	10	U
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-BD-C11 BD-C11 10/11/2000 9.7-9.7 ft		1120-BD-C12 BD-C12 10/11/2000 8.6-8.6 ft		1120-BD-C14 BD-C14 10/11/2000 8.6-8.6 ft		1120-BD-C15 BD-C15 10/11/2000 7.7-7.7 ft		1120-BD-C18 BD-C18 10/27/2000 2.9-2.9 ft		1120-BD-C19 BD-C19 10/27/2000 3.1-3.1 ft		1120-BD-C34 BD-C34 10/27/2000 5.6-5.6 ft		1140-BD-C50 BD-C50 5/19/2001 4.6-4.6 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
1,2,4-Trichlorobenzene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
1,2,4-Trimethylbenzene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
1,2-Dichlorobenzene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
1,2-Dichloroethane	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
1,3,5-Trimethylbenzene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
1,4-Dichlorobenzene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
2,4,4-Trimethyl-1-pentene	0.16	U	0.17	U	0.17	U	0.16	U	17		1.2		0.17	U		
2,4,4-Trimethyl-2-pentene	0.16	U	0.17	U	0.17	U	0.16	U	6.8		0.31		0.17	U		
2-Butanone	3.1	U	3.3	U	3.3	U	3.2	U	9.9	U	3.7	U	3.3	U	0.45	U
2-Hexanone	0.63	U	0.66	U	0.66	U	0.64	U	2	U	0.74	U	0.66	U	0.45	U
4-iso-Propyltoluene	0.16	U	0.17	U	0.17	U	0.16	U	1.1		0.19	U	0.17	U	0.045	U
4-Methyl-2-pentanone	0.63	U	0.66	U	0.66	U	0.64	U	2	U	0.74	U	0.66	U	0.45	U
Acetone	3.1	U	3.3	U	3.3	U	3.2	U	9.9	U	3.7	U	3.3	U	0.45	U
Benzene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Carbon disulfide															0.091	U
Carbon tetrachloride	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Chlorobenzene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Chloroform	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Chloromethane	0.31	U	0.33	U	0.33	U	0.32	U	0.99	U	0.37	U	0.33	U	0.091	U
Ethyl benzene	0.16	U	0.17	U	0.17	U	0.16	U	4.7		0.34		0.17	U	0.045	U
Formaldehyde																
Isopropylbenzene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Methylene chloride	0.16	U	0.17	U	0.17	U	0.16	U	0.99	U	0.37	U	0.33	U	0.091	U
Naphthalene	1.6	U	1.7	U	1.7	U	1.6	U	4.9	U	1.9	U	1.7	U	0.091	U
Propylbenzene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
sec-Butylbenzene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Styrene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Tetrachloroethene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Tetrahydrofuran																
Toluene	0.16	U	0.17	U	0.17	U	0.16	U	4.4		0.19	U	0.21		0.045	U
Trichloroethene	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Trichlorofluoromethane	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	J	0.091	U
Xylene, o	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Xylenes (m&p)	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Xylenes, Total	0.16	U	0.17	U	0.17	U	0.16	U	0.49	U	0.19	U	0.17	U	0.045	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
1,2-Dichlorobenzene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
1,4-Dichlorobenzene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-BD-C11 BD-C11 10/11/2000 9.7-9.7 ft		1120-BD-C12 BD-C12 10/11/2000 8.6-8.6 ft		1120-BD-C14 BD-C14 10/11/2000 8.6-8.6 ft		1120-BD-C15 BD-C15 10/11/2000 7.7-7.7 ft		1120-BD-C18 BD-C18 10/27/2000 2.9-2.9 ft		1120-BD-C19 BD-C19 10/27/2000 3.1-3.1 ft		1120-BD-C34 BD-C34 10/27/2000 5.6-5.6 ft		1140-BD-C50 BD-C50 5/19/2001 4.6-4.6 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
2-Methylnaphthalene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
3 & 4 Methylphenol	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U		
4-Chlorophenyl phenyl ether	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Acenaphthene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Acenaphthylene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Acetophenone																
Aniline	2.1	U	2.2	U	2.2	U	2.1	U	1400	UC	530	UC	2.1	U		
Anthracene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Benzaldehyde																
Benzo(a)anthracene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Benzo(a)pyrene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Benzo(b)fluoranthene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Benzo(ghi)perylene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Benzo(k)fluoranthene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Benzoic Acid	2.1	U	2.2	U	2.2	U	2.1	U	1400	UC	530	UC	2.1	U	0.68	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate	0.42	U	0.79		0.43	U	0.42	U	**5568**	C	**1611**	C	4.6		0.34	U
Butylbenzylphthalate	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Carbazole															0.34	U
Chrysene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Dibenz(a,h)anthracene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Dibenzofuran	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Diethylphthalate	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Di-n-butylphthalate	0.42	U	0.44	U	0.43	U	0.42	U	507	C	102	JC	0.27	J	0.34	U
Di-n-octylphthalate	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Fluorene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Indeno(1,2,3-cd)pyrene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Naphthalene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
N-Nitrosodiphenylamine	0.42	U	0.44	U	0.43	U	0.42	U	339	C	68	JC	0.42	U	0.34	U
Phenanthrene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Phenol	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Pyrene	0.42	U	0.44	U	0.43	U	0.42	U	290	UC	110	UC	0.42	U	0.34	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.012	U	0.013	U	0.013	U	0.013	U	0.21	U	0.077	U	0.013	U		
Aldrin	0.012	U	0.013	U	0.013	U	0.013	U	0.21	U	0.077	U	0.013	U		
Alpha-BHC	0.012	U	0.013	U	0.013	U	0.013	U	0.21	U	0.077	U	0.013	U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-BD-C11 BD-C11 10/11/2000 9.7-9.7 ft		1120-BD-C12 BD-C12 10/11/2000 8.6-8.6 ft		1120-BD-C14 BD-C14 10/11/2000 8.6-8.6 ft		1120-BD-C15 BD-C15 10/11/2000 7.7-7.7 ft		1120-BD-C18 BD-C18 10/27/2000 2.9-2.9 ft		1120-BD-C19 BD-C19 10/27/2000 3.1-3.1 ft		1120-BD-C34 BD-C34 10/27/2000 5.6-5.6 ft		1140-BD-C50 BD-C50 5/19/2001 4.6-4.6 ft	
Alpha-Chlordane																
Beta-BHC	0.012	U	0.013	U	0.013	U	0.013	U	0.21	U	0.077	U	0.013	U		
Chlordane (technical)																
Endosulfan sulfate	0.012	U	0.013	U	0.013	U	0.013	U	0.21	U	0.077	U	0.013	U		
Endrin	0.012	U	0.013	U	0.013	U	0.013	U	0.21	U	0.077	U	0.013	U		
Gamma-BHC/Lindane	0.012	U	0.013	U	0.013	U	0.013	U	0.21	U	0.077	U	0.013	U		
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	2600		3100		3300		3200		3300		4700		2700			
Antimony																
Arsenic	2	U	2	U	2	U	2	U	5	U	**3.8**		1	U		
Barium																
Beryllium																
Cadmium	0.4	U	0.3	U	0.4	U	0.3	U	1	U	2.5		0.3	U		
Calcium																
Chromium	5.2		5.3		4.5		5		790		840		3.5		5.8	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron	2100		2800		1600		2100		3500		6500		620			
Lead	2	U	1.9		2	U	1.7		5.9		16		1.7			
Magnesium																
Manganese																
Mercury	0.06	U	0.06	U	0.06	U	0.06	U	0.27		0.22		0.06	U		
Nickel																
Potassium																
Selenium	2	U	2	U	2	U	2	U	5	U	2	U	1	U		
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-BD-C11 BD-C11 10/11/2000 9.7-9.7 ft		1120-BD-C12 BD-C12 10/11/2000 8.6-8.6 ft		1120-BD-C14 BD-C14 10/11/2000 8.6-8.6 ft		1120-BD-C15 BD-C15 10/11/2000 7.7-7.7 ft		1120-BD-C18 BD-C18 10/27/2000 2.9-2.9 ft		1120-BD-C19 BD-C19 10/27/2000 3.1-3.1 ft		1120-BD-C34 BD-C34 10/27/2000 5.6-5.6 ft		1140-BD-C50 BD-C50 5/19/2001 4.6-4.6 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-BD-C51 BD-C51 5/19/2001 1.5-1.5 ft		1140-BD-C52 BD-C52 5/19/2001 7.8-7.8 ft		1140-BD-C53 BD-C53 5/19/2001 3.8-3.8 ft		1140-BD-C54 BD-C54 5/19/2001 4.8-4.8 ft		1140-BD-C55 BD-C55 5/19/2001 4.7-4.7 ft		1140-BD-C55D BD-C55 5/19/2001 4.7-4.7t		1140-CP-C29 CP-C29 10/5/2000 2.5-2.5 ft		1140-CP-C30 CP-C30 10/5/2000 1.4-1.4 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
1,2,4-Trichlorobenzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
1,2,4-Trimethylbenzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
1,2-Dichlorobenzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
1,2-Dichloroethane	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
1,3,5-Trimethylbenzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
1,4-Dichlorobenzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
2,4,4-Trimethyl-1-pentene																
2,4,4-Trimethyl-2-pentene																
2-Butanone	0.43	U	0.41	U	0.43	U	0.47	U	0.46	U	0.49	U				
2-Hexanone	0.43	U	0.41	U	0.43	U	0.47	U	0.46	U	0.49	U				
4-iso-Propyltoluene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
4-Methyl-2-pentanone	0.43	U	0.41	U	0.43	U	0.47	U	0.46	U	0.49	U				
Acetone	0.43	U	0.41	U	0.43	U	0.47	U	0.46	U	0.49	U				
Benzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Carbon disulfide	0.086	U	0.083	U	0.086	U	0.095	U	0.092	U	0.098	U				
Carbon tetrachloride	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Chlorobenzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Chloroform	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Chloromethane	0.086	U	0.083	U	0.086	U	0.095	U	0.092	U	0.098	U				
Ethyl benzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Formaldehyde																
Isopropylbenzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Methylene chloride	0.086	U	0.083	U	0.086	U	0.1		0.092	U	0.098	U				
Naphthalene	0.086	U	0.083	U	0.086	U	0.095	U	0.092	U	0.098	U				
Propylbenzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
sec-Butylbenzene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Styrene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Tetrachloroethene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Tetrahydrofuran																
Toluene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Trichloroethene	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Trichlorofluoromethane	0.086	U	0.083	U	0.086	U	0.095	U	0.092	U	0.098	U				
Xylene, o	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Xylenes (m&p)	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Xylenes, Total	0.043	U	0.041	U	0.043	U	0.047	U	0.046	U	0.049	U				
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
1,2-Dichlorobenzene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
1,4-Dichlorobenzene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-BD-C51 BD-C51 5/19/2001 1.5-1.5 ft		1140-BD-C52 BD-C52 5/19/2001 7.8-7.8 ft		1140-BD-C53 BD-C53 5/19/2001 3.8-3.8 ft		1140-BD-C54 BD-C54 5/19/2001 4.8-4.8 ft		1140-BD-C55 BD-C55 5/19/2001 4.7-4.7 ft		1140-BD-C55D BD-C55 5/19/2001 4.7-4.7t		1140-CP-C29 CP-C29 10/5/2000 2.5-2.5 ft		1140-CP-C30 CP-C30 10/5/2000 1.4-1.4 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
2-Methylnaphthalene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
3 & 4 Methylphenol													2	U	1.9	U
4-Chlorophenyl phenyl ether	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Acenaphthene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Acenaphthylene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Acetophenone																
Aniline													10	U	9.4	U
Anthracene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Benzaldehyde																
Benzo(a)anthracene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Benzo(a)pyrene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Benzo(b)fluoranthene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Benzo(ghi)perylene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Benzo(k)fluoranthene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Benzoic Acid	0.64	U	0.66	U	0.66	U	0.68	U	0.65	U	0.64	U	10	U	9.4	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate	0.32	U	0.33	U	0.33	U	0.36		0.33	U	0.32	U	29		22	
Butylbenzylphthalate	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Carbazole	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U				
Chrysene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Dibenz(a,h)anthracene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Dibenzofuran	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Diethylphthalate	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Di-n-butylphthalate	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Di-n-octylphthalate	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Fluorene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Indeno(1,2,3-cd)pyrene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Naphthalene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
N-Nitrosodiphenylamine	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Phenanthrene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Phenol	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Pyrene	0.32	U	0.33	U	0.33	U	0.34	U	0.33	U	0.32	U	2	U	1.9	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-BD-C51 BD-C51 5/19/2001 1.5-1.5 ft	1140-BD-C52 BD-C52 5/19/2001 7.8-7.8 ft	1140-BD-C53 BD-C53 5/19/2001 3.8-3.8 ft	1140-BD-C54 BD-C54 5/19/2001 4.8-4.8 ft	1140-BD-C55 BD-C55 5/19/2001 4.7-4.7 ft	1140-BD-C55D BD-C55 5/19/2001 4.7-4.7t	1140-CP-C29 CP-C29 10/5/2000 2.5-2.5 ft	1140-CP-C30 CP-C30 10/5/2000 1.4-1.4 ft
Alpha-Chlordane								
Beta-BHC								
Chlordane (technical)								
Endosulfan sulfate								
Endrin								
Gamma-BHC/Lindane								
Aroclor-1260								
Inorganics (mg/Kg)								
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium	5	7.4	5.6	6.6	5.9	7.9	490	800
Chromium, Hexavalent								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Tin								
Vanadium								
Zinc								
Chloride								
Cyanide, Total								
Eh **(mV)**								
Flash Point **(°F)**								
Lab Specific Conductance **(mS/cm)**								
Nitrate as N								
Nitrogen, as Ammonia								
Oxidation Reduction Potential **(mV)**								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-BD-C51 BD-C51 5/19/2001 1.5-1.5 ft	1140-BD-C52 BD-C52 5/19/2001 7.8-7.8 ft	1140-BD-C53 BD-C53 5/19/2001 3.8-3.8 ft	1140-BD-C54 BD-C54 5/19/2001 4.8-4.8 ft	1140-BD-C55 BD-C55 5/19/2001 4.7-4.7 ft	1140-BD-C55D BD-C55 5/19/2001 4.7-4.7t	1140-CP-C29 CP-C29 10/5/2000 2.5-2.5 ft	1140-CP-C30 CP-C30 10/5/2000 1.4-1.4 ft
pH **(pH units)**								
Sulfate								
Sulfate **(mg/L)**								
Total Organic Carbon								
Urea								
TCLP Metals (mg/L)								
Chromium								
VPH (mg/Kg)								
Ethyl benzene								
Toluene								
Xylenes, Total								
C5-C8 Aliphatics								
C5-C8 Aliphatics (unadj.)								
C9-C10 Aromatics								
C9-C12 Aliphatics								
C9-C12 Aliphatics (unadj.)								
Volatile Petroleum Hydrocarbons, Total								
EPH (mg/Kg)								
Acenaphthene								
Acenaphthylene								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(ghi)perylene								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
C9-C18 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								
Specialty Compounds (mg/Kg)								
Hydrazine								
Acetaldehyde								
Formaldehyde								
Phthalic Acid/Phthalic anhydride								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C33 CP-C33 10/5/2000 5.3-5.3 ft		1140-CP-C34 CP-C34 10/5/2000 6.3-6.3 ft		1140-CP-C35 CP-C35 10/5/2000 5.7-5.7 ft		1140-CP-C37 CP-C37 10/5/2000 5.4-5.4 ft		1140-CP-C40 CP-C40 10/5/2000 4.2-4.2 ft		1140-CP-C44 CP-C44 10/5/2000 4.8-4.8 ft		1140-CP-C48 CP-C48 10/5/2000 5.8-5.8 ft		1140-CP-C51 CP-C51 10/5/2000 5.3-5.3 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene					0.16	U										
1,2,4-Trichlorobenzene					0.16	U										
1,2,4-Trimethylbenzene					0.16	U										
1,2-Dichlorobenzene					0.16	U										
1,2-Dichloroethane					0.16	U										
1,3,5-Trimethylbenzene					0.16	U										
1,4-Dichlorobenzene					0.16	U										
2,4,4-Trimethyl-1-pentene					0.16	U										
2,4,4-Trimethyl-2-pentene					0.16	U										
2-Butanone					3.2	U										
2-Hexanone					0.64	U										
4-iso-Propyltoluene					0.16	U										
4-Methyl-2-pentanone					0.64	U										
Acetone					3.2	U										
Benzene					0.16	U										
Carbon disulfide																
Carbon tetrachloride					0.16	U										
Chlorobenzene					0.16	U										
Chloroform					0.16	U										
Chloromethane					0.32	U										
Ethyl benzene					0.16	U										
Formaldehyde																
Isopropylbenzene					0.16	U										
Methylene chloride					0.42	B										
Naphthalene					1.6	U										
Propylbenzene					0.16	U										
sec-Butylbenzene					0.16	U										
Styrene					0.16	U										
Tetrachloroethene					0.16	U										
Tetrahydrofuran																
Toluene					0.16	U										
Trichloroethene					0.16	U										
Trichlorofluoromethane					0.16	U										
Xylene, o					0.16	U										
Xylenes (m&p)					0.16	U										
Xylenes, Total					0.16	U										
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
1,2-Dichlorobenzene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
1,4-Dichlorobenzene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C33 CP-C33 10/5/2000 5.3-5.3 ft		1140-CP-C34 CP-C34 10/5/2000 6.3-6.3 ft		1140-CP-C35 CP-C35 10/5/2000 5.7-5.7 ft		1140-CP-C37 CP-C37 10/5/2000 5.4-5.4 ft		1140-CP-C40 CP-C40 10/5/2000 4.2-4.2 ft		1140-CP-C44 CP-C44 10/5/2000 4.8-4.8 ft		1140-CP-C48 CP-C48 10/5/2000 5.8-5.8 ft		1140-CP-C51 CP-C51 10/5/2000 5.3-5.3 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
2-Methylnaphthalene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
3 & 4 Methylphenol	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
4-Chlorophenyl phenyl ether	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Acenaphthene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Acenaphthylene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Acetophenone																
Aniline	1.9	U	2	U	9.8	U	1.9	U	1.9	U	1.9	U	1.8	U	1.9	U
Anthracene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Benzaldehyde																
Benzo(a)anthracene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Benzo(a)pyrene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Benzo(b)fluoranthene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Benzo(ghi)perylene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Benzo(k)fluoranthene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Benzoic Acid	1.9	U	2	U	9.8	U	1.9	U	1.9	U	1.9	U	1.8	U	1.9	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate	0.38	U	0.27	J	11		0.38	U	0.38	U	0.39	U	0.76		0.39	U
Butylbenzylphthalate	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Carbazole																
Chrysene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Dibenz(a,h)anthracene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Dibenzofuran	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Diethylphthalate	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Di-n-butylphthalate	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Di-n-octylphthalate	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Fluorene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Indeno(1,2,3-cd)pyrene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Naphthalene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
N-Nitrosodiphenylamine	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Phenanthrene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Phenol	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Pyrene	0.38	U	0.39	U	2	U	0.38	U	0.38	U	0.39	U	0.37	U	0.39	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD					0.012	U										
Aldrin					0.012	U										
Alpha-BHC					0.012	U										

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C33 CP-C33 10/5/2000 5.3-5.3 ft		1140-CP-C34 CP-C34 10/5/2000 6.3-6.3 ft		1140-CP-C35 CP-C35 10/5/2000 5.7-5.7 ft		1140-CP-C37 CP-C37 10/5/2000 5.4-5.4 ft		1140-CP-C40 CP-C40 10/5/2000 4.2-4.2 ft		1140-CP-C44 CP-C44 10/5/2000 4.8-4.8 ft		1140-CP-C48 CP-C48 10/5/2000 5.8-5.8 ft		1140-CP-C51 CP-C51 10/5/2000 5.3-5.3 ft	
Alpha-Chlordane																
Beta-BHC					0.012	U										
Chlordane (technical)																
Endosulfan sulfate					0.012	U										
Endrin					0.012	U										
Gamma-BHC/Lindane					0.012	U										
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum					7400											
Antimony																
Arsenic					**6**											
Barium																
Beryllium																
Cadmium					0.3	U										
Calcium																
Chromium	600		1400		450		20		60		8.8		42		280	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron					7700											
Lead					4.9											
Magnesium																
Manganese																
Mercury					0.05	U										
Nickel																
Potassium																
Selenium					2	U										
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C33 CP-C33 10/5/2000 5.3-5.3 ft		1140-CP-C34 CP-C34 10/5/2000 6.3-6.3 ft		1140-CP-C35 CP-C35 10/5/2000 5.7-5.7 ft		1140-CP-C37 CP-C37 10/5/2000 5.4-5.4 ft		1140-CP-C40 CP-C40 10/5/2000 4.2-4.2 ft		1140-CP-C44 CP-C44 10/5/2000 4.8-4.8 ft		1140-CP-C48 CP-C48 10/5/2000 5.8-5.8 ft		1140-CP-C51 CP-C51 10/5/2000 5.3-5.3 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C75 CP-C75 11/18/2000 4.3-4.3 ft	1140-CP-C76 CP-C76 11/18/2000 6.3-6.3 ft	1140-CP-C79B CP-C79B 5/17/2001 3.7-3.7 ft	1140-CP-C80 CP-C80 5/9/2001 2.4-2.4 ft	1140-CP-C82 CP-C82 5/9/2001 3-3 ft	1140-CP-C83 CP-C83 5/9/2001 1.3-1.3 ft	1140-CP-C84 CP-C84 5/10/2001 1.7-1.7 ft	1140-CP-C85 CP-C85 5/10/2001 1.8-1.8 ft
Volatile Organics (mg/Kg)								
1,2,3-Trichlorobenzene				0.14 U			0.12 U	
1,2,4-Trichlorobenzene				0.14 U			0.12 U	
1,2,4-Trimethylbenzene				0.14 U			0.12 U	
1,2-Dichlorobenzene				0.14 U			0.12 U	
1,2-Dichloroethane				0.14 U			0.12 U	
1,3,5-Trimethylbenzene				0.14 U			0.12 U	
1,4-Dichlorobenzene				0.14 U			0.12 U	
2,4,4-Trimethyl-1-pentene				0.14 U			0.12 U	
2,4,4-Trimethyl-2-pentene				0.14 U			0.12 U	
2-Butanone				2.7 U			2.5 U	
2-Hexanone				0.54 U			0.5 U	
4-iso-Propyltoluene				0.14 U			0.12 U	
4-Methyl-2-pentanone				0.54 U			0.5 U	
Acetone				2.7 U			2.5 U	
Benzene				0.14 U			0.12 U	
Carbon disulfide								
Carbon tetrachloride				0.14 U			0.12 U	
Chlorobenzene				0.14 U			0.12 U	
Chloroform				0.14 U			0.12 U	
Chloromethane				0.27 U			0.25 U	
Ethyl benzene				0.14 U			0.12 U	
Formaldehyde								
Isopropylbenzene				0.14 U			0.12 U	
Methylene chloride				0.27 U			0.25 U	
Naphthalene				1.4 U			1.2 U	
Propylbenzene				0.14 U			0.12 U	
sec-Butylbenzene				0.14 U			0.12 U	
Styrene				0.14 U			0.12 U	
Tetrachloroethene				0.14 U			0.12 U	
Tetrahydrofuran								
Toluene				0.14 U			0.12 U	
Trichloroethene				0.14 U			0.12 U	
Trichlorofluoromethane				0.14 U			0.12 U	
Xylene, o				0.14 U			0.12 U	
Xylenes (m&p)				0.14 U			0.12 U	
Xylenes, Total				0.14 U			0.12 U	
Semivolatile Organics (mg/Kg)								
1,2,4-Trichlorobenzene				8.1 U	0.42 U	0.4 U	0.37 U	0.37 U
1,2-Dichlorobenzene				8.1 U	0.42 U	0.4 U	0.37 U	0.37 U
1,4-Dichlorobenzene				8.1 U	0.42 U	0.4 U	0.37 U	0.37 U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C75 CP-C75 11/18/2000 4.3-4.3 ft		1140-CP-C76 CP-C76 11/18/2000 6.3-6.3 ft		1140-CP-C79B CP-C79B 5/17/2001 3.7-3.7 ft		1140-CP-C80 CP-C80 5/9/2001 2.4-2.4 ft		1140-CP-C82 CP-C82 5/9/2001 3-3 ft		1140-CP-C83 CP-C83 5/9/2001 1.3-1.3 ft		1140-CP-C84 CP-C84 5/10/2001 1.7-1.7 ft		1140-CP-C85 CP-C85 5/10/2001 1.8-1.8 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
2-Methylnaphthalene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
3 & 4 Methylphenol													0.37	U	0.37	U
4-Chlorophenyl phenyl ether							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Acenaphthene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Acenaphthylene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Acetophenone																
Aniline													1.8	U	1.8	U
Anthracene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Benzaldehyde																
Benzo(a)anthracene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Benzo(a)pyrene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Benzo(b)fluoranthene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Benzo(ghi)perylene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Benzo(k)fluoranthene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Benzoic Acid													1.8	U	1.8	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate							60		0.42	U	1.2		0.37	U	0.37	U
Butylbenzylphthalate							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Carbazole							8.1	U	0.42	U	0.4	U				
Chrysene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Dibenz(a,h)anthracene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Dibenzofuran							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Diethylphthalate							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Di-n-butylphthalate							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Di-n-octylphthalate							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Diphenyl ether																
Diphenylamine																
Fluoranthene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Fluorene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Indeno(1,2,3-cd)pyrene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Naphthalene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
N-Nitrosodiphenylamine							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Phenanthrene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Phenol							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Pyrene							8.1	U	0.42	U	0.4	U	0.37	U	0.37	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C75 CP-C75 11/18/2000 4.3-4.3 ft	1140-CP-C76 CP-C76 11/18/2000 6.3-6.3 ft	1140-CP-C79B CP-C79B 5/17/2001 3.7-3.7 ft	1140-CP-C80 CP-C80 5/9/2001 2.4-2.4 ft	1140-CP-C82 CP-C82 5/9/2001 3-3 ft	1140-CP-C83 CP-C83 5/9/2001 1.3-1.3 ft	1140-CP-C84 CP-C84 5/10/2001 1.7-1.7 ft	1140-CP-C85 CP-C85 5/10/2001 1.8-1.8 ft
Alpha-Chlordane								
Beta-BHC								
Chlordane (technical)								
Endosulfan sulfate								
Endrin								
Gamma-BHC/Lindane								
Aroclor-1260								
Inorganics (mg/Kg)								
Aluminum				980			2100	
Antimony								
Arsenic				**6.5**			1.6	
Barium								
Beryllium								
Cadmium				0.61 U			0.2 U	
Calcium								
Chromium	240	480	630	470	590	59 F	1000	170
Chromium, Hexavalent								
Cobalt								
Copper								
Iron				4000			2700	
Lead				1.9			3	
Magnesium								
Manganese								
Mercury				0.18			0.05 U	
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Tin								
Vanadium								
Zinc								
Chloride								
Cyanide, Total								
Eh **(mV)**								
Flash Point **(°F)**								
Lab Specific Conductance **(mS/cm)**								
Nitrate as N								
Nitrogen, as Ammonia								
Oxidation Reduction Potential **(mV)**								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C75 CP-C75 11/18/2000 4.3-4.3 ft		1140-CP-C76 CP-C76 11/18/2000 6.3-6.3 ft		1140-CP-C79B CP-C79B 5/17/2001 3.7-3.7 ft		1140-CP-C80 CP-C80 5/9/2001 2.4-2.4 ft		1140-CP-C82 CP-C82 5/9/2001 3-3 ft		1140-CP-C83 CP-C83 5/9/2001 1.3-1.3 ft		1140-CP-C84 CP-C84 5/10/2001 1.7-1.7 ft		1140-CP-C85 CP-C85 5/10/2001 1.8-1.8 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C87 CP-C87 5/10/2001 2.9-2.9 ft		1140-CP-C88 CP-C88 5/10/2001 4.3-4.3 ft		1140-CP-C89 CP-C89 5/10/2001 1.4-1.4 ft		1140-CP-C90 CP-C90 5/10/2001 1.6-1.6 ft		1140-CP-C91 CP-C91 5/10/2001 2.1-2.1 ft		1140-CP-C92 CP-C92 5/10/2001 2.3-2.3 ft		1140-SD-C11 SD-C11 10/11/2000 3.4-3.4 ft		1140-SD-C12 SD-C12 10/11/2000 2.96-2.96 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.12	U					0.1	U								
1,2,4-Trichlorobenzene	0.12	U					0.1	U								
1,2,4-Trimethylbenzene	0.12	U					0.1	U								
1,2-Dichlorobenzene	0.12	U					0.1	U								
1,2-Dichloroethane	0.12	U					0.1	U								
1,3,5-Trimethylbenzene	0.12	U					0.1	U								
1,4-Dichlorobenzene	0.12	U					0.1	U								
2,4,4-Trimethyl-1-pentene	0.12	U					0.3									
2,4,4-Trimethyl-2-pentene	0.12	U					0.1	U								
2-Butanone	2.4	U					2	U								
2-Hexanone	0.48	U					0.41	U								
4-iso-Propyltoluene	0.12	U					0.1	U								
4-Methyl-2-pentanone	0.48	U					0.41	U								
Acetone	2.4	U					2	U								
Benzene	0.12	U					0.1	U								
Carbon disulfide																
Carbon tetrachloride	0.12	U					0.1	U								
Chlorobenzene	0.12	U					0.1	U								
Chloroform	0.12	U					0.1	U								
Chloromethane	0.24	U					0.2	U								
Ethyl benzene	0.12	U					0.1	U								
Formaldehyde																
Isopropylbenzene	0.12	U					0.1	U								
Methylene chloride	0.24	U					0.2	U								
Naphthalene	1.2	U					1	U								
Propylbenzene	0.12	U					0.1	U								
sec-Butylbenzene	0.12	U					0.1	U								
Styrene	0.12	U					0.1	U								
Tetrachloroethene	0.12	U					0.1	U								
Tetrahydrofuran																
Toluene	0.12	U					0.1	U								
Trichloroethene	0.12	U					0.1	U								
Trichlorofluoromethane	0.12	U					0.1	U								
Xylene, o	0.12	U					0.1	U								
Xylenes (m&p)	0.12	U					0.1	U								
Xylenes, Total	0.12	U					0.1	U								
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
1,2-Dichlorobenzene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
1,4-Dichlorobenzene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C87 CP-C87 5/10/2001 2.9-2.9 ft		1140-CP-C88 CP-C88 5/10/2001 4.3-4.3 ft		1140-CP-C89 CP-C89 5/10/2001 1.4-1.4 ft		1140-CP-C90 CP-C90 5/10/2001 1.6-1.6 ft		1140-CP-C91 CP-C91 5/10/2001 2.1-2.1 ft		1140-CP-C92 CP-C92 5/10/2001 2.3-2.3 ft		1140-SD-C11 SD-C11 10/11/2000 3.4-3.4 ft		1140-SD-C12 SD-C12 10/11/2000 2.96-2.96 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
2-Methylnaphthalene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
3 & 4 Methylphenol	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
4-Chlorophenyl phenyl ether	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Acenaphthene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Acenaphthylene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Acetophenone																
Aniline	1.9	U	1.8	U	2.1	U			1.9	U	1.8	U	2.2	U	11	U
Anthracene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Benzaldehyde																
Benzo(a)anthracene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Benzo(a)pyrene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Benzo(b)fluoranthene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Benzo(ghi)perylene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Benzo(k)fluoranthene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Benzoic Acid	1.9	U	1.8	U	2.1	U			1.9	U	1.8	U	2.2	U	11	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate	0.38	U	0.37	U	0.52	B			0.38	U	0.37	U	5.1		29	
Butylbenzylphthalate	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Carbazole																
Chrysene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Dibenz(a,h)anthracene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Dibenzofuran	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Diethylphthalate	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Di-n-butylphthalate	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Di-n-octylphthalate	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.38	U	0.37	U	0.42	U			0.28	J	0.37	U	0.43	U	2.1	U
Fluorene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Indeno(1,2,3-cd)pyrene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Naphthalene	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
N-Nitrosodiphenylamine	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Phenanthrene	0.38	U	0.37	U	0.42	U			0.19	J	0.37	U	0.43	U	2.1	U
Phenol	0.38	U	0.37	U	0.42	U			0.38	U	0.37	U	0.43	U	2.1	U
Pyrene	0.38	U	0.37	U	0.42	U			0.24	J	0.37	U	0.43	U	2.1	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C87 CP-C87 5/10/2001 2.9-2.9 ft		1140-CP-C88 CP-C88 5/10/2001 4.3-4.3 ft		1140-CP-C89 CP-C89 5/10/2001 1.4-1.4 ft		1140-CP-C90 CP-C90 5/10/2001 1.6-1.6 ft		1140-CP-C91 CP-C91 5/10/2001 2.1-2.1 ft		1140-CP-C92 CP-C92 5/10/2001 2.3-2.3 ft		1140-SD-C11 SD-C11 10/11/2000 3.4-3.4 ft		1140-SD-C12 SD-C12 10/11/2000 2.96-2.96 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	2700						7800									
Antimony																
Arsenic	1.6						**11**									
Barium																
Beryllium																
Cadmium	0.2	U					0.2	U								
Calcium																
Chromium	67		120		190		14		240		11		29		210	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron	2100						14000									
Lead	1.9						3.4									
Magnesium																
Manganese																
Mercury	0.05	U					0.05	U								
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C87 CP-C87 5/10/2001 2.9-2.9 ft		1140-CP-C88 CP-C88 5/10/2001 4.3-4.3 ft		1140-CP-C89 CP-C89 5/10/2001 1.4-1.4 ft		1140-CP-C90 CP-C90 5/10/2001 1.6-1.6 ft		1140-CP-C91 CP-C91 5/10/2001 2.1-2.1 ft		1140-CP-C92 CP-C92 5/10/2001 2.3-2.3 ft		1140-SD-C11 SD-C11 10/11/2000 3.4-3.4 ft		1140-SD-C12 SD-C12 10/11/2000 2.96-2.96 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C16 SD-C16 10/12/2000 3.18-3.18 ft		1140-SD-C17 SD-C17 10/12/2000 2.22-2.22 ft		1140-SD-C18 SD-C18 10/12/2000 4.83-4.83 ft		1140-SD-C19 SD-C19 10/12/2000 1.88-1.88 ft		1140-SD-C20 SD-C20 10/12/2000 2.14-2.14 ft		1140-SD-C21 SD-C21 10/12/2000 2.76-2.76 ft		1140-SD-C22 SD-C22 10/12/2000 3.22-3.22 ft		1140-SD-C23 SD-C23 10/12/2000 2.84-2.84 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane																
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene																
2,4,4-Trimethyl-2-pentene																
2-Butanone																
2-Hexanone																
4-iso-Propyltoluene																
4-Methyl-2-pentanone																
Acetone																
Benzene																
Carbon disulfide																
Carbon tetrachloride																
Chlorobenzene																
Chloroform																
Chloromethane																
Ethyl benzene																
Formaldehyde																
Isopropylbenzene																
Methylene chloride																
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene																
Tetrachloroethene																
Tetrahydrofuran																
Toluene																
Trichloroethene																
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
1,2-Dichlorobenzene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
1,4-Dichlorobenzene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C16 SD-C16 10/12/2000 3.18-3.18 ft		1140-SD-C17 SD-C17 10/12/2000 2.22-2.22 ft		1140-SD-C18 SD-C18 10/12/2000 4.83-4.83 ft		1140-SD-C19 SD-C19 10/12/2000 1.88-1.88 ft		1140-SD-C20 SD-C20 10/12/2000 2.14-2.14 ft		1140-SD-C21 SD-C21 10/12/2000 2.76-2.76 ft		1140-SD-C22 SD-C22 10/12/2000 3.22-3.22 ft		1140-SD-C23 SD-C23 10/12/2000 2.84-2.84 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
2-Methylnaphthalene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
3 & 4 Methylphenol	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
4-Chlorophenyl phenyl ether	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Acenaphthene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Acenaphthylene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Acetophenone																
Aniline	4.3	U	2	U	2	U	22	U	2	U	1.9	U	2	U	2.1	U
Anthracene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Benzaldehyde																
Benzo(a)anthracene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Benzo(a)pyrene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Benzo(b)fluoranthene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Benzo(ghi)perylene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Benzo(k)fluoranthene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Benzoic Acid	4.3	U	2	U	2	U	22	U	2	U	1.9	U	2	U	2.1	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate	14		4.7		5.3		42		3.4		1.2		2.1		2.2	
Butylbenzylphthalate	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Carbazole																
Chrysene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Dibenz(a,h)anthracene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Dibenzofuran	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Diethylphthalate	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Di-n-butylphthalate	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Di-n-octylphthalate	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Fluorene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Indeno(1,2,3-cd)pyrene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Naphthalene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
N-Nitrosodiphenylamine	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Phenanthrene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Phenol	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Pyrene	0.86	U	0.4	U	0.39	U	4.3	U	0.41	U	0.37	U	0.4	U	0.43	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C16 SD-C16 10/12/2000 3.18-3.18 ft	1140-SD-C17 SD-C17 10/12/2000 2.22-2.22 ft	1140-SD-C18 SD-C18 10/12/2000 4.83-4.83 ft	1140-SD-C19 SD-C19 10/12/2000 1.88-1.88 ft	1140-SD-C20 SD-C20 10/12/2000 2.14-2.14 ft	1140-SD-C21 SD-C21 10/12/2000 2.76-2.76 ft	1140-SD-C22 SD-C22 10/12/2000 3.22-3.22 ft	1140-SD-C23 SD-C23 10/12/2000 2.84-2.84 ft
Alpha-Chlordane								
Beta-BHC								
Chlordane (technical)								
Endosulfan sulfate								
Endrin								
Gamma-BHC/Lindane								
Aroclor-1260								
Inorganics (mg/Kg)								
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium	280	440	120	340	240	47	580	340
Chromium, Hexavalent								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Tin								
Vanadium								
Zinc								
Chloride								
Cyanide, Total								
Eh **(mV)**								
Flash Point **(°F)**								
Lab Specific Conductance **(mS/cm)**								
Nitrate as N								
Nitrogen, as Ammonia								
Oxidation Reduction Potential **(mV)**								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C16 SD-C16 10/12/2000 3.18-3.18 ft	1140-SD-C17 SD-C17 10/12/2000 2.22-2.22 ft	1140-SD-C18 SD-C18 10/12/2000 4.83-4.83 ft	1140-SD-C19 SD-C19 10/12/2000 1.88-1.88 ft	1140-SD-C20 SD-C20 10/12/2000 2.14-2.14 ft	1140-SD-C21 SD-C21 10/12/2000 2.76-2.76 ft	1140-SD-C22 SD-C22 10/12/2000 3.22-3.22 ft	1140-SD-C23 SD-C23 10/12/2000 2.84-2.84 ft
pH **(pH units)**								
Sulfate								
Sulfate **(mg/L)**								
Total Organic Carbon								
Urea								
TCLP Metals (mg/L)								
Chromium								
VPH (mg/Kg)								
Ethyl benzene								
Toluene								
Xylenes, Total								
C5-C8 Aliphatics								
C5-C8 Aliphatics (unadj.)								
C9-C10 Aromatics								
C9-C12 Aliphatics								
C9-C12 Aliphatics (unadj.)								
Volatile Petroleum Hydrocarbons, Total								
EPH (mg/Kg)								
Acenaphthene								
Acenaphthylene								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(ghi)perylene								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
C9-C18 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								
Specialty Compounds (mg/Kg)								
Hydrazine								
Acetaldehyde								
Formaldehyde								
Phthalic Acid/Phthalic anhydride								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C25 SD-C25 11/2/2000 2.8-2.8 ft		1140-SD-C26 SD-C26 11/2/2000 2.18-2.18 ft		1140-SD-C27 SD-C27 11/2/2000 2.48-2.48 ft		1140-SD-C28 SD-C28 11/2/2000 2.58-2.58 ft		1140-SD-C29 SD-C29 11/2/2000 2.18-2.18 ft		1140-SD-C3 SD-C3 10/11/2000 2.15-2.15 ft		1140-SD-C30 SD-C30 11/2/2000 2.48-2.48 ft		1140-SD-C31 SD-C31 11/2/2000 1.78-1.78 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene					0.14	U										
1,2,4-Trichlorobenzene					0.14	U										
1,2,4-Trimethylbenzene					0.14	U										
1,2-Dichlorobenzene					0.14	U										
1,2-Dichloroethane					0.14	U										
1,3,5-Trimethylbenzene					0.14	U										
1,4-Dichlorobenzene					0.14	U										
2,4,4-Trimethyl-1-pentene					0.14	U										
2,4,4-Trimethyl-2-pentene					0.14	U										
2-Butanone					2.8	U										
2-Hexanone					0.55	U										
4-iso-Propyltoluene					0.14	U										
4-Methyl-2-pentanone					0.55	U										
Acetone					2.8	U										
Benzene					0.14	U										
Carbon disulfide																
Carbon tetrachloride					0.14	U										
Chlorobenzene					0.14	U										
Chloroform					0.14	U										
Chloromethane					0.28	U										
Ethyl benzene					0.14	UF										
Formaldehyde																
Isopropylbenzene					0.14	U										
Methylene chloride					0.28	U										
Naphthalene					1.4	U										
Propylbenzene					0.14	U										
sec-Butylbenzene					0.14	U										
Styrene					0.14	U										
Tetrachloroethene					0.14	U										
Tetrahydrofuran																
Toluene					0.14	U										
Trichloroethene					0.14	U										
Trichlorofluoromethane					0.14	U										
Xylene, o					0.14	U										
Xylenes (m&p)					0.14	U										
Xylenes, Total					0.14	U										
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
1,2-Dichlorobenzene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
1,4-Dichlorobenzene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C25 SD-C25 11/2/2000 2.8-2.8 ft		1140-SD-C26 SD-C26 11/2/2000 2.18-2.18 ft		1140-SD-C27 SD-C27 11/2/2000 2.48-2.48 ft		1140-SD-C28 SD-C28 11/2/2000 2.58-2.58 ft		1140-SD-C29 SD-C29 11/2/2000 2.18-2.18 ft		1140-SD-C3 SD-C3 10/11/2000 2.15-2.15 ft		1140-SD-C30 SD-C30 11/2/2000 2.48-2.48 ft		1140-SD-C31 SD-C31 11/2/2000 1.78-1.78 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
2-Methylnaphthalene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
3 & 4 Methylphenol	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
4-Chlorophenyl phenyl ether	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Acenaphthene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Acenaphthylene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Acetophenone																
Aniline	10	U	11	U	21	UC	230	UC	43	UC	200	U	21	UC	120	UC
Anthracene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Benzaldehyde																
Benzo(a)anthracene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Benzo(a)pyrene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Benzo(b)fluoranthene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Benzo(ghi)perylene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Benzo(k)fluoranthene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Benzoic Acid	10	U	11	U	21	UC	230	UC	43	UC	200	U	21	UC	120	UC
Biphenyl																
Bis(2-Ethylhexyl)phthalate	16		12		33	C	**132**	C	44	C	**231**		34	C	**141**	C
Butylbenzylphthalate	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Carbazole																
Chrysene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Dibenz(a,h)anthracene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Dibenzofuran	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Diethylphthalate	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Di-n-butylphthalate	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	13	JC
Di-n-octylphthalate	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Diphenyl ether																
Diphenylamine																
Fluoranthene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Fluorene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Indeno(1,2,3-cd)pyrene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Naphthalene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
N-Nitrosodiphenylamine	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Phenanthrene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Phenol	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Pyrene	2.1	U	2.1	U	4.3	UC	47	UC	8.5	UC	40	U	4.3	UC	24	UC
Pesticides/PCBs (mg/Kg)																
4,4'-DDD					0.013	U										
Aldrin					0.013	U										
Alpha-BHC					0.013	U										

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C25 SD-C25 11/2/2000 2.8-2.8 ft		1140-SD-C26 SD-C26 11/2/2000 2.18-2.18 ft		1140-SD-C27 SD-C27 11/2/2000 2.48-2.48 ft		1140-SD-C28 SD-C28 11/2/2000 2.58-2.58 ft		1140-SD-C29 SD-C29 11/2/2000 2.18-2.18 ft		1140-SD-C3 SD-C3 10/11/2000 2.15-2.15 ft		1140-SD-C30 SD-C30 11/2/2000 2.48-2.48 ft		1140-SD-C31 SD-C31 11/2/2000 1.78-1.78 ft	
Alpha-Chlordane																
Beta-BHC					0.013	U										
Chlordane (technical)																
Endosulfan sulfate					0.013	U										
Endrin					0.013	U										
Gamma-BHC/Lindane					0.013	U										
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum					3800											
Antimony																
Arsenic					1	U										
Barium																
Beryllium																
Cadmium					0.3	U										
Calcium																
Chromium	110		430		110		2800		220		200		660		360	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron					3700											
Lead					2.7											
Magnesium																
Manganese																
Mercury					0.06	U										
Nickel																
Potassium																
Selenium					3	U										
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C25 SD-C25 11/2/2000 2.8-2.8 ft		1140-SD-C26 SD-C26 11/2/2000 2.18-2.18 ft		1140-SD-C27 SD-C27 11/2/2000 2.48-2.48 ft		1140-SD-C28 SD-C28 11/2/2000 2.58-2.58 ft		1140-SD-C29 SD-C29 11/2/2000 2.18-2.18 ft		1140-SD-C3 SD-C3 10/11/2000 2.15-2.15 ft		1140-SD-C30 SD-C30 11/2/2000 2.48-2.48 ft		1140-SD-C31 SD-C31 11/2/2000 1.78-1.78 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C32 SD-C32 11/2/2000 2.38-2.38 ft		1140-SD-C33 SD-C33 11/2/2000 1.68-1.68 ft		1140-SD-C34 SD-C34 11/3/2000 1.18-1.18 ft		1140-SD-C35 SD-C35 11/3/2000 1.28-1.28 ft		1140-SD-C36 SD-C36 11/3/2000 1.58-1.58 ft		1140-SD-C37 SD-C37 11/3/2000 1.58-1.58 ft		1140-SD-C38 SD-C38 11/3/2000 1.68-1.68 ft		1140-SD-C39 SD-C39 11/3/2000 2.58-2.58 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene							0.21	U								
1,2,4-Trichlorobenzene							0.21	UB								
1,2,4-Trimethylbenzene							0.21	U								
1,2-Dichlorobenzene							0.21	U								
1,2-Dichloroethane							0.21	U								
1,3,5-Trimethylbenzene							0.21	U								
1,4-Dichlorobenzene							0.21	U								
2,4,4-Trimethyl-1-pentene							1.2									
2,4,4-Trimethyl-2-pentene							0.53									
2-Butanone							4.1	U								
2-Hexanone							0.83	U								
4-iso-Propyltoluene							0.21	U								
4-Methyl-2-pentanone							0.83	U								
Acetone							4.1	U								
Benzene							0.21	U								
Carbon disulfide																
Carbon tetrachloride							0.21	U								
Chlorobenzene							0.21	U								
Chloroform							0.21	U								
Chloromethane							0.41	U								
Ethyl benzene							0.21	U								
Formaldehyde																
Isopropylbenzene							0.21	U								
Methylene chloride							0.41	UB								
Naphthalene							2.1	U								
Propylbenzene							0.21	U								
sec-Butylbenzene							0.21	U								
Styrene							0.21	U								
Tetrachloroethene							0.21	U								
Tetrahydrofuran																
Toluene							0.21	U								
Trichloroethene							0.21	U								
Trichlorofluoromethane							0.21	U								
Xylene, o							0.21	U								
Xylenes (m&p)							0.21	U								
Xylenes, Total							0.21	U								
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
1,2-Dichlorobenzene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
1,4-Dichlorobenzene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C32 SD-C32 11/2/2000 2.38-2.38 ft		1140-SD-C33 SD-C33 11/2/2000 1.68-1.68 ft		1140-SD-C34 SD-C34 11/3/2000 1.18-1.18 ft		1140-SD-C35 SD-C35 11/3/2000 1.28-1.28 ft		1140-SD-C36 SD-C36 11/3/2000 1.58-1.58 ft		1140-SD-C37 SD-C37 11/3/2000 1.58-1.58 ft		1140-SD-C38 SD-C38 11/3/2000 1.68-1.68 ft		1140-SD-C39 SD-C39 11/3/2000 2.58-2.58 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
2-Methylnaphthalene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
3 & 4 Methylphenol	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
4-Chlorophenyl phenyl ether	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Acenaphthene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Acenaphthylene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Acetophenone																
Aniline	250	UC	2.1	UC	120	UC	280	UC	210	UC	100	UC	220	UC	9.8	U
Anthracene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Benzaldehyde																
Benzo(a)anthracene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Benzo(a)pyrene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Benzo(b)fluoranthene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Benzo(ghi)perylene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Benzo(k)fluoranthene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Benzoic Acid	250	UC	2.1	UC	120	UC	280	UC	210	UC	100	UC	220	UC	9.8	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate	**507**	C	8.5	C	**208**	C	**903**	C	**251**	C	**155**	C	**297**	C	21	
Butylbenzylphthalate	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Carbazole																
Chrysene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Dibenz(a,h)anthracene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Dibenzofuran	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Diethylphthalate	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Di-n-butylphthalate	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Di-n-octylphthalate	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Diphenyl ether																
Diphenylamine																
Fluoranthene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Fluorene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Indeno(1,2,3-cd)pyrene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Naphthalene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
N-Nitrosodiphenylamine	50	UC	0.41	JC	24	UC	28	JC	41	UC	20	UC	43	UC	2	U
Phenanthrene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Phenol	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Pyrene	50	UC	0.43	UC	24	UC	55	UC	41	UC	20	UC	43	UC	2	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD							0.08	U								
Aldrin							0.08	U								
Alpha-BHC							0.08	U								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C32 SD-C32 11/2/2000 2.38-2.38 ft		1140-SD-C33 SD-C33 11/2/2000 1.68-1.68 ft		1140-SD-C34 SD-C34 11/3/2000 1.18-1.18 ft		1140-SD-C35 SD-C35 11/3/2000 1.28-1.28 ft		1140-SD-C36 SD-C36 11/3/2000 1.58-1.58 ft		1140-SD-C37 SD-C37 11/3/2000 1.58-1.58 ft		1140-SD-C38 SD-C38 11/3/2000 1.68-1.68 ft		1140-SD-C39 SD-C39 11/3/2000 2.58-2.58 ft	
Alpha-Chlordane																
Beta-BHC							0.08	U								
Chlordane (technical)																
Endosulfan sulfate							0.08	U								
Endrin							0.08	U								
Gamma-BHC/Lindane							0.08	UF								
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum							4400	F								
Antimony																
Arsenic							**3.5**									
Barium																
Beryllium																
Cadmium							0.4	U								
Calcium																
Chromium	790		300		640		660	F	910		2100		3300		1400	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron							4600	F								
Lead							7.1									
Magnesium																
Manganese																
Mercury							0.064									
Nickel																
Potassium																
Selenium							2	U								
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C32 SD-C32 11/2/2000 2.38-2.38 ft		1140-SD-C33 SD-C33 11/2/2000 1.68-1.68 ft		1140-SD-C34 SD-C34 11/3/2000 1.18-1.18 ft		1140-SD-C35 SD-C35 11/3/2000 1.28-1.28 ft		1140-SD-C36 SD-C36 11/3/2000 1.58-1.58 ft		1140-SD-C37 SD-C37 11/3/2000 1.58-1.58 ft		1140-SD-C38 SD-C38 11/3/2000 1.68-1.68 ft		1140-SD-C39 SD-C39 11/3/2000 2.58-2.58 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C40 SD-C40 11/3/2000 2.08-2.08 ft		1140-SD-C41 SD-C41 11/3/2000 3.48-3.48 ft		1140-SD-C42 SD-C42 11/3/2000 1.28-1.28 ft		1140-SD-C43 SD-C43 11/3/2000 5.45-5.45 ft		1140-SD-C44N SD-C44N 5/14/2001 1.58-2.08 ft		1140-SD-C44S SD-C44S 5/14/2001 2.58-3.08 ft		1140-SD-C45N SD-C45N 5/14/2001 2.88-3.38 ft		1140-SD-C45S SD-C45S 5/14/2001 1.98-2.48 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane																
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene																
2,4,4-Trimethyl-2-pentene																
2-Butanone																
2-Hexanone																
4-iso-Propyltoluene																
4-Methyl-2-pentanone																
Acetone																
Benzene																
Carbon disulfide																
Carbon tetrachloride																
Chlorobenzene																
Chloroform																
Chloromethane																
Ethyl benzene																
Formaldehyde																
Isopropylbenzene																
Methylene chloride																
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene																
Tetrachloroethene																
Tetrahydrofuran																
Toluene																
Trichloroethene																
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
1,2-Dichlorobenzene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
1,4-Dichlorobenzene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C40 SD-C40 11/3/2000 2.08-2.08 ft		1140-SD-C41 SD-C41 11/3/2000 3.48-3.48 ft		1140-SD-C42 SD-C42 11/3/2000 1.28-1.28 ft		1140-SD-C43 SD-C43 11/3/2000 5.45-5.45 ft		1140-SD-C44N SD-C44N 5/14/2001 1.58-2.08 ft		1140-SD-C44S SD-C44S 5/14/2001 2.58-3.08 ft		1140-SD-C45N SD-C45N 5/14/2001 2.88-3.38 ft		1140-SD-C45S SD-C45S 5/14/2001 1.98-2.48 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
2-Methylnaphthalene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
3 & 4 Methylphenol	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
4-Chlorophenyl phenyl ether	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Acenaphthene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Acenaphthylene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Acetophenone																
Aniline	2.3	UC	21	UC	2.5	UC	2.1	UC	8.9	U	2.3	U	48	U	5	U
Anthracene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Benzaldehyde																
Benzo(a)anthracene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Benzo(a)pyrene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Benzo(b)fluoranthene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Benzo(ghi)perylene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Benzo(k)fluoranthene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Benzoic Acid	2.3	UC	21	UC	2.5	UC	2.1	UC	8.9	U	2.3	U	48	U	5	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate	3	C	51	C	1.7	C	8	C	14		0.47	U	99		4.6	
Butylbenzylphthalate	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Carbazole																
Chrysene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Dibenz(a,h)anthracene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Dibenzofuran	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Diethylphthalate	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Di-n-butylphthalate	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Di-n-octylphthalate	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Fluorene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Indeno(1,2,3-cd)pyrene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Naphthalene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
N-Nitrosodiphenylamine	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Phenanthrene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Phenol	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Pyrene	0.47	UC	4.2	UC	0.5	UC	0.42	UC	1.8	U	0.47	U	9.6	U	1	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C40 SD-C40 11/3/2000 2.08-2.08 ft	1140-SD-C41 SD-C41 11/3/2000 3.48-3.48 ft	1140-SD-C42 SD-C42 11/3/2000 1.28-1.28 ft	1140-SD-C43 SD-C43 11/3/2000 5.45-5.45 ft	1140-SD-C44N SD-C44N 5/14/2001 1.58-2.08 ft	1140-SD-C44S SD-C44S 5/14/2001 2.58-3.08 ft	1140-SD-C45N SD-C45N 5/14/2001 2.88-3.38 ft	1140-SD-C45S SD-C45S 5/14/2001 1.98-2.48 ft
Alpha-Chlordane								
Beta-BHC								
Chlordane (technical)								
Endosulfan sulfate								
Endrin								
Gamma-BHC/Lindane								
Aroclor-1260								
Inorganics (mg/Kg)								
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium	2100	1400	280	650	120 F	150	180	60
Chromium, Hexavalent								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Tin								
Vanadium								
Zinc								
Chloride								
Cyanide, Total								
Eh **(mV)**								
Flash Point **(°F)**								
Lab Specific Conductance **(mS/cm)**								
Nitrate as N								
Nitrogen, as Ammonia								
Oxidation Reduction Potential **(mV)**								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C40 SD-C40 11/3/2000 2.08-2.08 ft		1140-SD-C41 SD-C41 11/3/2000 3.48-3.48 ft		1140-SD-C42 SD-C42 11/3/2000 1.28-1.28 ft		1140-SD-C43 SD-C43 11/3/2000 5.45-5.45 ft		1140-SD-C44N SD-C44N 5/14/2001 1.58-2.08 ft		1140-SD-C44S SD-C44S 5/14/2001 2.58-3.08 ft		1140-SD-C45N SD-C45N 5/14/2001 2.88-3.38 ft		1140-SD-C45S SD-C45S 5/14/2001 1.98-2.48 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C46N SD-C46N 5/14/2001 1.48-1.98 ft	1140-SD-C46S SD-C46S 5/14/2001 1.68-2.18 ft	1140-SD-C47N SD-C47N 5/14/2001 3.18-3.68 ft	1140-SD-C47S SD-C47S 5/14/2001 2.28-2.78 ft	1140-SD-C49S SD-C49S 5/14/2001 1.46-1.96 ft	1140-SD-C5 SD-C5 10/11/2000 2.62-2.62 ft	1140-SD-C50S SD-C50S 5/14/2001 1.26-1.76 ft	1140-SD-C51S SD-C51S 5/14/2001 1.16-1.66 ft
Volatile Organics (mg/Kg)								
1,2,3-Trichlorobenzene								
1,2,4-Trichlorobenzene								
1,2,4-Trimethylbenzene								
1,2-Dichlorobenzene								
1,2-Dichloroethane								
1,3,5-Trimethylbenzene								
1,4-Dichlorobenzene								
2,4,4-Trimethyl-1-pentene								
2,4,4-Trimethyl-2-pentene								
2-Butanone								
2-Hexanone								
4-iso-Propyltoluene								
4-Methyl-2-pentanone								
Acetone								
Benzene								
Carbon disulfide								
Carbon tetrachloride								
Chlorobenzene								
Chloroform								
Chloromethane								
Ethyl benzene								
Formaldehyde								
Isopropylbenzene								
Methylene chloride								
Naphthalene								
Propylbenzene								
sec-Butylbenzene								
Styrene								
Tetrachloroethene								
Tetrahydrofuran								
Toluene								
Trichloroethene								
Trichlorofluoromethane								
Xylene, o								
Xylenes (m&p)								
Xylenes, Total								
Semivolatile Organics (mg/Kg)								
1,2,4-Trichlorobenzene			9.5 U	10 U		0.41 U		
1,2-Dichlorobenzene			9.5 U	10 U		0.41 U		
1,4-Dichlorobenzene			9.5 U	10 U		0.41 U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C46N SD-C46N 5/14/2001 1.48-1.98 ft	1140-SD-C46S SD-C46S 5/14/2001 1.68-2.18 ft	1140-SD-C47N SD-C47N 5/14/2001 3.18-3.68 ft	1140-SD-C47S SD-C47S 5/14/2001 2.28-2.78 ft	1140-SD-C49S SD-C49S 5/14/2001 1.46-1.96 ft	1140-SD-C5 SD-C5 10/11/2000 2.62-2.62 ft	1140-SD-C50S SD-C50S 5/14/2001 1.26-1.76 ft	1140-SD-C51S SD-C51S 5/14/2001 1.16-1.66 ft
1-Methylnaphthalene								
2,4-Dimethylphenol			9.5 U	10 U		0.41 U		
2-Methylnaphthalene			9.5 U	10 U		0.41 U		
3 & 4 Methylphenol			9.5 U	10 U		0.41 U		
4-Chlorophenyl phenyl ether			9.5 U	10 U		0.41 U		
Acenaphthene			9.5 U	10 U		0.41 U		
Acenaphthylene			9.5 U	10 U		0.41 U		
Acetophenone								
Aniline			48 U	52 U		2 U		
Anthracene			9.5 U	10 U		0.41 U		
Benzaldehyde								
Benzo(a)anthracene			9.5 U	10 U		0.41 U		
Benzo(a)pyrene			9.5 U	10 U		0.41 U		
Benzo(b)fluoranthene			9.5 U	10 U		0.41 U		
Benzo(ghi)perylene			9.5 U	10 U		0.41 U		
Benzo(k)fluoranthene			9.5 U	10 U		0.41 U		
Benzoic Acid			48 U	52 U		2 U		
Biphenyl								
Bis(2-Ethylhexyl)phthalate			75	85		7		
Butylbenzylphthalate			9.5 U	10 U		0.41 U		
Carbazole								
Chrysene			9.5 U	10 U		0.41 U		
Dibenz(a,h)anthracene			9.5 U	10 U		0.41 U		
Dibenzofuran			9.5 U	10 U		0.41 U		
Diethylphthalate			9.5 U	10 U		0.41 U		
Di-n-butylphthalate			9.5 U	10 U		0.41 U		
Di-n-octylphthalate			9.5 U	10 U		0.41 U		
Diphenyl ether								
Diphenylamine								
Fluoranthene			9.5 U	10 U		0.41 U		
Fluorene			9.5 U	10 U		0.41 U		
Indeno(1,2,3-cd)pyrene			9.5 U	10 U		0.41 U		
Naphthalene			9.5 U	10 U		0.41 U		
N-Nitrosodiphenylamine			9.5 U	10 U		0.27 J		
Phenanthrene			9.5 U	10 U		0.41 U		
Phenol			9.5 U	10 U		0.41 U		
Pyrene			9.5 U	10 U		0.41 U		
Pesticides/PCBs (mg/Kg)								
4,4'-DDD								
Aldrin								
Alpha-BHC								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C46N SD-C46N 5/14/2001 1.48-1.98 ft	1140-SD-C46S SD-C46S 5/14/2001 1.68-2.18 ft	1140-SD-C47N SD-C47N 5/14/2001 3.18-3.68 ft	1140-SD-C47S SD-C47S 5/14/2001 2.28-2.78 ft	1140-SD-C49S SD-C49S 5/14/2001 1.46-1.96 ft	1140-SD-C5 SD-C5 10/11/2000 2.62-2.62 ft	1140-SD-C50S SD-C50S 5/14/2001 1.26-1.76 ft	1140-SD-C51S SD-C51S 5/14/2001 1.16-1.66 ft
Alpha-Chlordane								
Beta-BHC								
Chlordane (technical)								
Endosulfan sulfate								
Endrin								
Gamma-BHC/Lindane								
Aroclor-1260								
Inorganics (mg/Kg)								
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium	7.6	24	320	1900	1400	65	33	56
Chromium, Hexavalent								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Tin								
Vanadium								
Zinc								
Chloride								
Cyanide, Total								
Eh **(mV)**								
Flash Point **(°F)**								
Lab Specific Conductance **(mS/cm)**								
Nitrate as N								
Nitrogen, as Ammonia								
Oxidation Reduction Potential **(mV)**								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C46N SD-C46N 5/14/2001 1.48-1.98 ft		1140-SD-C46S SD-C46S 5/14/2001 1.68-2.18 ft		1140-SD-C47N SD-C47N 5/14/2001 3.18-3.68 ft		1140-SD-C47S SD-C47S 5/14/2001 2.28-2.78 ft		1140-SD-C49S SD-C49S 5/14/2001 1.46-1.96 ft		1140-SD-C5 SD-C5 10/11/2000 2.62-2.62 ft		1140-SD-C50S SD-C50S 5/14/2001 1.26-1.76 ft		1140-SD-C51S SD-C51S 5/14/2001 1.16-1.66 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C52S SD-C52S 5/14/2001 1.26-1.76 ft		1140-SD-C53S SD-C53S 5/15/2001 1.13-1.63 ft		1140-SD-C55 SD-C55 5/18/2001 1.45-1.95 ft		1140-SD-C8 SD-C8 10/11/2000 2.71-2.71 ft		1140-WDW-C33 WDW-C33 5/16/2001 2.2-2.2 ft		1140-WDW-C35 WDW-C35 5/21/2001 2.6-2.6 ft		1160-A8CW-1-B A8CW-1-B 11/9/2000 3-3 ft		1160-CP-C77 CP-C77 12/1/2000 5.6-5.6 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.13	U					0.14	U			0.048	U				
1,2,4-Trichlorobenzene	0.13	U					0.14	U			0.048	U				
1,2,4-Trimethylbenzene	0.13	U					0.14	U			0.048	U				
1,2-Dichlorobenzene	0.13	U					0.14	U			0.048	U				
1,2-Dichloroethane	0.13	U					0.14	U			0.048	U				
1,3,5-Trimethylbenzene	0.13	U					0.14	U			0.048	U				
1,4-Dichlorobenzene	0.13	U					0.14	U			0.048	U				
2,4,4-Trimethyl-1-pentene	0.13	U					0.14	U								
2,4,4-Trimethyl-2-pentene	0.13	U					0.14	U								
2-Butanone	2.6	U					2.9	U			0.48	U				
2-Hexanone	0.52	U					0.58	U			0.48	U				
4-iso-Propyltoluene	0.13	U					0.14	U			0.048	U				
4-Methyl-2-pentanone	0.52	U					0.58	U			0.48	U				
Acetone	2.6	U					2.9	U			0.48	U				
Benzene	0.13	U					0.14	U			0.048	U				
Carbon disulfide											0.095	U				
Carbon tetrachloride	0.13	U					0.14	U			0.048	U				
Chlorobenzene	0.13	U					0.14	U			0.048	U				
Chloroform	0.13	U					0.14	U			0.048	U				
Chloromethane	0.26	U					0.29	U			0.095	U				
Ethyl benzene	0.13	U					0.14	U			0.048	U				
Formaldehyde																
Isopropylbenzene	0.13	U					0.14	U			0.048	U				
Methylene chloride	0.26	U					0.14	U			0.095	U				
Naphthalene	1.3	U					1.4	U			0.095	U				
Propylbenzene	0.13	U					0.14	U			0.048	U				
sec-Butylbenzene	0.13	U					0.14	U			0.048	U				
Styrene	0.13	U					0.14	U			0.048	U				
Tetrachloroethene	0.13	U					0.14	U			0.048	U				
Tetrahydrofuran																
Toluene	0.13	U					0.14	U			0.051					
Trichloroethene	0.13	U					0.14	U			0.048	U				
Trichlorofluoromethane	0.13	U					0.14	U			0.095	U				
Xylene, o	0.13	U					0.14	U			0.048	U				
Xylenes (m&p)	0.13	U					0.14	U			0.048	U				
Xylenes, Total	0.13	U					0.14	U			0.048	U				
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene							0.8	U			0.3	U	0.4	U		
1,2-Dichlorobenzene							0.8	U			0.3	U	0.4	U		
1,4-Dichlorobenzene							0.8	U			0.3	U	0.4	U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C52S SD-C52S 5/14/2001 1.26-1.76 ft		1140-SD-C53S SD-C53S 5/15/2001 1.13-1.63 ft		1140-SD-C55 SD-C55 5/18/2001 1.45-1.95 ft		1140-SD-C8 SD-C8 10/11/2000 2.71-2.71 ft		1140-WDW-C33 WDW-C33 5/16/2001 2.2-2.2 ft		1140-WDW-C35 WDW-C35 5/21/2001 2.6-2.6 ft		1160-A8CW-1-B A8CW-1-B 11/9/2000 3-3 ft		1160-CP-C77 CP-C77 12/1/2000 5.6-5.6 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol							0.8	U			0.3	U	0.4	U		
2-Methylnaphthalene							0.8	U			0.3	U	0.4	U		
3 & 4 Methylphenol							0.8	U					0.4	U		
4-Chlorophenyl phenyl ether							0.8	U			0.3	U	0.4	U		
Acenaphthene							0.8	U			0.3	U	0.4	U		
Acenaphthylene							0.8	U			0.3	U	0.4	U		
Acetophenone																
Aniline							4	U					2	U		
Anthracene							0.8	U			0.3	U	0.4	U		
Benzaldehyde																
Benzo(a)anthracene							0.8	U			0.3	U	0.4	U		
Benzo(a)pyrene							0.8	U			0.3	U	0.4	U		
Benzo(b)fluoranthene							0.8	U			0.3	U	0.4	U		
Benzo(ghi)perylene							0.8	U			0.3	U	0.4	U		
Benzo(k)fluoranthene							0.8	U			0.3	U	0.4	U		
Benzoic Acid							4	U			0.61	U	2	U		
Biphenyl																
Bis(2-Ethylhexyl)phthalate							11				19		0.4	UB		
Butylbenzylphthalate							0.8	U			0.3	U	0.4	U		
Carbazole											0.3	U				
Chrysene							0.8	U			0.3	U	0.4	U		
Dibenz(a,h)anthracene							0.8	U			0.3	U	0.4	U		
Dibenzofuran							0.8	U			0.3	U	0.4	U		
Diethylphthalate							0.8	U			0.3	U	0.4	U		
Di-n-butylphthalate							0.8	U			0.3	U	0.32	J		
Di-n-octylphthalate							0.8	U			0.3	U	0.4	U		
Diphenyl ether																
Diphenylamine																
Fluoranthene							0.8	U			0.3	U	0.4	U		
Fluorene							0.8	U			0.3	U	0.4	U		
Indeno(1,2,3-cd)pyrene							0.8	U			0.3	U	0.4	U		
Naphthalene							0.8	U			0.3	U	0.4	U		
N-Nitrosodiphenylamine							0.8	U			16		0.4	U		
Phenanthrene							0.8	U			0.3	U	0.4	U		
Phenol							0.8	U			6.6		0.4	U		
Pyrene							0.8	U			0.3	U	0.4	U		
Pesticides/PCBs (mg/Kg)																
4,4'-DDD							0.06	U					0.012	U		
Aldrin							0.06	U					0.012	U		
Alpha-BHC							0.06	U					0.012	U		

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C52S SD-C52S 5/14/2001 1.26-1.76 ft		1140-SD-C53S SD-C53S 5/15/2001 1.13-1.63 ft		1140-SD-C55 SD-C55 5/18/2001 1.45-1.95 ft		1140-SD-C8 SD-C8 10/11/2000 2.71-2.71 ft		1140-WDW-C33 WDW-C33 5/16/2001 2.2-2.2 ft		1140-WDW-C35 WDW-C35 5/21/2001 2.6-2.6 ft		1160-A8CW-1-B A8CW-1-B 11/9/2000 3-3 ft		1160-CP-C77 CP-C77 12/1/2000 5.6-5.6 ft	
Alpha-Chlordane																
Beta-BHC							0.15	U					0.012	U		
Chlordane (technical)																
Endosulfan sulfate							0.06	U					0.012	U		
Endrin							0.06	U					0.012	U		
Gamma-BHC/Lindane							0.06	U					0.012	U		
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum							2500									
Antimony																
Arsenic							2.1									
Barium																
Beryllium																
Cadmium							0.3	U					0.41			
Calcium																
Chromium	88		470		140		270	G	400	F	39		830		790	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron							4200									
Lead							2.2						1.8			
Magnesium																
Manganese																
Mercury							0.05	U								
Nickel																
Potassium																
Selenium							1	U								
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C52S SD-C52S 5/14/2001 1.26-1.76 ft		1140-SD-C53S SD-C53S 5/15/2001 1.13-1.63 ft		1140-SD-C55 SD-C55 5/18/2001 1.45-1.95 ft		1140-SD-C8 SD-C8 10/11/2000 2.71-2.71 ft		1140-WDW-C33 WDW-C33 5/16/2001 2.2-2.2 ft		1140-WDW-C35 WDW-C35 5/21/2001 2.6-2.6 ft		1160-A8CW-1-B A8CW-1-B 11/9/2000 3-3 ft		1160-CP-C77 CP-C77 12/1/2000 5.6-5.6 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB28-S1 LPB28 7/11/2001 0-5 ft		1160-LPB28-S2 LPB28 7/11/2001 5-9 ft		1160-LPB28-S3 LPB28 7/11/2001 9-10 ft		97598-DB-C2 DB-C2 8/10/2000 1.1-4.1 ft		BH32 BH32 6/11/1991 4-6 ft		BH33 BH33 6/11/1991 6-8 ft		BH34 BH34 6/11/1991 6-8 ft		BH35 BH35 6/11/1991 6-8 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.12	U	0.13	U			0.24									
1,2,4-Trichlorobenzene	0.12	U	0.13	U			1.2									
1,2,4-Trimethylbenzene	0.12	U	0.13	U			3									
1,2-Dichlorobenzene	0.12	U	0.13	U			0.042	U								
1,2-Dichloroethane	0.12	U	0.13	U			0.042	U	0.005	U	0.0055	U	0.0055	U	0.0055	U
1,3,5-Trimethylbenzene	0.12	U	0.13	U			2.1									
1,4-Dichlorobenzene	0.12	U	0.13	U			0.054									
2,4,4-Trimethyl-1-pentene	0.12	U	0.13	U			0.41		0.013		0.011	U	1.7	J	0.022	
2,4,4-Trimethyl-2-pentene	0.12	U	0.13	U				U	0.007	J	0.011	U	0.72	J	0.013	
2-Butanone	2.3	U	2.5	U			0.42	U	0.0008	J	0.0006	J	0.016	U	0.016	U
2-Hexanone	0.46	U	0.5	U			0.42	U	0.015	U	0.016	U	0.016	U	0.004	J
4-iso-Propyltoluene	0.12	U	0.13	U			0.12									
4-Methyl-2-pentanone	0.46	U	0.5	U			0.42	U	0.015	U	0.005	J	0.016	U	0.016	U
Acetone	2.3	U	2.5	U			0.42	U	0.015	U	0.016	U	0.016	U	0.016	U
Benzene	0.12	U	0.13	U			0.042	U	0.005	U	0.0055	U	0.0055	U	0.0055	U
Carbon disulfide							0.083	U	0.01	U	0.011	U	0.011	U	0.011	U
Carbon tetrachloride	0.12	U	0.13	U			0.042	U	0.005	U	0.0055	U	0.0055	U	0.0055	U
Chlorobenzene	0.12	U	0.13	U			0.042	U	0.005	U	0.0055	U	0.0055	U	0.0055	U
Chloroform	0.12	U	0.13	U			0.042	U	0.005	U	0.0055	U	0.0055	U	0.0055	U
Chloromethane	0.23	U	0.25	U			0.083	U	0.01	U	0.011	U	0.011	U	0.011	U
Ethyl benzene	0.12	U	0.13	U			0.069		0.005	U	0.0055	U	0.0055	U	0.0055	U
Formaldehyde																
Isopropylbenzene	0.12	U	0.13	U			0.39									
Methylene chloride	0.23	U	0.25	U			0.29	B	0.01	U	0.011	U	0.011	U	0.011	U
Naphthalene	1.2	U	1.3	U			0.051	J								
Propylbenzene	0.12	U	0.13	U			0.34									
sec-Butylbenzene	0.12	U	0.13	U			0.14									
Styrene	0.12	U	0.13	U			0.24		0.005	U	0.0055	U	0.0055	U	0.0055	U
Tetrachloroethene	0.12	U	0.13	U			0.042	U	0.005	U	0.0055	U	0.0009	J	0.0055	U
Tetrahydrofuran																
Toluene	0.12	U	0.13	U			0.052		0.005	U	0.001	J	0.0008	J	0.0007	J
Trichloroethene	0.12	U	0.13	U			0.042	U	0.005	U	0.0055	U	0.0055	U	0.0055	U
Trichlorofluoromethane	0.12	U	0.13	U			0.042	U								
Xylene, o	0.12	U	0.13	U			0.31									
Xylenes (m&p)	0.12	U	0.13	U			0.18									
Xylenes, Total	0.12	U	0.13	U			0.49		0.005	U	0.0055	U	0.0055	U	0.0055	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.36	U	0.41	U			0.9	C	0.69	U	0.69	U	0.73	U	0.69	U
1,2-Dichlorobenzene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
1,4-Dichlorobenzene	0.36	U	0.41	U			0.27	UCF	0.69	U	0.69	U	0.73	U	0.69	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB28-S1 LPB28 7/11/2001 0-5 ft		1160-LPB28-S2 LPB28 7/11/2001 5-9 ft		1160-LPB28-S3 LPB28 7/11/2001 9-10 ft		97598-DB-C2 DB-C2 8/10/2000 1.1-4.1 ft		BH32 BH32 6/11/1991 4-6 ft		BH33 BH33 6/11/1991 6-8 ft		BH34 BH34 6/11/1991 6-8 ft		BH35 BH35 6/11/1991 6-8 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
2-Methylnaphthalene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
3 & 4 Methylphenol	0.36	U	0.41	U												
4-Chlorophenyl phenyl ether	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Acenaphthene	0.36	U	0.41	U			0.27	UF	0.69	U	0.69	U	0.73	U	0.69	U
Acenaphthylene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Acetophenone																
Aniline	1.8	U	2	U												
Anthracene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Benzaldehyde																
Benzo(a)anthracene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Benzo(a)pyrene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Benzo(b)fluoranthene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Benzo(ghi)perylene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Benzo(k)fluoranthene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Benzoic Acid	1.8	U	2	U			2	C	3.4	U	3.4	U	3.5	U	3.4	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate	1.8		0.41	U			14	C	0.1	J	0.39	J	**950**		2.5	
Butylbenzylphthalate	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Carbazole							0.27	U								
Chrysene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Dibenz(a,h)anthracene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Dibenzofuran	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Diethylphthalate	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Di-n-butylphthalate	0.36	U	0.41	U			2.6	C	0.69	U	0.69	U	0.73	U	0.69	U
Di-n-octylphthalate	0.36	U	0.41	U			0.27	U	0.69	U	0.26	J	0.31	J	0.69	U
Diphenyl ether																
Diphenylamine																
Fluoranthene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Fluorene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Indeno(1,2,3-cd)pyrene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Naphthalene	0.36	U	0.41	U			0.27	UC	0.69	U	0.69	U	0.73	U	0.69	U
N-Nitrosodiphenylamine	0.36	U	0.41	U			1.1	C	0.69	U	0.69	U	0.36	J	0.41	J
Phenanthrene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Phenol	0.36	U	0.41	U			0.32	C	0.69	U	0.69	U	0.73	U	0.69	U
Pyrene	0.36	U	0.41	U			0.27	U	0.69	U	0.69	U	0.73	U	0.69	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.01	U	0.012	U			0.017	UC	0.032	U	0.035	U	0.035	U	0.032	U
Aldrin	0.01	U	0.012	U			0.0084	UC	0.016	U	0.018	U	0.018	U	0.016	U
Alpha-BHC	0.01	U	0.012	U			0.0084	UC	0.016	U	0.018	U	0.018	U	0.016	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB28-S1 LPB28 7/11/2001 0-5 ft		1160-LPB28-S2 LPB28 7/11/2001 5-9 ft		1160-LPB28-S3 LPB28 7/11/2001 9-10 ft		97598-DB-C2 DB-C2 8/10/2000 1.1-4.1 ft		BH32 BH32 6/11/1991 4-6 ft		BH33 BH33 6/11/1991 6-8 ft		BH34 BH34 6/11/1991 6-8 ft		BH35 BH35 6/11/1991 6-8 ft	
Alpha-Chlordane							0.078	C	0.16	U	0.18	U	0.18	U	0.16	U
Beta-BHC	0.01	U	0.012	U			0.32	C	0.016	U	0.018	U	0.018	U	0.016	U
Chlordane (technical)							0.031	C	0.16	U	0.18	U	0.18	U	0.16	U
Endosulfan sulfate	0.01	U	0.012	U			0.017	UC	0.032	U	0.035	U	0.035	U	0.032	U
Endrin	0.01	U	0.012	U			0.017	U	0.032	U	0.035	U	0.035	U	0.032	U
Gamma-BHC/Lindane	0.01	U	0.012	U			1.6	C	0.016	U	0.018	U	0.018	U	0.016	U
Aroclor-1260									0.32	U	0.35	U	0.35	U	0.32	U
Inorganics (mg/Kg)																
Aluminum									3100		3300		2800		2400	
Antimony									20	U	20	U	20	U	20	U
Arsenic	12	U	13	U					**4**		**3.2**		**4.2**		**2.7**	
Barium									6.2		5.8		5.9		6.1	
Beryllium									1.5	U	1.5	U	1.5	U	1.5	U
Cadmium	2	U	2	U			0.67	U	1	U	1	U	1	U	1	U
Calcium									480		740		620		610	
Chromium	720		780		18		62		4.8		5.1		4.2		5.1	
Chromium, Hexavalent																
Cobalt									1.6		1.5	U	1.9		1.5	U
Copper									3.4		2.5	U	2.8		2.5	
Iron									4300		3700		4300		3200	
Lead	10	U	13	U			3.3	U	10	U	10	U	10	U	10	U
Magnesium									980		960		920		860	
Manganese									37		32		35		30	
Mercury									0.1	U	0.1	U	0.1	U	0.1	U
Nickel									4	UJ	4.5	J	4.1	J	4	UJ
Potassium									450		360		380		390	
Selenium									0.5	U	0.5	U	0.5	U	0.5	U
Silver									1.5	U	1.5	U	1.5	U	1.5	U
Sodium									22		26		110		31	
Thallium									0.5	U	0.5	U	0.5	U	0.5	U
Tin																
Vanadium									5.4		5.5		4.2		4.2	
Zinc									11		9.9		7.1		8.5	
Chloride									40	UJ	53	J	56	J	23	J
Cyanide, Total									2	UJ	2	UJ	2	UJ	2	UJ
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	17		77						8	UJ	8	UJ	10	J	9.2	J
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1160-LPB28-S1 LPB28 7/11/2001 0-5 ft		1160-LPB28-S2 LPB28 7/11/2001 5-9 ft		1160-LPB28-S3 LPB28 7/11/2001 9-10 ft		97598-DB-C2 DB-C2 8/10/2000 1.1-4.1 ft		BH32 BH32 6/11/1991 4-6 ft		BH33 BH33 6/11/1991 6-8 ft		BH34 BH34 6/11/1991 6-8 ft		BH35 BH35 6/11/1991 6-8 ft	
pH **(pH units)**																
Sulfate									28	J	20	UJ	120	J	23	J
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene	0.2	U	0.3	U												
Toluene	0.2	U	0.3	U												
Xylenes, Total	0.2	U	0.3	U												
C5-C8 Aliphatics	2.3	U	2.5	U												
C5-C8 Aliphatics (unadj.)	2.3	U	2.5	U												
C9-C10 Aromatics	2.3	U	2.5	U												
C9-C12 Aliphatics	2.3	U	2.5	U												
C9-C12 Aliphatics (unadj.)	2.3	U	2.5	U												
Volatile Petroleum Hydrocarbons, Total	2.3	U	2.5	U												
EPH (mg/Kg)																
Acenaphthene	0.4	U	0.4	U												
Acenaphthylene	0.4	U	0.4	U												
Benzo(a)anthracene	0.4	U	0.4	U												
Benzo(a)pyrene	0.4	U	0.4	U												
Benzo(ghi)perylene	0.4	U	0.4	U												
Fluoranthene	0.4	U	0.4	U												
Fluorene	0.4	U	0.4	U												
Indeno(1,2,3-cd)pyrene	0.4	U	0.4	U												
Naphthalene	0.4	U	0.4	U												
C11-C22 Aromatics	14		96													
C11-C22 Aromatics (unadj.)	14		96													
C19-C36 Aliphatics	25		82													
C9-C18 Aliphatics	3.6	UK	21	K												
Extractable Petroleum Hydrocarbons, Total	39		200													
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH36 BH36 2/6/1992 4-6 ft		BH37 BH37 2/6/1992 4-6 ft		BH38 BH38 2/6/1992 3-5 ft		LPB-40-VI LPB-40 12/10/2003 5-10 ft		OC-SB-406-8.0/10 XXX SB-406 9/17/2009 8-10 ft		OC-SB-413- 1.0/5.0-XXX SB-413 9/17/2009 1-5 ft		OC-SB-417-8.0/10 XXX SB-417 9/10/2009 8-10 ft		OC-SB-427-8.0/10 XXX SB-427 9/10/2009 8-10 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene									0.0023	U	0.0025	U	0.12	U	0.0025	UJ
1,2,4-Trichlorobenzene									0.0023	U	0.0025	U	0.12	U	0.0025	U
1,2,4-Trimethylbenzene									0.0023	U	0.0025	U	0.12	U	0.0025	U
1,2-Dichlorobenzene									0.0023	U	0.0025	U	0.12	U	0.0025	U
1,2-Dichloroethane	0.006	UJ	0.006	UJ	0.006	UJ			0.0023	U	0.0025	U	0.12	U	0.0025	U
1,3,5-Trimethylbenzene									0.0023	U	0.0025	U	0.12	U	0.0025	U
1,4-Dichlorobenzene									0.0023	U	0.0025	U	0.12	U	0.0025	U
2,4,4-Trimethyl-1-pentene	0.039	J	0.013	J	0.19	J			0.0045	U	0.0051	U	0.24	U	0.0051	U
2,4,4-Trimethyl-2-pentene	0.017	UJ	0.005	J	0.059	J			0.0045	U	0.0051	U	0.24	U	0.0051	U
2-Butanone	0.007	J	0.084	J	0.018	UJ			0.023	U	0.025	U	1.2	U	0.025	U
2-Hexanone	0.018	UJ	0.018	UJ	0.018	UJ			0.023	U	0.025	U	1.2	U	0.025	U
4-iso-Propyltoluene									0.0023	U	0.0025	U	0.12	U	0.0025	U
4-Methyl-2-pentanone	0.018	UJ	0.018	UJ	0.018	UJ			0.023	U	0.025	U	1.2	U	0.025	U
Acetone	0.023	U	0.24	J	0.031	U			0.23	UJ	0.25	UJ	12	UJ	0.06	J
Benzene	0.001	J	0.002	J	0.006	UJ			0.0023	U	0.0025	U	0.12	U	0.0025	U
Carbon disulfide	0.013	J	0.005	J	0.012	UJ			0.0023	U	0.0025	U	0.12	U	0.0025	U
Carbon tetrachloride	0.006	UJ	0.006	UJ	0.006	UJ			0.0023	U	0.0025	U	0.12	U	0.0025	U
Chlorobenzene	0.006	UJ	0.006	UJ	0.006	UJ			0.0023	U	0.0025	U	0.12	U	0.0025	U
Chloroform	0.006	UJ	0.006	UJ	0.006	UJ			0.0023	U	0.0025	U	0.12	U	0.0025	U
Chloromethane	0.012	UJ	0.012	UJ	0.012	UJ			0.0045	U	0.0051	U	0.24	U	0.0051	U
Ethyl benzene	0.006	UJ	0.006	UJ	0.006	UJ			0.0023	U	0.0025	U	0.12	U	0.0025	U
Formaldehyde							0.92									
Isopropylbenzene									0.0023	U	0.0025	U	0.12	U	0.0025	U
Methylene chloride	0.012	U	0.012	U	0.012	U			0.009	U	0.01	U	0.48	U	0.01	U
Naphthalene									0.023	U	0.025	U	1.2	U	0.025	U
Propylbenzene									0.0023	U	0.0025	U	0.12	U	0.0025	U
sec-Butylbenzene									0.0023	U	0.0025	U	0.12	U	0.0025	U
Styrene	0.003	J	0.006	UJ	0.004	J			0.0023	U	0.0025	U	0.12	U	0.0025	U
Tetrachloroethene	0.006	UJ	0.006	UJ	0.006	UJ			0.0023	U	0.0025	U	0.12	U	0.0025	U
Tetrahydrofuran									0.023	U	0.025	U	1.2	U	0.025	U
Toluene	0.19	J	0.017	J	0.006	UJ			0.0023	U	0.0025	U	0.12	U	0.0025	U
Trichloroethene	0.006	UJ	0.006	UJ	0.006	UJ			0.0023	U	0.0025	U	0.12	U	0.0025	U
Trichlorofluoromethane									0.0045	U	0.0051	U	0.24	U	0.0051	U
Xylene, o									0.0023	U	0.0025	U	0.12	U	0.0025	U
Xylenes (m&p)									0.00094	J	0.0051	U	0.24	U	0.0051	U
Xylenes, Total	0.006	UJ	0.006	UJ	0.006	UJ			0.00094	J	0.0051	U	0.24	U	0.0051	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
1,2-Dichlorobenzene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
1,4-Dichlorobenzene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH36 BH36 2/6/1992 4-6 ft		BH37 BH37 2/6/1992 4-6 ft		BH38 BH38 2/6/1992 3-5 ft		LPB-40-VI LPB-40 12/10/2003 5-10 ft		OC-SB-406-8.0/10 XXX SB-406 9/17/2009 8-10 ft		OC-SB-413- 1.0/5.0-XXX SB-413 9/17/2009 1-5 ft		OC-SB-417-8.0/10 XXX SB-417 9/10/2009 8-10 ft		OC-SB-427-8.0/10 XXX SB-427 9/10/2009 8-10 ft	
1-Methylnaphthalene									0.039	U	0.037	U	0.033	U	0.034	U
2,4-Dimethylphenol	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
2-Methylnaphthalene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
3 & 4 Methylphenol									0.039	U	0.037	U	0.033	U	0.034	U
4-Chlorophenyl phenyl ether	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Acenaphthene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Acenaphthylene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Acetophenone									0.039	U	0.037	U	0.033	U	0.034	U
Aniline									0.039	UJ	0.037	UJ	0.033	UJ	0.086	J
Anthracene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Benzaldehyde									0.039	U	0.037	U	0.033	U	0.034	U
Benzo(a)anthracene	0.76	U	0.048	J	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Benzo(a)pyrene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	UJ
Benzo(b)fluoranthene	0.76	U	0.049	J	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Benzo(ghi)perylene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Benzo(k)fluoranthene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Benzoic Acid	3.7	U	3.8	U	4	U			0.19	UJ	0.18	UJ	0.17	U	0.17	U
Biphenyl									0.039	U	0.037	U	0.033	U	0.034	U
Bis(2-Ethylhexyl)phthalate	**240**	J	120		**6700**				0.039	U	0.017	JEB	0.34	U	19	JEB
Butylbenzylphthalate	4.5	J	0.37	J	0.56	J			0.039	U	0.037	U	0.033	U	0.034	U
Carbazole									0.039	U	0.037	U	0.033	U	0.034	U
Chrysene	0.76	U	0.058	J	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Dibenz(a,h)anthracene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Dibenzofuran	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Diethylphthalate	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Di-n-butylphthalate	0.76	U	0.79	U	0.82	U			0.039	U	0.039	U	0.033	U	0.034	U
Di-n-octylphthalate	0.13	J	0.12	J	0.38	J			0.039	U	0.037	U	0.033	U	0.034	U
Diphenyl ether									0.039	U	0.037	U	0.033	U	0.034	U
Diphenylamine											0.037	U			0.022	J
Fluoranthene	0.76	U	0.072	J	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Fluorene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Indeno(1,2,3-cd)pyrene	0.76	U	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Naphthalene	0.76	U	0.79	U	0.82	U			0.094	U	0.088	U	0.08	U	0.082	U
N-Nitrosodiphenylamine	0.76	UJ	0.79	U	11				0.039	U	0.037	U	0.033	U	0.32	JEB
Phenanthrene	0.76	U	0.79	U	0.82	U			0.047	U	0.044	U	0.04	U	0.041	U
Phenol	0.25	J	0.79	U	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Pyrene	0.12	J	0.057	J	0.82	U			0.039	U	0.037	U	0.033	U	0.034	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.038	U	0.038	U	0.04	U										
Aldrin	0.019	U	0.019	U	0.02	U										
Alpha-BHC	0.019	U	0.019	U	0.02	U										

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH36 BH36 2/6/1992 4-6 ft		BH37 BH37 2/6/1992 4-6 ft		BH38 BH38 2/6/1992 3-5 ft		LPB-40-VI LPB-40 12/10/2003 5-10 ft		OC-SB-406-8.0/10 XXX SB-406 9/17/2009 8-10 ft		OC-SB-413- 1.0/5.0-XXX SB-413 9/17/2009 1-5 ft		OC-SB-417-8.0/10 XXX SB-417 9/10/2009 8-10 ft		OC-SB-427-8.0/10 XXX SB-427 9/10/2009 8-10 ft	
Alpha-Chlordane	0.19	U	0.19	U	0.2	U										
Beta-BHC	0.019	U	0.019	U	0.02	U										
Chlordane (technical)	0.19	U	0.19	U	0.2	U										
Endosulfan sulfate	0.038	U	0.038	U	0.04	U										
Endrin	0.038	U	0.038	U	0.04	U										
Gamma-BHC/Lindane	0.019	U	0.019	U	0.02	U										
Aroclor-1260	0.38	U	0.38	U	0.4	U										
Inorganics (mg/Kg)																
Aluminum	5000		6500		7900				5000		10000		2500		3000	
Antimony	20	U	20	U	20	U			0.59	UJ	0.68	UJ	0.62	UJ	0.67	J
Arsenic	2.9	U	**7.1**		**4.4**				**2.5**		**2.6**		**3.4**		**4.1**	
Barium	13		14		22				16		14		8.6		7.3	
Beryllium	1.5	U	1.5	U	1.5	U			0.18	J	0.29		0.12	J	0.12	J
Cadmium	1	U	1	U	1	U			0.1	J	0.21	J	0.061	J	0.061	J
Calcium	990		1400		1200				850		1400		480		450	
Chromium	610		410		500				8.2		10		5.4		5.3	J
Chromium, Hexavalent																
Cobalt	1.6	J	4.4	J	3.8	J			2.7		4		1.7		1.8	
Copper	10		9.7		15				5.9		28		2.8		3.1	J
Iron	4900		8100		8500				5200		12000		4500		4100	
Lead	11		14		11				2.5		2.1		1.4		1.4	
Magnesium	830		2300		2200				1400		3100		930		880	
Manganese	34		79		79				52		160		50		32	
Mercury	0.1	UJ	0.1	U	0.11	U			0.16	U	0.15	U	0.15	U	0.15	U
Nickel	4	U	7.4		8.6				7.9		7.3		5.1		5	
Potassium	600		860		1000				1300		420		570		530	J
Selenium	1.4	U	0.5	U	0.5	U			0.59	U	0.68	U	0.62	U	0.66	U
Silver	1.5	U	1.5	U	1.5	U			0.59	U	0.68	U	0.62	U	0.66	U
Sodium	120		100		90				26	J	33	J	35	J	130	U
Thallium	0.5	U	0.5	U	0.5	U			1.2	U	1.4	U	1.2	U	1.3	U
Tin									2.8	J	3.4	J	6.2	UJ	6.6	UJ
Vanadium	13		14		19				8.2		17		5.2		5.4	
Zinc	9.2		20		33				13		16		8.3		9.1	
Chloride	40	U	40	U	40	U			17	U	18	U	20	U	21	U
Cyanide, Total	2	U	2.3	J	2	U										
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	10		140		41				12		53		5.8	U	8.6	
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH36 BH36 2/6/1992 4-6 ft		BH37 BH37 2/6/1992 4-6 ft		BH38 BH38 2/6/1992 3-5 ft		LPB-40-VI LPB-40 12/10/2003 5-10 ft		OC-SB-406-8.0/10 XXX SB-406 9/17/2009 8-10 ft		OC-SB-413- 1.0/5.0-XXX SB-413 9/17/2009 1-5 ft		OC-SB-417-8.0/10 XXX SB-417 9/10/2009 8-10 ft		OC-SB-427-8.0/10 XXX SB-427 9/10/2009 8-10 ft	
pH **(pH units)**																
Sulfate	20	U	40	U	80	U			34	U	35	U	41	U	41	U
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics															2.7	U
C5-C8 Aliphatics (unadj.)															2.7	U
C9-C10 Aromatics															2.7	UJ
C9-C12 Aliphatics															2.7	U
C9-C12 Aliphatics (unadj.)															2.7	U
Volatile Petroleum Hydrocarbons, Total															2.7	UJ
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics															17	U
C11-C22 Aromatics (unadj.)															290	
C19-C36 Aliphatics															45	J
C9-C18 Aliphatics															18	J
Extractable Petroleum Hydrocarbons, Total															63	J
Specialty Compounds (mg/Kg)																
Hydrazine							0.3	UG			0.0023	U				
Acetaldehyde											0.038	J			0.2	UJ
Formaldehyde											0.34				0.087	J
Phthalic Acid/Phthalic anhydride											0.11	U			0.1	UJ

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-428-8.0/10 XXX SB-428 9/10/2009 8-10 ft		OC-SB-429-6.0/8.0-XXX SB-429 8/25/2009 6-8 ft		OC-SB-434-7.0/9.0-XXX SB-434 9/10/2009 7-9 ft		OC-SB-435-6.0/10 XXX SB-435 9/17/2009 6-10 ft		OC-SB-441-8.0/10 XXX SB-441 8/24/2009 8-10 ft		OC-SB-442-8.0/10 XXX SB-442 8/31/2009 8-10 ft		OC-SB-453-1.0/6.0-XXX SB-453 9/17/2009 1-6 ft		OC-SB-473-4.0/6.0-XXX SB-473 9/18/2009 4-6 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
1,2,4-Trichlorobenzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
1,2,4-Trimethylbenzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
1,2-Dichlorobenzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
1,2-Dichloroethane	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
1,3,5-Trimethylbenzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
1,4-Dichlorobenzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
2,4,4-Trimethyl-1-pentene	0.0049	U	0.005	U	0.0051	U	0.0043	U	0.0047	U	0.0046	UJ	0.0051	U	0.005	U
2,4,4-Trimethyl-2-pentene	0.0049	U	0.005	U	0.0051	U	0.0043	U	0.0047	U	0.0046	U	0.0047	J	0.005	U
2-Butanone	0.024	U	0.025	U	0.026	U	0.021	U	0.024	U	0.023	UJ	0.026	U	0.025	U
2-Hexanone	0.024	U	0.025	U	0.026	U	0.021	U	0.024	U	0.023	U	0.026	U	0.025	U
4-iso-Propyltoluene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
4-Methyl-2-pentanone	0.024	U	0.025	U	0.026	U	0.021	U	0.024	U	0.023	U	0.026	U	0.025	U
Acetone	0.097	J	0.25	UJ	0.26	UJ	0.21	UJ	0.24	UJ	0.23	UJ	0.089	J	0.25	UJ
Benzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.024		0.0025	U
Carbon disulfide	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Carbon tetrachloride	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Chlorobenzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Chloroform	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Chloromethane	0.0049	U	0.005	U	0.0051	U	0.0043	U	0.0047	U	0.0046	U	0.0051	U	0.005	U
Ethyl benzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Formaldehyde																
Isopropylbenzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Methylene chloride	0.0098	U	0.01	U	0.01	U	0.0086	U	0.0094	U	0.0093	U	0.01	U	0.01	U
Naphthalene	0.024	U	0.025	U	0.026	U	0.021	U	0.024	U	0.023	U	0.026	U	0.025	U
Propylbenzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
sec-Butylbenzene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Styrene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Tetrachloroethene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Tetrahydrofuran	0.027	U	0.025	U	0.026	U	0.021	U	0.024	U	0.023	UJ	0.026	U	0.025	U
Toluene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Trichloroethene	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Trichlorofluoromethane	0.0049	U	0.005	U	0.0051	U	0.0043	U	0.0047	U	0.0046	UJ	0.0051	U	0.005	U
Xylene, o	0.0024	U	0.0025	U	0.0026	U	0.0021	U	0.0024	U	0.0023	U	0.0026	U	0.0025	U
Xylenes (m&p)	0.0049	U	0.005	U	0.0051	U	0.0043	U	0.0047	U	0.0046	U	0.0051	U	0.005	U
Xylenes, Total	0.0049	U	0.005	U	0.0051	U	0.0043	U	0.0047	U	0.0046	U	0.0051	U	0.005	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
1,2-Dichlorobenzene	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
1,4-Dichlorobenzene	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-428-8.0/10 XXX SB-428 9/10/2009 8-10 ft		OC-SB-429-6.0/8.0-XXX SB-429 8/25/2009 6-8 ft		OC-SB-434-7.0/9.0-XXX SB-434 9/10/2009 7-9 ft		OC-SB-435-6.0/10 XXX SB-435 9/17/2009 6-10 ft		OC-SB-441-8.0/10 XXX SB-441 8/24/2009 8-10 ft		OC-SB-442-8.0/10 XXX SB-442 8/31/2009 8-10 ft		OC-SB-453-1.0/6.0-XXX SB-453 9/17/2009 1-6 ft		OC-SB-473-4.0/6.0-XXX SB-473 9/18/2009 4-6 ft	
1-Methylnaphthalene	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
2,4-Dimethylphenol	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
2-Methylnaphthalene	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
3 & 4 Methylphenol	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
4-Chlorophenyl phenyl ether	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Acenaphthene	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Acenaphthylene	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Acetophenone	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Aniline	0.35	UJ	0.038	UJ	0.035	UJ	0.038	UJ	0.037	U	0.038	UJ	0.041	UJ	0.039	UJ
Anthracene	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Benzaldehyde	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Benzo(a)anthracene	0.35	U	0.02	J	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Benzo(a)pyrene	0.35	U	0.019	J	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Benzo(b)fluoranthene	0.35	U	0.034	J	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Benzo(ghi)perylene	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Benzo(k)fluoranthene	0.35	U	0.013	J	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Benzoic Acid	1.8	U		R	0.18	U	0.19	U		R	0.19	UJ	0.2	U	0.2	U
Biphenyl	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Bis(2-Ethylhexyl)phthalate	1.1	JEB	0.17	JEB	0.38	U	0.038	U	0.013	JEB	0.013	JEB	0.041	U	0.039	U
Butylbenzylphthalate	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.014	J	0.039	U
Carbazole	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Chrysene	0.35	U	0.029	J	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Dibenz(a,h)anthracene	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Dibenzofuran	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Diethylphthalate	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Di-n-butylphthalate	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Di-n-octylphthalate	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Diphenyl ether	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Diphenylamine	0.35	U			0.035	U	0.038	U			0.038	U	0.041	U	0.039	U
Fluoranthene	0.35	U	0.049		0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Fluorene	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Indeno(1,2,3-cd)pyrene	0.35	U	0.013	J	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Naphthalene	0.85	U	0.091	U	0.084	U	0.091	U	0.088	U	0.091	U	0.098	U	0.095	U
N-Nitrosodiphenylamine	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Phenanthrene	0.43	U	0.017	J	0.042	U	0.045	U	0.044	U	0.046	U	0.049	U	0.047	U
Phenol	0.35	U	0.038	U	0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Pyrene	0.35	U	0.047		0.035	U	0.038	U	0.037	U	0.038	U	0.041	U	0.039	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-428-8.0/10 XXX SB-428 9/10/2009 8-10 ft		OC-SB-429-6.0/8.0-XXX SB-429 8/25/2009 6-8 ft		OC-SB-434-7.0/9.0-XXX SB-434 9/10/2009 7-9 ft		OC-SB-435-6.0/10 XXX SB-435 9/17/2009 6-10 ft		OC-SB-441-8.0/10 XXX SB-441 8/24/2009 8-10 ft		OC-SB-442-8.0/10 XXX SB-442 8/31/2009 8-10 ft		OC-SB-453-1.0/6.0-XXX SB-453 9/17/2009 1-6 ft		OC-SB-473-4.0/6.0-XXX SB-473 9/18/2009 4-6 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	2300		5800		4000		7700		2900		3300		8400		4100	
Antimony	0.6	UJ	0.63	UJ	0.58	UJ	0.76	UJ	0.66	UJ	0.53	J	0.75	UJ	0.67	UJ
Arsenic	**5.2**		**3.7**		**4**		**2.5**		**2.9**		**2.6**		1.8		2.2	
Barium	8.2		9.8		7.1		38		7.8		9.6		19		6.2	
Beryllium	0.11	J	0.18	J	0.14	J	0.32		0.11	J	0.15	J	0.2	J	0.1	J
Cadmium	0.067	J	0.14	J	0.091	J	0.18	J	0.09	J	0.095	J	0.13	J	0.062	J
Calcium	490		1200		440		2400		860		680		1200		550	
Chromium	6.5	J	38	J	6.6		14		8.6		14		9.9		6	
Chromium, Hexavalent															2.3	U
Cobalt	1.3		3.2		1.9		6.9		1.5		1.8		2.7		1.7	
Copper	2.8	J	12	J	3.2		21		3.2		3.2		9.3		2.9	
Iron	5100		7200		6000		11000		6000		4400		6200		3900	
Lead	1.5		25		1.5		3.3		1.4		1.2		2.4		1.2	
Magnesium	900		1400	J	950		3000		1000	J	820		1700		900	
Manganese	39		50		43		110		43		33		56		31	
Mercury	0.17	U	0.16	U	0.18	U	0.14	U	0.16	U	0.2	U	0.2	U	0.15	U
Nickel	4.4		5.8		5.5		9.5		5.1		5.8		6.7		4.6	
Potassium	530	J	410	J	670		1800		740	J	700		1000		520	
Selenium	0.6	U	0.63	U	0.58	U	0.76	U	0.66	U	0.64	U	0.75	U	0.67	U
Silver	0.6	U	0.47	J	0.58	U	0.76	U	0.66	U	0.64	U	0.75	U	0.67	U
Sodium	120	U	130	U	33	J	98	J	130	U	39	J	130	J	31	J
Thallium	1.2	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	1.5	U	1.3	U
Tin	6	UJ	16	J	5.8	UJ	4.9	J	3	J	5.3	J	3.5	J	2.1	J
Vanadium	5.5		13		9.3		19		9.8		16		14		5.4	
Zinc	9		23		8.3		18		7.4		18		12		7.1	
Chloride	21	U	23	U	21	U	20	U	23	U	23	U	22	U	17	U
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia	6.7	U	36		7.1		100		6.9	U	8.2	U	150		6.8	U
Oxidation Reduction Potential **(mV)**															380	

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-428-8.0/10 XXX SB-428 9/10/2009 8-10 ft		OC-SB-429-6.0/8.0-XXX SB-429 8/25/2009 6-8 ft		OC-SB-434-7.0/9.0-XXX SB-434 9/10/2009 7-9 ft		OC-SB-435-6.0/10 XXX SB-435 9/17/2009 6-10 ft		OC-SB-441-8.0/10 XXX SB-441 8/24/2009 8-10 ft		OC-SB-442-8.0/10 XXX SB-442 8/31/2009 8-10 ft		OC-SB-453-1.0/6.0-XXX SB-453 9/17/2009 1-6 ft		OC-SB-473-4.0/6.0-XXX SB-473 9/18/2009 4-6 ft	
pH **(pH units)**															5.74	
Sulfate	42	U	46	U	43	U	40	U	45	U	45	U	44	U	34	U
Sulfate **(mg/L)**																
Total Organic Carbon															1000	U
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics	2.6	UJ							2.6	U						
C5-C8 Aliphatics (unadj.)	2.6	UJ							2.6	U						
C9-C10 Aromatics	2.6	UJ							2.6	U						
C9-C12 Aliphatics	2.6	UJ							2.6	U						
C9-C12 Aliphatics (unadj.)	2.6	UJ							2.6	U						
Volatile Petroleum Hydrocarbons, Total	2.6	UJ							2.6	U						
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics	190								3.7	U						
C11-C22 Aromatics (unadj.)	190								3.7	U						
C19-C36 Aliphatics	450								3.7	U						
C9-C18 Aliphatics	38								3.7	U						
Extractable Petroleum Hydrocarbons, Total	680								3.7	U						
Specialty Compounds (mg/Kg)																
Hydrazine					0.0022	U	0.0022	U			0.0034		0.0024	U	0.0024	U
Acetaldehyde	0.21	UJ			0.21	U	0.22	U			0.034	J	0.25	U	0.24	U
Formaldehyde	0.19				0.25		0.15				0.17	J	0.18		0.11	J
Phthalic Acid/Phthalic anhydride	0.1	U			0.11	U	0.11	U			0.11	U	0.12	U	0.12	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-474-8.0/10 XXX SB-474 11/18/2010 8-10 ft		OC-SB-475-8.0/10 XXX SB-475 11/18/2010 8-10 ft		OC-SB-476-8.0/10 XXX SB-476 11/18/2010 8-10 ft		OC-SB-477-8.0/10 XXX SB-477 11/18/2010 8-10 ft		OC-SB-478-8.0/10 XXX SB-478 11/18/2010 8-10 ft		OC-SB-508-8.0/10 XXX SB-508 12/11/2012 8-10 ft		OC-SB-509- 1.0/3.0-XXX SB-509 12/13/2012 1-3 ft		OC-SB-518-8.0/10 XXX SB-518 12/14/2012 8-10 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
1,2,4-Trichlorobenzene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
1,2,4-Trimethylbenzene	0.0025	UJ	0.13	U	0.14	U	0.14	U	0.097	UJ						
1,2-Dichlorobenzene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
1,2-Dichloroethane	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
1,3,5-Trimethylbenzene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
1,4-Dichlorobenzene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
2,4,4-Trimethyl-1-pentene	0.0051	U	**74**	J	**230**		**180**		0.19	U					0.0051	U
2,4,4-Trimethyl-2-pentene	0.0051	U	13	J	27		14		0.19	U					0.00094	J
2-Butanone	0.025	UJ	1.3	U	1.4	U	1.4	U	0.97	U						
2-Hexanone	0.025	U	1.3	U	1.4	U	1.4	U	0.97	U						
4-iso-Propyltoluene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
4-Methyl-2-pentanone	0.025	U	1.3	U	1.4	U	1.4	U	0.97	U						
Acetone	0.018	J	13	UJ	1.6	J	1.5	J	9.7	UJ						
Benzene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Carbon disulfide	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Carbon tetrachloride	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Chlorobenzene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Chloroform	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Chloromethane	0.0051	U	0.27	U	0.27	U	0.29	U	0.19	U						
Ethyl benzene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Formaldehyde																
Isopropylbenzene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Methylene chloride	0.01	U	0.54	U	0.54	U	0.58	U	0.39	U						
Naphthalene	0.025	U	1.3	U	1.4	U	1.4	U	0.97	U						
Propylbenzene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
sec-Butylbenzene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Styrene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Tetrachloroethene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Tetrahydrofuran	0.025	UJ	1.3	UJ	1.4	UJ	1.4	UJ	0.97	UJ						
Toluene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Trichloroethene	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Trichlorofluoromethane	0.0051	U	0.27	U	0.27	UJ	0.29	UJ	0.19	UJ						
Xylene, o	0.0025	U	0.13	U	0.14	U	0.14	U	0.097	U						
Xylenes (m&p)	0.0051	U	0.27	U	0.27	U	0.29	U	0.19	U						
Xylenes, Total	0.0051	U	0.27	U	0.27	U	0.29	U	0.19	U						
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
1,2-Dichlorobenzene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
1,4-Dichlorobenzene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-474-8.0/10 XXX SB-474 11/18/2010 8-10 ft		OC-SB-475-8.0/10 XXX SB-475 11/18/2010 8-10 ft		OC-SB-476-8.0/10 XXX SB-476 11/18/2010 8-10 ft		OC-SB-477-8.0/10 XXX SB-477 11/18/2010 8-10 ft		OC-SB-478-8.0/10 XXX SB-478 11/18/2010 8-10 ft		OC-SB-508-8.0/10 XXX SB-508 12/11/2012 8-10 ft		OC-SB-509- 1.0/3.0-XXX SB-509 12/13/2012 1-3 ft		OC-SB-518-8.0/10 XXX SB-518 12/14/2012 8-10 ft	
1-Methylnaphthalene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
2,4-Dimethylphenol	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
2-Methylnaphthalene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
3 & 4 Methylphenol	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
4-Chlorophenyl phenyl ether	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Acenaphthene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Acenaphthylene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Acetophenone	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Aniline	0.04	UJ	0.75	UJ	19	UJ	37	UJ	0.14	UJ					0.042	U
Anthracene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	UJ
Benzaldehyde	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Benzo(a)anthracene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Benzo(a)pyrene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Benzo(b)fluoranthene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Benzo(ghi)perylene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Benzo(k)fluoranthene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Benzoic Acid	0.11	J	3.8	UJ	93	UJ	190	UJ	0.68	UJ					0.21	U
Biphenyl	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Bis(2-Ethylhexyl)phthalate	0.034	J	**430**		**3500**		**8600**		0.083	J					0.21	U
Butylbenzylphthalate	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Carbazole	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	UJ
Chrysene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Dibenz(a,h)anthracene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Dibenzofuran	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Diethylphthalate	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Di-n-butylphthalate	0.04	U	0.75	U	19	U	37	U	0.14	U					0.21	UJ
Di-n-octylphthalate	0.04	U	12		19	U	37	U	0.14	U					0.042	U
Diphenyl ether	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Diphenylamine																
Fluoranthene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	UJ
Fluorene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Indeno(1,2,3-cd)pyrene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Naphthalene	0.095	U	1.8	U	45	U	89	U	0.33	U					0.042	U
N-Nitrosodiphenylamine	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	UJ
Phenanthrene	0.047	U	0.91	U	22	U	44	U	0.16	U					0.042	UJ
Phenol	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Pyrene	0.04	U	0.75	U	19	U	37	U	0.14	U					0.042	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-474-8.0/10 XXX SB-474 11/18/2010 8-10 ft		OC-SB-475-8.0/10 XXX SB-475 11/18/2010 8-10 ft		OC-SB-476-8.0/10 XXX SB-476 11/18/2010 8-10 ft		OC-SB-477-8.0/10 XXX SB-477 11/18/2010 8-10 ft		OC-SB-478-8.0/10 XXX SB-478 11/18/2010 8-10 ft		OC-SB-508-8.0/10 XXX SB-508 12/11/2012 8-10 ft		OC-SB-509- 1.0/3.0-XXX SB-509 12/13/2012 1-3 ft		OC-SB-518-8.0/10 XXX SB-518 12/14/2012 8-10 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium																
Chromium, Hexavalent											1.1	J	**28**	J	0.25	UJ
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**											19		18		15	

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-474-8.0/10 XXX SB-474 11/18/2010 8-10 ft		OC-SB-475-8.0/10 XXX SB-475 11/18/2010 8-10 ft		OC-SB-476-8.0/10 XXX SB-476 11/18/2010 8-10 ft		OC-SB-477-8.0/10 XXX SB-477 11/18/2010 8-10 ft		OC-SB-478-8.0/10 XXX SB-478 11/18/2010 8-10 ft		OC-SB-508-8.0/10 XXX SB-508 12/11/2012 8-10 ft		OC-SB-509-1.0/3.0-XXX SB-509 12/13/2012 1-3 ft		OC-SB-518-8.0/10 XXX SB-518 12/14/2012 8-10 ft	
pH **(pH units)**											5.69		6.85		6.77	
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics	2.8	U	100		290		400		1.9	U						
C5-C8 Aliphatics (unadj.)	2.8	U	100		290		400		1.9	U						
C9-C10 Aromatics	2.8	U	6		26	U	31		1.9	U						
C9-C12 Aliphatics	2.8	U	5.1	U	26	U	27		1.9	U						
C9-C12 Aliphatics (unadj.)	2.8	U	6.7		28		58		1.9	U						
Volatile Petroleum Hydrocarbons, Total	2.8	U	110		290		460		1.9	U						
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics	3.9	U	1100		2200		**4500**		82							
C11-C22 Aromatics (unadj.)	3.9	U	1100		2200		**4500**		82							
C19-C36 Aliphatics	3.9	U	2900		260		140		3.4	U						
C9-C18 Aliphatics	3.9	U	350		130		260		14							
Extractable Petroleum Hydrocarbons, Total	3.9	U	4400		2600		4900		96							
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-519-8.0/10 XXX SB-519 12/14/2012 8-10 ft		OC-SB-521-8.0/10 XXX SB-521 12/14/2012 8-10 ft		OC-SB-522-8.0/10 XXX SB-522 12/13/2012 8-10 ft		OC-SB-530 3.5/4.0-XXX SB-530 6/17/2013 3.5-4 ft		OC-SB-535-2.5/3.0-XXX SB-535 6/17/2013 2.5-3 ft		OC-SB-536-2.5/3.0-XXX SB-536 6/17/2013 2.5-3 ft		OC-SB-537-2.5/3.0-XXX SB-537 6/17/2013 2.5-3 ft		OC-SB-537-3.5/4.0-XXX SB-537 6/17/2013 3.5-4 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane																
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene																
2,4,4-Trimethyl-2-pentene																
2-Butanone																
2-Hexanone																
4-iso-Propyltoluene																
4-Methyl-2-pentanone																
Acetone																
Benzene																
Carbon disulfide																
Carbon tetrachloride																
Chlorobenzene																
Chloroform																
Chloromethane																
Ethyl benzene																
Formaldehyde																
Isopropylbenzene																
Methylene chloride																
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene																
Tetrachloroethene																
Tetrahydrofuran																
Toluene																
Trichloroethene																
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.044	U			4.1	U										
1,2-Dichlorobenzene	0.044	U			4.1	U										
1,4-Dichlorobenzene	0.044	U			4.1	U										

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-519-8.0/10 XXX SB-519 12/14/2012 8-10 ft		OC-SB-521-8.0/10 XXX SB-521 12/14/2012 8-10 ft		OC-SB-522-8.0/10 XXX SB-522 12/13/2012 8-10 ft		OC-SB-530 3.5/4.0-XXX SB-530 6/17/2013 3.5-4 ft		OC-SB-535-2.5/3.0-XXX SB-535 6/17/2013 2.5-3 ft		OC-SB-536-2.5/3.0-XXX SB-536 6/17/2013 2.5-3 ft		OC-SB-537-2.5/3.0-XXX SB-537 6/17/2013 2.5-3 ft		OC-SB-537-3.5/4.0-XXX SB-537 6/17/2013 3.5-4 ft	
1-Methylnaphthalene	0.044	U			4.1	U										
2,4-Dimethylphenol	0.044	U			4.1	UJ										
2-Methylnaphthalene	0.044	U			4.1	U										
3 & 4 Methylphenol	0.044	U			4.1	U										
4-Chlorophenyl phenyl ether	0.044	U			4.1	U										
Acenaphthene	0.044	U			4.1	U										
Acenaphthylene	0.044	U			4.1	U										
Acetophenone	0.044	U			4.1	U										
Aniline	0.044	U			4.1	U										
Anthracene	0.044	UJ			4.1	U										
Benzaldehyde	0.044	U			4.1	U										
Benzo(a)anthracene	0.044	U			4.1	U										
Benzo(a)pyrene	0.044	UJ			4.1	U										
Benzo(b)fluoranthene	0.044	UJ			4.1	U										
Benzo(ghi)perylene	0.044	UJ			4.1	U										
Benzo(k)fluoranthene	0.044	UJ			4.1	U										
Benzoic Acid	0.22	U			20	U										
Biphenyl	0.044	U			4.1	U										
Bis(2-Ethylhexyl)phthalate	0.22	U			29											
Butylbenzylphthalate	0.044	U			4.1	U										
Carbazole	0.044	UJ			4.1	U										
Chrysene	0.044	U			4.1	U										
Dibenz(a,h)anthracene	0.044	UJ			4.1	U										
Dibenzofuran	0.044	U			4.1	U										
Diethylphthalate	0.044	U			4.1	U										
Di-n-butylphthalate	0.22	UJ			20	U										
Di-n-octylphthalate	0.044	U			4.1	U										
Diphenyl ether	0.044	U			4.1	U										
Diphenylamine																
Fluoranthene	0.044	UJ			4.1	U										
Fluorene	0.044	U			4.1	U										
Indeno(1,2,3-cd)pyrene	0.044	UJ			4.1	U										
Naphthalene	0.044	U			4.1	U										
N-Nitrosodiphenylamine	0.05	J			4.1	UJ										
Phenanthrene	0.044	UJ			4.1	U										
Phenol	0.044	U			4.1	U										
Pyrene	0.044	U			4.1	U										
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-519-8.0/10 XXX SB-519 12/14/2012 8-10 ft		OC-SB-521-8.0/10 XXX SB-521 12/14/2012 8-10 ft		OC-SB-522-8.0/10 XXX SB-522 12/13/2012 8-10 ft		OC-SB-530 3.5/4.0-XXX SB-530 6/17/2013 3.5-4 ft		OC-SB-535-2.5/3.0-XXX SB-535 6/17/2013 2.5-3 ft		OC-SB-536-2.5/3.0-XXX SB-536 6/17/2013 2.5-3 ft		OC-SB-537-2.5/3.0-XXX SB-537 6/17/2013 2.5-3 ft		OC-SB-537-3.5/4.0-XXX SB-537 6/17/2013 3.5-4 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260							0.019	J	0.0001	U	0.00011	U	**1.8**		**1.5**	J
Inorganics (mg/Kg)																
Aluminum																
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium																
Chromium, Hexavalent	0.29	J	0.27	J	1.6	J										
Cobalt																
Copper																
Iron																
Lead																
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Selenium																
Silver																
Sodium																
Thallium																
Tin																
Vanadium																
Zinc																
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**	14		42		10											

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-519-8.0/10 XXX SB-519 12/14/2012 8-10 ft	OC-SB-521-8.0/10 XXX SB-521 12/14/2012 8-10 ft	OC-SB-522-8.0/10 XXX SB-522 12/13/2012 8-10 ft	OC-SB-530 3.5/4.0-XXX SB-530 6/17/2013 3.5-4 ft	OC-SB-535-2.5/3.0-XXX SB-535 6/17/2013 2.5-3 ft	OC-SB-536-2.5/3.0-XXX SB-536 6/17/2013 2.5-3 ft	OC-SB-537-2.5/3.0-XXX SB-537 6/17/2013 2.5-3 ft	OC-SB-537-3.5/4.0-XXX SB-537 6/17/2013 3.5-4 ft
pH **(pH units)**	7.18	5.52	6.61					
Sulfate								
Sulfate **(mg/L)**								
Total Organic Carbon								
Urea								
TCLP Metals (mg/L)								
Chromium								
VPH (mg/Kg)								
Ethyl benzene								
Toluene								
Xylenes, Total								
C5-C8 Aliphatics								
C5-C8 Aliphatics (unadj.)								
C9-C10 Aromatics								
C9-C12 Aliphatics								
C9-C12 Aliphatics (unadj.)								
Volatile Petroleum Hydrocarbons, Total								
EPH (mg/Kg)								
Acenaphthene								
Acenaphthylene								
Benzo(a)anthracene								
Benzo(a)pyrene								
Benzo(ghi)perylene								
Fluoranthene								
Fluorene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
C9-C18 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								
Specialty Compounds (mg/Kg)								
Hydrazine								
Acetaldehyde								
Formaldehyde								
Phthalic Acid/Phthalic anhydride								

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-07-S1 (0-3 FT) RSO-07 1/25/2000 0-3 ft		RSO-07-S1 (0-3) RSO-07 1/25/2000 0-3 ft		RSO-07-S2 (3-6 FT) RSO-07 1/25/2000 3-6 ft		RSO-07-S2 (3-6) RSO-07 1/25/2000 3-6 ft		RSO-12-S1 (0-3 FT) RSO-12 1/24/2000 0-3 ft		RSO-12-S1 (0-3) RSO-12 1/24/2000 0-3 ft		RSO-12-S2 (3-6 FT) RSO-12 1/24/2000 3-6 ft		RSO-12-S2 (3-6) RSO-12 1/24/2000 3-6 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,2-Dichloroethane			0.006	U			0.005	U			0.006	U			0.006	U
1,3,5-Trimethylbenzene																
1,4-Dichlorobenzene																
2,4,4-Trimethyl-1-pentene			0.006	U			0.005	U			0.006	U			0.006	U
2,4,4-Trimethyl-2-pentene			0.006	U			0.005	U			0.006	U			0.006	U
2-Butanone			0.012	U			0.011	U			0.013	U			0.012	U
2-Hexanone			0.012	UJ			0.011	UJ			0.013	UJ			0.012	UJ
4-iso-Propyltoluene																
4-Methyl-2-pentanone			0.012	U			0.011	U			0.013	U			0.012	U
Acetone			0.012	U			0.011	U			0.013	U			0.012	U
Benzene			0.006	U			0.005	U			0.006	U			0.006	U
Carbon disulfide			0.006	U			0.005	U			0.006	U			0.006	U
Carbon tetrachloride			0.006	U			0.005	U			0.006	U			0.006	U
Chlorobenzene			0.006	UJ			0.005	UJ			0.006	UJ			0.006	UJ
Chloroform			0.006	U			0.005	U			0.006	U			0.006	U
Chloromethane			0.012	U			0.011	U			0.013	U			0.012	U
Ethyl benzene			0.006	U			0.005	U			0.006	U			0.006	U
Formaldehyde																
Isopropylbenzene																
Methylene chloride			0.006	U			0.005	U			0.006	U			0.006	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene			0.006	U			0.005	U			0.006	U			0.006	U
Tetrachloroethene			0.006	U			0.005	U			0.006	U			0.006	U
Tetrahydrofuran																
Toluene			0.006	U			0.005	U			0.006	U			0.006	U
Trichloroethene			0.006	U			0.005	U			0.006	U			0.006	U
Trichlorofluoromethane																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total			0.006	U			0.005	U			0.006	U			0.006	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene			0.35	U			0.38	U			0.78	U			0.4	U
1,2-Dichlorobenzene			0.35	U			0.38	U			0.78	U			0.4	U
1,4-Dichlorobenzene			0.35	U			0.38	U			0.78	U			0.4	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-07-S1 (0-3 FT) RSO-07 1/25/2000 0-3 ft		RSO-07-S1 (0-3) RSO-07 1/25/2000 0-3 ft		RSO-07-S2 (3-6 FT) RSO-07 1/25/2000 3-6 ft		RSO-07-S2 (3-6) RSO-07 1/25/2000 3-6 ft		RSO-12-S1 (0-3 FT) RSO-12 1/24/2000 0-3 ft		RSO-12-S1 (0-3) RSO-12 1/24/2000 0-3 ft		RSO-12-S2 (3-6 FT) RSO-12 1/24/2000 3-6 ft		RSO-12-S2 (3-6) RSO-12 1/24/2000 3-6 ft	
1-Methylnaphthalene																
2,4-Dimethylphenol			0.35	U			0.38	U			0.78	U			0.4	U
2-Methylnaphthalene			0.35	U			0.38	U			0.78	U			0.4	U
3 & 4 Methylphenol																
4-Chlorophenyl phenyl ether			0.35	U			0.38	U			0.78	U			0.4	U
Acenaphthene			0.35	U			0.38	U			0.78	U			0.4	U
Acenaphthylene			0.35	U			0.38	U			0.78	U			0.4	U
Acetophenone																
Aniline																
Anthracene			0.35	U			0.38	U			0.78	U			0.4	U
Benzaldehyde																
Benzo(a)anthracene			0.35	U			0.38	U			0.78	U			0.4	U
Benzo(a)pyrene			0.35	U			0.38	U			0.78	U			0.4	U
Benzo(b)fluoranthene			0.35	U			0.38	U			0.78	U			0.4	U
Benzo(ghi)perylene			0.35	U			0.38	U			0.78	U			0.4	U
Benzo(k)fluoranthene			0.35	U			0.38	U			0.78	U			0.4	U
Benzoic Acid			1.7	U			1.8	U			3.8	U			2	U
Biphenyl																
Bis(2-Ethylhexyl)phthalate			0.75				2.1				4.7				0.4	U
Butylbenzylphthalate			0.35	U			0.38	U			0.78	U			0.4	U
Carbazole			0.35	U			0.38	U			0.78	U			0.4	U
Chrysene			0.35	U			0.38	U			0.78	U			0.4	U
Dibenz(a,h)anthracene			0.35	U			0.38	U			0.78	U			0.4	U
Dibenzofuran			0.35	U			0.38	U			0.78	U			0.4	U
Diethylphthalate			0.35	U			0.38	U			0.78	U			0.4	U
Di-n-butylphthalate			0.35	U			0.38	U			0.78	U			0.4	U
Di-n-octylphthalate			0.35	U			0.38	U			0.78	U			0.4	U
Diphenyl ether																
Diphenylamine																
Fluoranthene			0.35	U			0.38	U			0.78	U			0.4	U
Fluorene			0.35	U			0.38	U			0.78	U			0.4	U
Indeno(1,2,3-cd)pyrene			0.35	U			0.38	U			0.78	U			0.4	U
Naphthalene			0.35	U			0.38	U			0.78	U			0.4	U
N-Nitrosodiphenylamine			0.35	U			0.38	U			0.78	U			0.4	U
Phenanthrene			0.35	U			0.38	U			0.78	U			0.4	U
Phenol			0.35	U			0.38	U			0.78	U			0.4	U
Pyrene			0.35	U			0.38	U			0.78	U			0.4	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD																
Aldrin																
Alpha-BHC																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-07-S1 (0-3 FT) RSO-07 1/25/2000 0-3 ft		RSO-07-S1 (0-3) RSO-07 1/25/2000 0-3 ft		RSO-07-S2 (3-6 FT) RSO-07 1/25/2000 3-6 ft		RSO-07-S2 (3-6) RSO-07 1/25/2000 3-6 ft		RSO-12-S1 (0-3 FT) RSO-12 1/24/2000 0-3 ft		RSO-12-S1 (0-3) RSO-12 1/24/2000 0-3 ft		RSO-12-S2 (3-6 FT) RSO-12 1/24/2000 3-6 ft		RSO-12-S2 (3-6) RSO-12 1/24/2000 3-6 ft	
Alpha-Chlordane																
Beta-BHC																
Chlordane (technical)																
Endosulfan sulfate																
Endrin																
Gamma-BHC/Lindane																
Aroclor-1260																
Inorganics (mg/Kg)																
Aluminum	7700				6900				5000				6600			
Antimony	1	U			1.5				2	U			3	U		
Arsenic																
Barium	32				17				11				6.5			
Beryllium	0.1	U			0.23				0.15				0.15			
Cadmium	0.2	U			0.18				0.2	U			0.3	U		
Calcium	1200				820				32000				1800			
Chromium	100				160				13				10			
Chromium, Hexavalent																
Cobalt	6				4.2				2				1.5			
Copper	10				10				19	U			20	U		
Iron	11000				8300				5200				4000			
Lead	6.6				9.9				5.4				3.7			
Magnesium	4100				2200				1000				730			
Manganese	150				85				58				32			
Mercury	0.05	U			0.05	U			0.05	U			0.05	U		
Nickel	19				10				6.7				3.9			
Potassium	2300				910				330				240			
Selenium	0.5	U			0.6	U			1	U			1	U		
Silver	0.5	U			0.6	U			1	U			1	U		
Sodium	77				66				64	U			68	U		
Thallium	0.5	U			0.6	U			1	U			1	U		
Tin																
Vanadium	20				14				10				7.9			
Zinc	25				34				20				13			
Chloride																
Cyanide, Total																
Eh **(mV)**																
Flash Point **(°F)**																
Lab Specific Conductance **(mS/cm)**																
Nitrate as N																
Nitrogen, as Ammonia																
Oxidation Reduction Potential **(mV)**																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-07-S1 (0-3 FT) RSO-07 1/25/2000 0-3 ft		RSO-07-S1 (0-3) RSO-07 1/25/2000 0-3 ft		RSO-07-S2 (3-6 FT) RSO-07 1/25/2000 3-6 ft		RSO-07-S2 (3-6) RSO-07 1/25/2000 3-6 ft		RSO-12-S1 (0-3 FT) RSO-12 1/24/2000 0-3 ft		RSO-12-S1 (0-3) RSO-12 1/24/2000 0-3 ft		RSO-12-S2 (3-6 FT) RSO-12 1/24/2000 3-6 ft		RSO-12-S2 (3-6) RSO-12 1/24/2000 3-6 ft	
pH **(pH units)**																
Sulfate																
Sulfate **(mg/L)**																
Total Organic Carbon																
Urea																
TCLP Metals (mg/L)																
Chromium																
VPH (mg/Kg)																
Ethyl benzene																
Toluene																
Xylenes, Total																
C5-C8 Aliphatics																
C5-C8 Aliphatics (unadj.)																
C9-C10 Aromatics																
C9-C12 Aliphatics																
C9-C12 Aliphatics (unadj.)																
Volatile Petroleum Hydrocarbons, Total																
EPH (mg/Kg)																
Acenaphthene																
Acenaphthylene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(ghi)perylene																
Fluoranthene																
Fluorene																
Indeno(1,2,3-cd)pyrene																
Naphthalene																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
C9-C18 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-13-S1 (0-3 FT) RSO-13 1/24/2000 0-3 ft		RSO-13-S1 (0-3) RSO-13 1/24/2000 0-3 ft		RSO-13-S2 (3-5.5 FT) RSO-13 1/24/2000 3-5.5 ft		RSO-13-S2 (3-6) RSO-13 1/24/2000 3-6 ft		RSO-16 (0-3) RSO-16 1/26/2000 0-3 ft		RSO-17 (0-3) RSO-17 1/26/2000 0-3 ft		RSO-18 (0-3) RSO-18 1/26/2000 0-3 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene														
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,2-Dichloroethane			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
1,3,5-Trimethylbenzene														
1,4-Dichlorobenzene														
2,4,4-Trimethyl-1-pentene			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
2,4,4-Trimethyl-2-pentene			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
2-Butanone			0.011	UJ			0.011	U	0.012	U	0.02	UJ	0.016	UJ
2-Hexanone			0.011	UJ			0.011	UJ	0.012	UJ	0.02	UJ	0.016	UJ
4-iso-Propyltoluene														
4-Methyl-2-pentanone			0.011	UJ			0.014	U	0.012	U	0.02	UJ	0.016	UJ
Acetone			0.013	UJ			0.011	U	0.015	U	0.028	UJ	0.02	UJ
Benzene			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
Carbon disulfide			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
Carbon tetrachloride			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
Chlorobenzene			0.006	UJ			0.006	UJ	0.006	UJ	0.01	UJ	0.008	UJ
Chloroform			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
Chloromethane			0.011	UJ			0.011	U	0.012	U	0.02	UJ	0.016	UJ
Ethyl benzene			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
Formaldehyde														
Isopropylbenzene														
Methylene chloride			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
Naphthalene														
Propylbenzene														
sec-Butylbenzene														
Styrene			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
Tetrachloroethene			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
Tetrahydrofuran														
Toluene			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
Trichloroethene			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
Trichlorofluoromethane														
Xylene, o														
Xylenes (m&p)														
Xylenes, Total			0.006	UJ			0.006	U	0.006	U	0.01	UJ	0.008	UJ
Semivolatile Organics (mg/Kg)														
1,2,4-Trichlorobenzene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
1,2-Dichlorobenzene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
1,4-Dichlorobenzene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-13-S1 (0-3 FT) RSO-13 1/24/2000 0-3 ft		RSO-13-S1 (0-3) RSO-13 1/24/2000 0-3 ft		RSO-13-S2 (3-5.5 FT) RSO-13 1/24/2000 3-5.5 ft		RSO-13-S2 (3-6) RSO-13 1/24/2000 3-6 ft		RSO-16 (0-3) RSO-16 1/26/2000 0-3 ft		RSO-17 (0-3) RSO-17 1/26/2000 0-3 ft		RSO-18 (0-3) RSO-18 1/26/2000 0-3 ft	
1-Methylnaphthalene														
2,4-Dimethylphenol			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
2-Methylnaphthalene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
3 & 4 Methylphenol														
4-Chlorophenyl phenyl ether			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Acenaphthene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Acenaphthylene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Acetophenone														
Aniline														
Anthracene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Benzaldehyde														
Benzo(a)anthracene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Benzo(a)pyrene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Benzo(b)fluoranthene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Benzo(ghi)perylene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Benzo(k)fluoranthene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Benzoic Acid			1.8	U			1.9	U	2.1	U	2.1		2.3	U
Biphenyl														
Bis(2-Ethylhexyl)phthalate			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Butylbenzylphthalate			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Carbazole			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Chrysene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Dibenz(a,h)anthracene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Dibenzofuran			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Diethylphthalate			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Di-n-butylphthalate			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Di-n-octylphthalate			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Diphenyl ether														
Diphenylamine														
Fluoranthene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Fluorene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Indeno(1,2,3-cd)pyrene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Naphthalene			0.38	U			0.39	U	0.43	U	0.42	U	0.029	JB
N-Nitrosodiphenylamine			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Phenanthrene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Phenol			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Pyrene			0.38	U			0.39	U	0.43	U	0.42	U	0.47	U
Pesticides/PCBs (mg/Kg)														
4,4'-DDD														
Aldrin														
Alpha-BHC														

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-13-S1 (0-3 FT) RSO-13 1/24/2000 0-3 ft		RSO-13-S1 (0-3) RSO-13 1/24/2000 0-3 ft		RSO-13-S2 (3-5.5 FT) RSO-13 1/24/2000 3-5.5 ft		RSO-13-S2 (3-6) RSO-13 1/24/2000 3-6 ft		RSO-16 (0-3) RSO-16 1/26/2000 0-3 ft		RSO-17 (0-3) RSO-17 1/26/2000 0-3 ft		RSO-18 (0-3) RSO-18 1/26/2000 0-3 ft	
Alpha-Chlordane														
Beta-BHC														
Chlordane (technical)														
Endosulfan sulfate														
Endrin														
Gamma-BHC/Lindane														
Aroclor-1260														
Inorganics (mg/Kg)														
Aluminum	10000				4900				9300		9800		9900	
Antimony	2	U			2	U			4	U	2	U	5	U
Arsenic									**8.6**		**5.9**		**10**	
Barium	19				24				14		14		30	
Beryllium	0.18				0.1	U			0.21		0.19		0.3	U
Cadmium	0.2	U			0.2	U			0.4	U	0.2	U	0.5	U
Calcium	370				780				510		1000		1400	
Chromium	12				11				12		10		12	
Chromium, Hexavalent														
Cobalt	2.9				2.5				5.3		2.8		3.3	
Copper	19	U			19	U			7.4		5.3		11	
Iron	9300				6000				8600		11000		12000	
Lead	5.2				2.6				16		15		36	
Magnesium	1200				1500				1300		1300		1000	
Manganese	49				53				88		120		210	
Mercury	0.05	U			0.05	U			0.058		0.059		0.13	
Nickel	7.7				7				13		5.9		7.6	
Potassium	260				490				310		300		390	
Selenium	1	U			1	U			2	U	1	U	3	U
Silver	1	U			1	U			2	U	1	U	3	U
Sodium	63	U			65	U			88	U	67		130	U
Thallium	1	U			1	U			2	U	1	U	3	U
Tin														
Vanadium	16				11				16		22		26	
Zinc	23				18				20		23		26	
Chloride														
Cyanide, Total														
Eh **(mV)**														
Flash Point **(°F)**														
Lab Specific Conductance **(mS/cm)**														
Nitrate as N														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**														

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	RSO-13-S1 (0-3 FT) RSO-13 1/24/2000 0-3 ft		RSO-13-S1 (0-3) RSO-13 1/24/2000 0-3 ft		RSO-13-S2 (3-5.5 FT) RSO-13 1/24/2000 3-5.5 ft		RSO-13-S2 (3-6) RSO-13 1/24/2000 3-6 ft		RSO-16 (0-3) RSO-16 1/26/2000 0-3 ft		RSO-17 (0-3) RSO-17 1/26/2000 0-3 ft		RSO-18 (0-3) RSO-18 1/26/2000 0-3 ft	
pH **(pH units)**														
Sulfate														
Sulfate **(mg/L)**														
Total Organic Carbon														
Urea														
TCLP Metals (mg/L)														
Chromium														
VPH (mg/Kg)														
Ethyl benzene														
Toluene														
Xylenes, Total														
C5-C8 Aliphatics														
C5-C8 Aliphatics (unadj.)														
C9-C10 Aromatics														
C9-C12 Aliphatics														
C9-C12 Aliphatics (unadj.)														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Acenaphthene														
Acenaphthylene														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(ghi)perylene														
Fluoranthene														
Fluorene														
Indeno(1,2,3-cd)pyrene														
Naphthalene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-2
Summary of Detected Chemicals for OU1 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU-2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)	Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	101B LP-101 11/30/1998 6-8 ft	102B LP-102 11/30/1998 6-8 ft	1120-BD-C2 BD-C2 10/10/2000 4.8-4.8 ft	1120-BD-C20 BD-C20 10/27/2000 3.8-3.8 ft	1120-BD-C21 BD-C21 10/27/2000 1.9-1.9 ft	1120-BD-C25 BD-C25 10/27/2000 6.8-6.8 ft

(1) Values are the Industrial Soil Regional Screening Levels (RSLs).
United States Environmental Protection Agency Regions 3, 6, and 9. November 2013. Regional Screening Levels for Chemical Contaminants at Superfund Sites.
http://www.epa.gov/reg3hwmd/risk/human/rb-concentrations_table/index.htm
RSL for 2,4,4-Trimethyl-1-pentene and 2,4,4-Trimethyl-2-pentene calculated consistent with RSL Guidance.
RSL for Chromium (III) used for chromium.
MCP Method 1 Soil category S-2 Standards were used for screening EPH/VPH.
c - RSL is based on an excess lifetime cancer risk of 1 in 1 million.
c* - where n RSL < 100X c RSL.
c** - where n RSL < 10X c RSL.
n - RSL is based on a non-cancer hazard quotient.
nm - RSL is based on a non-cancer hazard quotient; concentration may exceed ceiling limit.
nms - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat and the ceiling limit.
ns - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat.
(2) Values are the Risk- and MCL-based Soil Screening Levels (SSLs) as presented in the RSLs.

mg/Kg = milligram per kilogram
mg/L = milligram per liter
mV = millivolts
mS/cm = milliSiemen per centimeter

J = value is estimated.
U = not detected, value is reporting limit
R = value is rejected
A = value is estimated due to exceedance of holding times
B = value is estimated, parameter found in both the associated blank and the sample
C = value is estimated due to surrogate recovery outside of control limits
E = value is elevated due to a matrix effect
F = value is estimated due to matrix spike recovery outside of control limits
G = value is estimated due to duplicate precision outside of control limits
H = holding time exceeded
K = value is estimated due to blank spike compound recovery outside the control limits
Q = elevated reporting limit due to high analyte levels
T = value is estimated and may be biased high due to oxidation of Cr+3 to Cr+6
> =value exceeded the maximum reportable value of the instrument

BOLD outlined cells indicate a concentration greater than the Industrial RSL.
Shaded cells indicate a concentration greater than the risk-based or MCL-based SSL.

Prepared by / Date: KJC 03/06/14
Checked by / Date: CTM 03/06/14

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2)	MCL-Based SSL (2) (mg/Kg)	1160-LAKE POLY 1-B LAKE POLY 1-B 11/17/2000		1160-LPB18-S3 LPB18 7/10/2001 10-10.5 ft		AS-1 12-13 AS-1 10/10/2000 12-13 ft		AS-2-15 AS-2 10/12/2000 15-15 ft		AS-3 10-12 AS-3 10/11/2000 10-12 ft	
Volatile Organics (mg/Kg)			(mg/Kg)											
1,2,3-Trichlorobenzene	490	n	0.015		0.13	U								
1,2,4-Trimethylbenzene	260	ns	0.021		0.13	U								
1,2-Dichlorobenzene	9800	ns	0.27	0.58	0.13	U								
1,3,5-Trimethylbenzene	10000	ns	0.12		0.13	U								
2,4,4-Trimethyl-1-pentene	39	n			0.13	U			**200**				1.6	U
2,4,4-Trimethyl-2-pentene	39	n			0.13	U			81	U			1.6	U
2-Butanone	200000	nms	1		2.7	U			81	U			1.6	U
2-Hexanone	1400	n	0.0079		0.54	U			81	U			1.6	U
4-iso-Propyltoluene					0.13	U								
Acetone	630000	nms	2.4		2.7	U			61	J			1.2	J
Carbon disulfide	3700	ns	0.21						81	U			1.6	U
Chloromethane	500	n	0.049		0.27	U			81	U			1.6	U
Dibromomethane	110	n	0.0019		0.13	U								
Ethyl benzene	27	c	0.0015	0.78	0.13	U			81	U			1.6	U
Naphthalene	18	c*	0.00047		1.3	U								
Styrene	36000	ns	1.2	0.11	0.13	U			81	U			1.6	U
Tetrahydrofuran	95000	n	0.71											
Toluene	45000	ns	0.59	0.69	0.13	U			81	U			1.6	U
Trichloroethene	6.4	c**	0.00016	0.0018	0.13	U			81	U			1.6	U
Xylene, o	3000	ns	0.19		0.13	U								
Xylenes (m&p)					0.13	U								
Xylenes, Total	2700	ns	0.19	9.8	0.13	U			81	U			1.6	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	53	c	0.0051											
2,4-Dimethylphenol	12000	n	0.32		0.37	U			3.6	U			1.9	U
2-Methylnaphthalene	2200	n	0.14		0.37	U			3.6	U			1.9	U
2-Methylphenol	31000	n	0.58		0.37	U			3.6	U			1.9	U
4-Bromophenyl phenyl ether					0.37	U			3.6	U			1.9	U
4-Chlorophenyl phenyl ether					0.37	U			3.6	U			1.9	U
Acenaphthene	33000	n	4.1		0.37	U			3.6	U			1.9	U
Acetophenone	100000	nms	0.45											
Benzo(a)anthracene	2.1	c	0.01		0.37	U			3.6	U			1.9	U
Benzo(a)pyrene	0.21	c	0.0035	0.24	0.37	U			3.6	U			1.9	U
Benzo(b)fluoranthene	2.1	c	0.035		0.37	U			3.6	U			1.9	U
Benzo(ghi)perylene					0.37	U			3.6	U			1.9	U
Benzoic Acid	2500000	nm	14		1.8	U			18	U			9.5	U
Biphenyl	210	n	0.0087											
Bis(2-Ethylhexyl)phthalate	120	c	1.1	1.4	1.2				29				1.6	J
Butylbenzylphthalate	910	c	0.2		0.37	U			3.6	U			1.9	U
Chrysene	210	c	1.1		0.37	U			3.6	U			1.9	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2)	MCL-Based SSL (2) (mg/Kg)	1160-LAKE POLY 1-B LAKE POLY 1-B 11/17/2000		1160-LPB18-S3 LPB18 7/10/2001 10-10.5 ft		AS-1 12-13 AS-1 10/10/2000 12-13 ft		AS-2-15 AS-2 10/12/2000 15-15 ft		AS-3 10-12 AS-3 10/11/2000 10-12 ft	
Dibenzofuran	1000	n	0.11		0.37	U			3.6	U			1.9	U
Di-n-butylphthalate	62000	n	1.7		0.37	U			3.6	U			1.9	U
Di-n-octylphthalate	6200	n	44		0.37	U			3.6	U			1.9	U
Diphenyl ether														
Diphenylamine	15000	n	0.44											
Diphenylmethanone														
Fluorene	22000	n	4		0.37	U			3.6	U			1.9	U
Naphthalene	18	c*	0.00047		0.37	U			3.6	U			1.9	U
N-Nitrosodiphenylamine	350	c	0.057		0.37	U			46				24	
Phenanthrene					0.37	U			3.6	U			1.9	U
Phenol	180000	nm	2.6		0.37	U			3.6	U			1.9	U
Pyrene	17000	n	9.5		0.37	U			3.6	U			1.9	U
Inorganics (mg/Kg)														
Aluminum	990000	nm	23000											
Antimony	410	n	0.27	0.27										
Arsenic	2.4	cR	0.0013	0.29										
Barium	190000	nm	120	82										
Beryllium	2000	n	13	3.2										
Cadmium	800	n	0.52	0.38	0.3	U								
Calcium														
Chromium	1500000	nm		180000	3400		1200							
Chromium, Hexavalent	5.6	c	0.00059											
Cobalt	300	n	0.21											
Copper	41000	n	22	46										
Iron	720000	nm	270											
Lead	800	L		14	11									
Magnesium														
Manganese	23000	n	21											
Nickel	20000	n	20											
Potassium														
Silver	5100	n	0.6											
Sodium														
Thallium	10	n	0.011	0.14										
Tin	610000	nm	2300											
Vanadium	5100	n	63											

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2)	MCL-Based SSL (2) (mg/Kg)	1160-LAKE POLY 1-B LAKE POLY 1-B 11/17/2000		1160-LPB18-S3 LPB18 7/10/2001 10-10.5 ft		AS-1 12-13 AS-1 10/10/2000 12-13 ft		AS-2-15 AS-2 10/12/2000 15-15 ft		AS-3 10-12 AS-3 10/11/2000 10-12 ft	
Zinc	310000	nm	290											
Chloride														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate														
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene	27	c	0.0015	0.78					0.62				0.3	U
Toluene	45000	ns	0.59	0.69					0.3	U			0.3	U
Xylenes, Total	2700	ns	0.19	9.8					0.3	U			0.3	U
C5-C8 Aliphatics	500								100				4.8	
C5-C8 Aliphatics (unadj.)	500								100				4.8	
C9-C10 Aromatics	500								9.1				2.9	U
C9-C12 Aliphatics	3000								8.8				2.9	U
C9-C12 Aliphatics (unadj.)	3000								19				2.9	U
Volatile Petroleum Hydrocarbons, Total									120				4.8	
EPH (mg/Kg)														
Benzo(a)anthracene	2.1	c	0.01						0.4	U	0.4	U	0.4	U
Benzo(ghi)perylene									0.4	U	0.4	U	0.4	U
C11-C22 Aromatics	3000								20		4.6		380	
C11-C22 Aromatics (unadj.)	3000								20		4.6		380	
C19-C36 Aliphatics	5000								3.6	U	7.5		19	
C9-C18 Aliphatics	3000								3.6	U	5.8		28	
Extractable Petroleum Hydrocarbons, Total									20		22		430	
Specialty Compounds (mg/Kg)														
Hydrazine	0.95	c												
Acetaldehyde	52	c**	0.00045											
Formaldehyde	120000	nm	0.62											
Phthalic Acid/Phthalic anhydride	1200000	nm	5.3											

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AS-3 15-16 AS-3 10/11/2000 15-16 ft		AS-5-10 AS-5 10/13/2000 10-10 ft		AS-7-10-12 AS-7 10/12/2000 10-12 ft		AS-7-8-10 AS-7 10/12/2000 10-10 ft		AS-8-15 AS-8 10/16/2000 15-15 ft		B-1, 16'-17.3' B-1A 8/12/1998 16-17.3 ft		B-1B, 19.0'-19.6' B-1B 8/14/1998 19-19 ft		B-2, 16'-18' B-2A 8/13/1998 16-18 ft	
Volatile Organics (mg/Kg)																
1,2,3-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,2-Dichlorobenzene																
1,3,5-Trimethylbenzene																
2,4,4-Trimethyl-1-pentene			4.6		1.5	J	**750**									
2,4,4-Trimethyl-2-pentene			1.5	J	1.7	U	190	U								
2-Butanone			1.6	U	1.7	U	190	U								
2-Hexanone			1.6	U	1.7	U	190	U								
4-iso-Propyltoluene																
Acetone			1.2	J	1.7	U	190	U								
Carbon disulfide			1.6	U	1.7	U	190	U								
Chloromethane			1.6	U	1.7	U	190	U								
Dibromomethane																
Ethyl benzene			1.6	U	1.7	U	190	U								
Naphthalene																
Styrene			1.6	U	1.7	U	190	U								
Tetrahydrofuran																
Toluene			1.6	U	1.7	U	190	U								
Trichloroethene			1.6	U	1.7	U	190	U								
Xylene, o																
Xylenes (m&p)																
Xylenes, Total			1.6	U	1.7	U	190	U								
Semivolatile Organics (mg/Kg)																
1-Methylnaphthalene																
2,4-Dimethylphenol					1.8	U										
2-Methylnaphthalene					1.8	U										
2-Methylphenol					1.8	U										
4-Bromophenyl phenyl ether					1.8	U										
4-Chlorophenyl phenyl ether					1.8	U										
Acenaphthene					1.8	U										
Acetophenone																
Benzo(a)anthracene					1.8	U										
Benzo(a)pyrene					1.8	U										
Benzo(b)fluoranthene					1.8	U										
Benzo(ghi)perylene					1.8	U										
Benzoic Acid					9.1	U										
Biphenyl																
Bis(2-Ethylhexyl)phthalate					25											
Butylbenzylphthalate					1.8	U										
Chrysene					1.8	U										

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AS-3 15-16 AS-3 10/11/2000 15-16 ft		AS-5-10 AS-5 10/13/2000 10-10 ft		AS-7-10-12 AS-7 10/12/2000 10-12 ft		AS-7-8-10 AS-7 10/12/2000 10-10 ft		AS-8-15 AS-8 10/16/2000 15-15 ft		B-1, 16'-17.3' B-1A 8/12/1998 16-17.3 ft		B-1B, 19.0'-19.6' B-1B 8/14/1998 19-19 ft		B-2, 16'-18' B-2A 8/13/1998 16-18 ft	
Dibenzofuran					1.8	U										
Di-n-butylphthalate					1.4	J										
Di-n-octylphthalate					1.8	U										
Diphenyl ether																
Diphenylamine																
Diphenylmethanone																
Fluorene					1.8	U										
Naphthalene					1.8	U										
N-Nitrosodiphenylamine					4.6											
Phenanthrene					1.8	U										
Phenol					1.8	U										
Pyrene					1.8	U										
Inorganics (mg/Kg)																
Aluminum											7400		7700		2600	
Antimony																
Arsenic																
Barium																
Beryllium																
Cadmium																
Calcium																
Chromium											190		260		47	
Chromium, Hexavalent																
Cobalt																
Copper																
Iron											15000		17000		4400	
Lead																
Magnesium																
Manganese																
Nickel																
Potassium																
Silver																
Sodium											220		180		140	U
Thallium																
Tin																
Vanadium																

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AS-3 15-16 AS-3 10/11/2000 15-16 ft		AS-5-10 AS-5 10/13/2000 10-10 ft		AS-7-10-12 AS-7 10/12/2000 10-12 ft		AS-7-8-10 AS-7 10/12/2000 10-10 ft		AS-8-15 AS-8 10/16/2000 15-15 ft		B-1, 16'-17.3' B-1A 8/12/1998 16-17.3 ft		B-1B, 19.0'-19.6' B-1B 8/14/1998 19-19 ft		B-2, 16'-18' B-2A 8/13/1998 16-18 ft	
Zinc																
Chloride											35.7		24.7		25.1	
Nitrogen, as Ammonia											5	U	89.1		7	
Oxidation Reduction Potential **(mV)**																
pH **(pH units)**											5.98		5.79		5.28	
Sulfate													136		8.12	
Sulfate **(mg/L)**											188					
VPH (mg/Kg)																
Ethyl benzene			0.3	U	0.3	U	0.3	U								
Toluene			0.3	U	0.3	U	0.3	U								
Xylenes, Total			0.3	U	0.3	U	0.3	U								
C5-C8 Aliphatics			72		3.3		**840**									
C5-C8 Aliphatics (unadj.)			72		3.3		**840**									
C9-C10 Aromatics			2.7	U	2.9	U	10									
C9-C12 Aliphatics			3.5		2.9	U	10									
C9-C12 Aliphatics (unadj.)			3.5		2.9	U	21									
Volatile Petroleum Hydrocarbons, Total			76		3.3		860									
EPH (mg/Kg)																
Benzo(a)anthracene	0.4	U	0.44		0.4	U	0.4	U	0.4	U						
Benzo(ghi)perylene	0.4	U	0.4	U	0.4	U	0.47		0.4	U						
C11-C22 Aromatics	13		70		91		1500		3.7	U						
C11-C22 Aromatics (unadj.)	13		71		91		1500		3.7	U						
C19-C36 Aliphatics	9.6		3.6	U	11		10		3.7	U						
C9-C18 Aliphatics	8.8		4.5		9.3		34		3.7	U						
Extractable Petroleum Hydrocarbons, Total	31		75		110		1500		3.7	U						
Specialty Compounds (mg/Kg)																
Hydrazine																
Acetaldehyde																
Formaldehyde																
Phthalic Acid/Phthalic anhydride																

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	B-2, 22'-24' B-2A 8/13/1998 22-24 ft	B-3, 12'-14' B-3A 8/14/1998 12-14 ft	B-3, 18'-20' B-3A 8/14/1998 18-20 ft	BH11 (10-12 ft) BH11 6/7/1991 10-12 ft	BH20 BH20 6/10/1991 10-12 ft	E2.70, 10 E2.70 4/20/1998 10-10 ft	ECS-2 ECS-2 1/29/2004 10-12 ft
Volatile Organics (mg/Kg)							
1,2,3-Trichlorobenzene						0.005 U	
1,2,4-Trimethylbenzene						0.005 U	
1,2-Dichlorobenzene						0.005 U	
1,3,5-Trimethylbenzene						0.005 U	
2,4,4-Trimethyl-1-pentene				0.003 J	0.029		
2,4,4-Trimethyl-2-pentene				0.002 J	0.018		
2-Butanone				0.016 U	0.016 U	0.1 U	
2-Hexanone				0.016 U	0.016 U	0.02 U	
4-iso-Propyltoluene						0.005 U	
Acetone				0.016 U	0.016 U	0.1 U	
Carbon disulfide				0.011 U	0.011 U	0.005 U	
Chloromethane				0.011 U	0.0004 J	0.01 U	
Dibromomethane							
Ethyl benzene				0.0055 U	0.0055 U	0.005 U	
Naphthalene						0.05 U	
Styrene				0.0055 U	0.0008 J	0.005 U	
Tetrahydrofuran							
Toluene				0.0055 U	0.003 J	0.005 U	
Trichloroethene				0.0055 U	0.0055 U	0.005 U	
Xylene, o							
Xylenes (m&p)							
Xylenes, Total				0.0055 U	0.0055 U	0.005 U	
Semivolatile Organics (mg/Kg)							
1-Methylnaphthalene							
2,4-Dimethylphenol				0.73 U	0.69 U	0.33 U	
2-Methylnaphthalene				0.73 U	0.69 U	0.33 U	
2-Methylphenol				0.73 U	0.69 U	0.33 U	
4-Bromophenyl phenyl ether				0.73 U	0.69 U	0.33 U	
4-Chlorophenyl phenyl ether				0.73 U	0.69 U	0.33 U	
Acenaphthene				0.73 U	0.69 U	0.33 U	
Acetophenone							
Benzo(a)anthracene				0.73 U	0.69 U	0.33 U	
Benzo(a)pyrene				0.73 U	0.69 U	0.33 U	
Benzo(b)fluoranthene				0.73 U	0.69 U	0.33 U	
Benzo(ghi)perylene				0.73 U	0.69 U	0.33 U	
Benzoic Acid				3.5 U	3.4 U	1.65 U	
Biphenyl							
Bis(2-Ethylhexyl)phthalate				0.73 U	0.69 U	0.33 U	
Butylbenzylphthalate				0.73 U	0.69 U	0.33 U	
Chrysene				0.73 U	0.69 U	0.33 U	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	B-2, 22'-24' B-2A 8/13/1998 22-24 ft		B-3, 12'-14' B-3A 8/14/1998 12-14 ft		B-3, 18'-20' B-3A 8/14/1998 18-20 ft		BH11 (10-12 ft) BH11 6/7/1991 10-12 ft		BH20 BH20 6/10/1991 10-12 ft		E2.70, 10 E2.70 4/20/1998 10-10 ft		ECS-2 ECS-2 1/29/2004 10-12 ft	
Dibenzofuran							0.73	U	0.69	U	0.33	U		
Di-n-butylphthalate							0.73	U	0.69	U	0.33	U		
Di-n-octylphthalate							0.73	U	0.69	U	0.33	U		
Diphenyl ether														
Diphenylamine														
Diphenylmethanone														
Fluorene							0.73	U	0.69	U	0.33	U		
Naphthalene							0.73	U	0.69	U	0.33	U		
N-Nitrosodiphenylamine							0.73	U	0.69	U	0.33	U		
Phenanthrene							0.73	U	0.69	U	0.33	U		
Phenol							0.73	U	0.69	U	0.33	U		
Pyrene							0.043	J	0.69	U	0.33	U		
Inorganics (mg/Kg)														
Aluminum	570		7000		6500		7500		4400		1130			
Antimony							20	U	20	U	1	U		
Arsenic							**18**		**4.2**		1	U		
Barium							38		13					
Beryllium							1.5	U	1.5	U	0.4	U		
Cadmium							1.3		1	U	1	U		
Calcium							1500		810					
Chromium	6.2		160		200		25		230		39.7			
Chromium, Hexavalent														
Cobalt							4.1		1.5	U				
Copper							14		4.7		2	U		
Iron	840		87000		10000		12000		9500					
Lead							10	U	10	U	10	U		
Magnesium							3800		1500					
Manganese							150		67					
Nickel							9.2		5.6		3	U		
Potassium							1700		960					
Silver							1.5	U	1.5	U	2	U		
Sodium	130	U	1000		240		120		100		397			
Thallium							0.5	U	0.5	U	2	U		
Tin														
Vanadium							16		8.4					

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	B-2, 22'-24' B-2A 8/13/1998 22-24 ft		B-3, 12'-14' B-3A 8/14/1998 12-14 ft		B-3, 18'-20' B-3A 8/14/1998 18-20 ft		BH11 (10-12 ft) BH11 6/7/1991 10-12 ft		BH20 BH20 6/10/1991 10-12 ft		E2.70, 10 E2.70 4/20/1998 10-10 ft		ECS-2 ECS-2 1/29/2004 10-12 ft	
Zinc							23		23		9.1			
Chloride	12.2		23.4		62.8		40	UJ	40	UJ	25.2			
Nitrogen, as Ammonia	24.9		9.83		5.5	U	21	J	12	J	24			
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**	5.58		5.6		4.29									
Sulfate	11.4		13400		55.1		110	J	120	J	5500			
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene													0.0805	U
Toluene													0.0805	U
Xylenes, Total													0.161	U
C5-C8 Aliphatics													1.21	U
C5-C8 Aliphatics (unadj.)													1.21	U
C9-C10 Aromatics													0.403	U
C9-C12 Aliphatics													0.403	U
C9-C12 Aliphatics (unadj.)													0.403	U
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)anthracene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	ECS-4 ECS-4 1/30/2004 10-12 ft		ECS-6 ECS-6 1/30/2004 10-12 ft		LPB-40-BLW LPB-40 12/10/2003 10-11 ft		LPB-48-BLW LPB-48 12/10/2003 8-20 ft		OC-SB-400-17/19-XXX SB-400 9/18/2009 17-19 ft		OC-SB-403-13/15-XXX SB-403 8/26/2009 13-15 ft		OC-SB-404-13/15-XXX SB-404 8/26/2009 13-15 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene														
2,4,4-Trimethyl-2-pentene														
2-Butanone														
2-Hexanone														
4-iso-Propyltoluene														
Acetone														
Carbon disulfide														
Chloromethane														
Dibromomethane														
Ethyl benzene														
Naphthalene														
Styrene														
Tetrahydrofuran														
Toluene														
Trichloroethene														
Xylene, o														
Xylenes (m&p)														
Xylenes, Total														
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene									0.037	U	0.042	U	0.035	U
2,4-Dimethylphenol									0.037	U	0.042	U	0.035	U
2-Methylnaphthalene									0.037	U	0.042	U	0.035	U
2-Methylphenol									0.037	U	0.042	U	0.035	U
4-Bromophenyl phenyl ether									0.037	U	0.042	U	0.035	U
4-Chlorophenyl phenyl ether									0.037	U	0.042	U	0.035	U
Acenaphthene									0.037	U	0.042	U	0.035	U
Acetophenone									0.037	U	0.042	U	0.035	U
Benzo(a)anthracene									0.037	U	0.042	U	0.035	U
Benzo(a)pyrene									0.037	U	0.042	U	0.035	U
Benzo(b)fluoranthene									0.037	U	0.042	U	0.035	U
Benzo(ghi)perylene									0.037	U	0.042	U	0.035	U
Benzoic Acid									0.065	U	0.21	U		R
Biphenyl									0.037	U	0.042	U	0.035	U
Bis(2-Ethylhexyl)phthalate									0.037	U	0.042	U	0.035	U
Butylbenzylphthalate									0.031	J	0.042	U	0.035	U
Chrysene									0.037	U	0.042	U	0.035	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	ECS-4 ECS-4 1/30/2004 10-12 ft		ECS-6 ECS-6 1/30/2004 10-12 ft		LPB-40-BLW LPB-40 12/10/2003 10-11 ft		LPB-48-BLW LPB-48 12/10/2003 8-20 ft		OC-SB-400-17/19-XXX SB-400 9/18/2009 17-19 ft		OC-SB-403-13/15-XXX SB-403 8/26/2009 13-15 ft		OC-SB-404-13/15-XXX SB-404 8/26/2009 13-15 ft	
Dibenzofuran									0.037	U	0.042	U	0.035	U
Di-n-butylphthalate									0.037	U	0.042	U	0.035	U
Di-n-octylphthalate									0.037	U	0.042	U	0.035	U
Diphenyl ether									0.037	U	0.042	U	0.035	U
Diphenylamine														
Diphenylmethanone									0.037	U	0.042	U	0.035	U
Fluorene									0.037	U	0.042	U	0.035	U
Naphthalene									0.088	U	0.1	U	0.085	U
N-Nitrosodiphenylamine									0.037	U	0.042	U	0.035	U
Phenanthrene									0.044	U	0.05	U	0.042	U
Phenol									0.037	U	0.042	U	0.035	U
Pyrene									0.037	U	0.042	U	0.035	U
Inorganics (mg/Kg)														
Aluminum									3300		3000		10000	
Antimony									0.71	U	0.64	UJ	0.53	UJ
Arsenic									1.8		1.2	J	2.2	
Barium									9.3		7.5		13	
Beryllium									0.11	J	0.09	J	0.38	
Cadmium									0.067	J	0.049	J	0.26	
Calcium									800		550		1400	
Chromium									7.5		5.3		11	
Chromium, Hexavalent														
Cobalt									1.8		1.6		6	
Copper									4		4.9		12	
Iron									4500		3100		16000	
Lead									1.7		1.5		4.1	
Magnesium									1200		890		5300	
Manganese									38		32		200	
Nickel									5.2		4.8		10	
Potassium									640		620		930	
Silver									0.71	U	0.64	U	0.53	U
Sodium									39	J	130	U	110	U
Thallium									1.4	U	1.3	U	1.1	U
Tin									2.9	J	1.8	J	3.3	J
Vanadium									6.5		5		26	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	ECS-4 ECS-4 1/30/2004 10-12 ft		ECS-6 ECS-6 1/30/2004 10-12 ft		LPB-40-BLW LPB-40 12/10/2003 10-11 ft		LPB-48-BLW LPB-48 12/10/2003 8-20 ft		OC-SB-400-17/19-XXX SB-400 9/18/2009 17-19 ft		OC-SB-403-13/15-XXX SB-403 8/26/2009 13-15 ft		OC-SB-404-13/15-XXX SB-404 8/26/2009 13-15 ft	
Zinc									8.5		8.1		34	
Chloride									18	U	25	U	21	U
Nitrogen, as Ammonia									7.4	U	7.9	U	24	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate									36	U	49	U	43	U
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene	0.107	U	0.0724	U										
Toluene	0.107	U	0.0724	U										
Xylenes, Total	0.213	U	0.145	U										
C5-C8 Aliphatics	1.6	U	1.09	U					2.5	U				
C5-C8 Aliphatics (unadj.)	1.6	U	1.09	U					2.5	U				
C9-C10 Aromatics	0.533	U	0.362	U					2.5	U				
C9-C12 Aliphatics	0.533	U	0.362	U					2.5	U				
C9-C12 Aliphatics (unadj.)	0.533	U	0.362	U					2.5	U				
Volatile Petroleum Hydrocarbons, Total									2.5	U				
EPH (mg/Kg)														
Benzo(a)anthracene														
Benzo(ghi)perylene														
C11-C22 Aromatics									3.7	U				
C11-C22 Aromatics (unadj.)									3.7	U				
C19-C36 Aliphatics									3.7	U				
C9-C18 Aliphatics									3.7	U				
Extractable Petroleum Hydrocarbons, Total									3.7	U				
Specialty Compounds (mg/Kg)														
Hydrazine					0.3	UG	0.28	UG						
Acetaldehyde											0.25	U	0.21	U
Formaldehyde											0.12	J	0.27	
Phthalic Acid/Phthalic anhydride														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-405-14/15-XXX SB-405 8/18/2009 14-15 ft		OC-SB-406-13/15-XXX SB-406 9/17/2009 13-15 ft		OC-SB-407-26/28-XXX SB-407 8/26/2009 26-28 ft		OC-SB-409-15/17-XXX SB-409 8/26/2009 15-17 ft		OC-SB-410-17/19-XXX SB-410 8/27/2009 17-19 ft		OC-SB-412-12/13-XXX SB-412 8/18/2009 12-13 ft	
Volatile Organics (mg/Kg)												
1,2,3-Trichlorobenzene	0.11	U										
1,2,4-Trimethylbenzene	0.11	U										
1,2-Dichlorobenzene	0.11	U										
1,3,5-Trimethylbenzene	0.11	U										
2,4,4-Trimethyl-1-pentene	2.3	J										
2,4,4-Trimethyl-2-pentene	0.62											
2-Butanone	1.1	U										
2-Hexanone	1.1	U										
4-iso-Propyltoluene	0.11	U										
Acetone	11	UJ										
Carbon disulfide	0.11	U										
Chloromethane	0.21	U										
Dibromomethane	0.11	U										
Ethyl benzene	0.11	U										
Naphthalene	1.1	U										
Styrene	0.11	U										
Tetrahydrofuran	1.1	U										
Toluene	0.11	U										
Trichloroethene	0.11	U										
Xylene, o	0.11	U										
Xylenes (m&p)	0.21	U										
Xylenes, Total	0.21	U										
Semivolatile Organics (mg/Kg)												
1-Methylnaphthalene	0.036	UJ	0.037	U	0.037	U	0.037	U	0.036	U	0.043	J
2,4-Dimethylphenol	0.036	UJ	0.037	U	0.037	U	0.037	U	0.036	U	0.037	UJ
2-Methylnaphthalene	0.036	U	0.037	U	0.037	U	0.037	U	0.036	U	0.064	
2-Methylphenol	0.036	U	0.037	U	0.037	U	0.037	U	0.036	U	0.037	U
4-Bromophenyl phenyl ether	0.036	U	0.037	U	0.037	U	0.037	U	0.036	U	0.037	U
4-Chlorophenyl phenyl ether	0.036	U	0.037	U	0.037	U	0.037	U	0.036	U	0.037	U
Acenaphthene	0.036	U	0.037	U	0.037	U	0.037	U	0.036	U	0.022	J
Acetophenone	0.036	U	0.037	U	0.037	U	0.0056	JEB	0.036	U	0.037	U
Benzo(a)anthracene	0.036	U	0.037	U	0.0091	J	0.037	U	0.009	J	0.037	U
Benzo(a)pyrene	0.036	U	0.037	U	0.013	J	0.037	U	0.012	J	0.037	U
Benzo(b)fluoranthene	0.036	U	0.037	U	0.01	J	0.037	U	0.012	J	0.037	U
Benzo(ghi)perylene	0.036	U	0.037	U	0.0072	J	0.037	U	0.036	U	0.037	U
Benzoic Acid	0.14	JEB	0.18	UJ	0.18	U		R		R	0.18	UJ
Biphenyl	0.036	UJ	0.037	U	0.037	U	0.037	U	0.036	U	0.037	UJ
Bis(2-Ethylhexyl)phthalate	0.36	EB	0.037	JEB	0.037	U	0.037	U	0.036	U	0.015	JEB
Butylbenzylphthalate	0.036	U	0.037	U	0.037	U	0.037	U	0.036	U	0.037	U
Chrysene	0.036	U	0.037	U	0.0089	J	0.037	U	0.0081	J	0.037	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-405-14/15-XXX SB-405 8/18/2009 14-15 ft		OC-SB-406-13/15-XXX SB-406 9/17/2009 13-15 ft		OC-SB-407-26/28-XXX SB-407 8/26/2009 26-28 ft		OC-SB-409-15/17-XXX SB-409 8/26/2009 15-17 ft		OC-SB-410-17/19-XXX SB-410 8/27/2009 17-19 ft		OC-SB-412-12/13-XXX SB-412 8/18/2009 12-13 ft	
Dibenzofuran	0.036	U	0.037	U	0.037	U	0.037	U	0.036	U	0.029	J
Di-n-butylphthalate	0.036	U	0.037	U	0.037	U	0.037	U	0.036	U	0.037	U
Di-n-octylphthalate	0.036	U	0.037	U	0.037	U	0.02	J	0.036	U	0.037	U
Diphenyl ether	0.036	UJ	0.037	U	0.037	U	0.037	U	0.036	U	0.037	UJ
Diphenylamine												
Diphenylmethanone	0.036	UJ	0.037	U	0.037	U	0.037	U	0.036	U	0.037	UJ
Fluorene	0.036	U	0.037	U	0.037	U	0.037	U	0.036	U	0.025	J
Naphthalene	0.087	U	0.089	U	0.088	U	0.089	U	0.086	U	0.13	
N-Nitrosodiphenylamine	0.036	U	0.037	U	0.037	U	0.037	U	0.036	U	0.037	U
Phenanthrene	0.043	U	0.044	U	0.044	U	0.045	U	0.043	U	0.074	
Phenol	0.036	U	0.037	U	0.037	U	0.037	U	0.036	U	0.037	U
Pyrene	0.036	U	0.037	U	0.02	J	0.037	U	0.036	U	0.037	U
Inorganics (mg/Kg)												
Aluminum	15000		10000		10000		10000		9500		6800	
Antimony	1.4	UJ	0.65	UJ	0.55	UJ	0.65	UJ	0.66	UJ	0.73	UJ
Arsenic	**2.6**	J	1.3	J	**4.2**		**4.7**		1.8		2.1	
Barium	94		15		57		55		38		46	
Beryllium	0.27	J	0.26		0.33		0.35		0.23	J	0.14	J
Cadmium	0.34	J	0.44		0.37		0.39		0.27		0.19	J
Calcium	3500		2400		3700		2800		4100		6300	
Chromium	37		27		16		22		20		27	
Chromium, Hexavalent												
Cobalt	15		14		11		14		12		12	
Copper	33		57		23		25		34		66	
Iron	25000		23000		22000		23000		15000		15000	
Lead	0.94	JEB	2.4		5.1		0.75		1.8		3.6	
Magnesium	10000		7600		6600		6900		7300		2400	
Manganese	170		190		180		180		150		95	
Nickel	27		17		17		18		16		11	
Potassium	5200		910		2700		2500		2000		680	
Silver	1.4	U	0.65	U	0.055	J	0.65	U	0.66	U	0.076	J
Sodium	230	J	130	U	150		210		270		820	
Thallium	2.7	U	1.3	U	1.1	U	1.3	U	1.3	U	1.5	U
Tin	12	J	9.5	J	4.8	J	7.3		6.7		9.1	J
Vanadium	36		45		36		33		28		45	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-405-14/15-XXX SB-405 8/18/2009 14-15 ft		OC-SB-406-13/15-XXX SB-406 9/17/2009 13-15 ft		OC-SB-407-26/28-XXX SB-407 8/26/2009 26-28 ft		OC-SB-409-15/17-XXX SB-409 8/26/2009 15-17 ft		OC-SB-410-17/19-XXX SB-410 8/27/2009 17-19 ft		OC-SB-412-12/13-XXX SB-412 8/18/2009 12-13 ft	
Zinc	23		37		23		17		17		17	
Chloride	26		19	U	22	U	22	U	21	U	22	U
Nitrogen, as Ammonia	13		110		180		310		95		40	
Oxidation Reduction Potential **(mV)**												
pH **(pH units)**												
Sulfate	44	U	38	U	43	U	44	U	43	U	44	U
Sulfate **(mg/L)**												
VPH (mg/Kg)												
Ethyl benzene												
Toluene												
Xylenes, Total												
C5-C8 Aliphatics												
C5-C8 Aliphatics (unadj.)												
C9-C10 Aromatics												
C9-C12 Aliphatics												
C9-C12 Aliphatics (unadj.)												
Volatile Petroleum Hydrocarbons, Total												
EPH (mg/Kg)												
Benzo(a)anthracene												
Benzo(ghi)perylene												
C11-C22 Aromatics												
C11-C22 Aromatics (unadj.)												
C19-C36 Aliphatics												
C9-C18 Aliphatics												
Extractable Petroleum Hydrocarbons, Total												
Specialty Compounds (mg/Kg)												
Hydrazine												
Acetaldehyde					0.052	J	0.22	U	0.22	U	0.21	U
Formaldehyde					0.23		0.3		0.79		0.32	
Phthalic Acid/Phthalic anhydride												

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-413-10/12-XXX SB-413 9/17/2009 10-12 ft		OC-SB-414-20/22-XXX SB-414 8/26/2009 20-22 ft		OC-SB-415-16/18-XXX SB-415 8/20/2009 16-18 ft		OC-SB-416-13/14-XXX SB-416 8/18/2009 13-14 ft		OC-SB-417-20/22-XXX SB-417 9/10/2009 20-22 ft		OC-SB-418-15/17-XXX SB-418 8/27/2009 15-17 ft		OC-SB-419-17/19-XXX SB-419 8/19/2009 17-19 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene							0.0022	U						
1,2,4-Trimethylbenzene							0.0022	U						
1,2-Dichlorobenzene							0.0022	U						
1,3,5-Trimethylbenzene							0.0022	U						
2,4,4-Trimethyl-1-pentene							0.037	J						
2,4,4-Trimethyl-2-pentene							0.01							
2-Butanone							0.022	U						
2-Hexanone							0.022	U						
4-iso-Propyltoluene							0.0022	U						
Acetone							0.22	UJ						
Carbon disulfide							0.0044							
Chloromethane							0.0044	U						
Dibromomethane							0.0022	U						
Ethyl benzene							0.0022	U						
Naphthalene							0.022	U						
Styrene							0.0022	U						
Tetrahydrofuran							0.022	U						
Toluene							0.0022	U						
Trichloroethene							0.0022	U						
Xylene, o							0.0022	U						
Xylenes (m&p)							0.0044	U						
Xylenes, Total							0.0044	U						
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.036	U	0.036	U	0.035	U	0.036	UJ	0.041	U	0.037	U	0.036	U
2,4-Dimethylphenol	0.036	U	0.036	U	0.035	U	0.036	UJ	0.041	U	0.037	U	0.036	U
2-Methylnaphthalene	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
2-Methylphenol	0.036	U	0.036	U	0.035	UJ	0.036	U	0.041	U	0.037	U	0.036	UJ
4-Bromophenyl phenyl ether	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
4-Chlorophenyl phenyl ether	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Acenaphthene	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Acetophenone	0.036	U	0.009	JEB	0.035	UJ	0.036	U	0.041	U	0.037	U	0.0073	JEB
Benzo(a)anthracene	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Benzo(a)pyrene	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Benzo(b)fluoranthene	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Benzo(ghi)perylene	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Benzoic Acid	0.18	UJ	0.18	U	0.17	UJ	0.18	UJ	0.2	U		R	0.18	UJ
Biphenyl	0.036	U	0.036	U	0.035	U	0.036	UJ	0.041	U	0.037	U	0.036	U
Bis(2-Ethylhexyl)phthalate	0.016	JEB	0.036	U	0.035	U	0.053	EB	0.39	U	0.037	U	0.036	U
Butylbenzylphthalate	0.04		0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Chrysene	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-413-10/12-XXX SB-413 9/17/2009 10-12 ft		OC-SB-414-20/22-XXX SB-414 8/26/2009 20-22 ft		OC-SB-415-16/18-XXX SB-415 8/20/2009 16-18 ft		OC-SB-416-13/14-XXX SB-416 8/18/2009 13-14 ft		OC-SB-417-20/22-XXX SB-417 9/10/2009 20-22 ft		OC-SB-418-15/17-XXX SB-418 8/27/2009 15-17 ft		OC-SB-419-17/19-XXX SB-419 8/19/2009 17-19 ft	
Dibenzofuran	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Di-n-butylphthalate	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Di-n-octylphthalate	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Diphenyl ether	0.036	U	0.036	U	0.035	U	0.014	J	0.041	U	0.037	U	0.036	U
Diphenylamine														
Diphenylmethanone	0.036	U	0.036	U	0.035	U	0.036	UJ	0.041	U	0.037	U	0.036	U
Fluorene	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Naphthalene	0.086	U	0.087	U	0.084	U	0.086	U	0.097	U	0.089	U	0.086	U
N-Nitrosodiphenylamine	0.036	U	0.036	U	0.035	U	0.045	EB	0.041	U	0.037	U	0.036	U
Phenanthrene	0.043	U	0.043	U	0.042	U	0.043	U	0.049	U	0.044	U	0.043	U
Phenol	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Pyrene	0.036	U	0.036	U	0.035	U	0.036	U	0.041	U	0.037	U	0.036	U
Inorganics (mg/Kg)														
Aluminum	7500		9100		18000		19000		8000	J	9100		10000	
Antimony	0.71	UJ	0.56	UJ	0.46	J	3.1	UJ	0.74	UJ	0.69	UJ	0.69	UJ
Arsenic	2.2		2.2		2.2	J	2.2	J	2.4	J	**2.8**		2.1	
Barium	30		35		200		34		51		27		41	
Beryllium	0.26	J	0.23	J	0.29	J	0.47	J	0.17	J	0.24	J	0.25	J
Cadmium	0.22	J	0.25		0.48	J	0.51	J	0.38	J	0.24	J	0.26	J
Calcium	1700		3100		4600		5600		4900	J	3400		3000	
Chromium	16		18		11		39		27	J	29		150	
Chromium, Hexavalent														
Cobalt	6.4		12		26		22		10	J	7.6		12	
Copper	24		33		26		39		27	J	43		16	
Iron	12000		16000		33000		37000		21000	J	16000		22000	
Lead	1.7		2		1.3	U	0.57	JEB	0.52	J	1.2		2	
Magnesium	3400		5800		13000		15000		5400		4300		8100	
Manganese	110		170		310		460		130	J	110		180	
Nickel	11		13		23		38		12	J	15		19	
Potassium	850		1300		9700		770	J	2000		1200		2100	
Silver	0.71	U	0.56	U	0.13	J	3.1	U	0.74	U	0.69	U	2	
Sodium	72	J	120		470		230	J	130	J	160		970	
Thallium	1.4	U	1.1	U	0.2	J	6.3	U	1.5	U	1.4	U	1.4	U
Tin	5.8	J	6	J	13	UJ	12	J	9.7	J	10		57	J
Vanadium	20		29		65		71		31		27		32	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-413-10/12-XXX SB-413 9/17/2009 10-12 ft		OC-SB-414-20/22-XXX SB-414 8/26/2009 20-22 ft		OC-SB-415-16/18-XXX SB-415 8/20/2009 16-18 ft		OC-SB-416-13/14-XXX SB-416 8/18/2009 13-14 ft		OC-SB-417-20/22-XXX SB-417 9/10/2009 20-22 ft		OC-SB-418-15/17-XXX SB-418 8/27/2009 15-17 ft		OC-SB-419-17/19-XXX SB-419 8/19/2009 17-19 ft	
Zinc	17		27		21		39		20		17		18	
Chloride	16	U	21	U	21	U	21	U	28		22	U	21	U
Nitrogen, as Ammonia	7.6	U	76		27		78		9.9		190		85	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	33	U	43	U	68		43	U	49	U	45	U	83	
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene														
Toluene														
Xylenes, Total														
C5-C8 Aliphatics														
C5-C8 Aliphatics (unadj.)														
C9-C10 Aromatics														
C9-C12 Aliphatics														
C9-C12 Aliphatics (unadj.)														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)anthracene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde	0.22	U					0.21	U			0.22	U	0.21	U
Formaldehyde	0.12						0.4				0.35		0.24	
Phthalic Acid/Phthalic anhydride														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-420-12/14-XXX SB-420 8/18/2009 12-14 ft		OC-SB-421-10.5/12.5-XXX SB-421 8/19/2009 10.5-12.5 ft		OC-SB-422-13/15-XXX SB-422 8/25/2009 13-15 ft		OC-SB-423-13/14-XXX SB-423 8/18/2009 13-14 ft		OC-SB-424-17/19-XXX SB-424 8/19/2009 17-19 ft		OC-SB-425-18/20-XXX SB-425 8/19/2009 18-20 ft		OC-SB-426-13/15-XXX SB-426 8/19/2009 13-15 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene	0.1	U	0.13	U										
1,2,4-Trimethylbenzene	0.1	U	0.13	U										
1,2-Dichlorobenzene	0.1	U	0.13	U										
1,3,5-Trimethylbenzene	0.1	U	0.13	U										
2,4,4-Trimethyl-1-pentene	0.2	U	3.9	J										
2,4,4-Trimethyl-2-pentene	0.044	J	1.7											
2-Butanone	1	U	1.3	U										
2-Hexanone	1	U	1.3	U										
4-iso-Propyltoluene	0.1	U	0.13	U										
Acetone	10	UJ	13	UJ										
Carbon disulfide	0.52		0.13	U										
Chloromethane	0.2	U	0.26	U										
Dibromomethane	0.1	U	0.13	U										
Ethyl benzene	0.1	U	3.3											
Naphthalene	1	U	0.12	J										
Styrene	0.1	U	0.13	U										
Tetrahydrofuran	1	U	1.3	U										
Toluene	0.1	U	0.13	U										
Trichloroethene	0.1	U	0.13	U										
Xylene, o	0.1	U	0.13	U										
Xylenes (m&p)	0.2	U	0.26	U										
Xylenes, Total	0.2	U	0.26	U										
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.036	UJ	0.058	J	0.038	U	0.035	UJ	0.037	U	0.035	U	0.038	U
2,4-Dimethylphenol	0.036	UJ	0.035	J	0.038	U	0.035	UJ	0.037	U	0.035	U	0.038	U
2-Methylnaphthalene	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
2-Methylphenol	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	UJ
4-Bromophenyl phenyl ether	0.036	U	0.036	U	0.038	U	0.035	U	0.011	J	0.035	U	0.038	U
4-Chlorophenyl phenyl ether	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Acenaphthene	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Acetophenone	0.036	U	0.036	U	0.0049	JEB	0.035	U	0.037	U	0.035	U	0.038	UJ
Benzo(a)anthracene	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Benzo(a)pyrene	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Benzo(b)fluoranthene	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Benzo(ghi)perylene	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Benzoic Acid	0.18	UJ	0.18	UJ	0.19	U	0.18	UJ	0.056	JEB	0.18	UJ	0.19	UJ
Biphenyl	0.036	UJ	11	J	0.038	U	0.035	UJ	0.092		0.15		0.038	U
Bis(2-Ethylhexyl)phthalate	0.074	EB	**420**	EB	0.038	U	0.11	EB	1.1	EB	0.062	EB	0.038	U
Butylbenzylphthalate	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Chrysene	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-420-12/14-XXX SB-420 8/18/2009 12-14 ft		OC-SB-421-10.5/12.5-XXX SB-421 8/19/2009 10.5-12.5 ft		OC-SB-422-13/15-XXX SB-422 8/25/2009 13-15 ft		OC-SB-423-13/14-XXX SB-423 8/18/2009 13-14 ft		OC-SB-424-17/19-XXX SB-424 8/19/2009 17-19 ft		OC-SB-425-18/20-XXX SB-425 8/19/2009 18-20 ft		OC-SB-426-13/15-XXX SB-426 8/19/2009 13-15 ft	
Dibenzofuran	0.036	U	0.038		0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Di-n-butylphthalate	0.036	U	0.59		0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Di-n-octylphthalate	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Diphenyl ether	0.019	J	74	J	0.038	U	0.035	UJ	0.069		0.064		0.038	U
Diphenylamine														
Diphenylmethanone	0.036	UJ	0.0035	J	0.038	U	0.035	UJ	0.037	U	0.035	U	0.038	U
Fluorene	0.036	U	0.036	U	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Naphthalene	0.086	U	0.086	U	0.092	U	0.085	U	0.088	U	0.085	U	0.092	U
N-Nitrosodiphenylamine	0.013	JEB	0.67	EB	0.038	U	0.035	U	0.018	JEB	0.17	EB	0.038	U
Phenanthrene	0.043	U	0.043	U	0.046	U	0.042	U	0.044	U	0.043	U	0.046	U
Phenol	0.023	J	0.21		0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Pyrene	0.036	U	0.015	J	0.038	U	0.035	U	0.037	U	0.035	U	0.038	U
Inorganics (mg/Kg)														
Aluminum	10000		12000		8000		11000		9300		8600		9500	
Antimony	0.63	UJ	0.64	UJ	0.61	UJ	0.65	UJ	0.72	UJ	0.66	UJ	0.74	UJ
Arsenic	1.6		2.3		**3.7**		1.8		2.3		**3.3**		**3**	
Barium	130		61		29		54		100		29		50	
Beryllium	0.17	J	0.2	J	0.32		0.27		0.17	J	0.16	J	0.24	J
Cadmium	0.4		0.32		0.16	J	0.41		0.21	J	0.21	J	0.21	J
Calcium	13000		7600		1000		7500		4300		3400		2500	
Chromium	12		38		16		17		88		46		100	
Chromium, Hexavalent														
Cobalt	17		16		5		21		10		8.2		8.5	
Copper	28		46		14		21		16		39		42	
Iron	27000		22000		8900		23000		18000		16000		16000	
Lead	0.63	U	1.1		3.5		1.6	EB	2.1		2.1		1.8	
Magnesium	4400		5800		2800		5100		7200		6100		5200	
Manganese	140		170		85		150		160		150		130	
Nickel	13		28		13		16		41		20		15	
Potassium	4600		2900		1300		2200		4200		1600		1700	
Silver	1.6		2.1		0.61	U	1.4		3.6		0.27	J	1.4	
Sodium	320		900		68	J	250		340		190		180	
Thallium	1.3	U	1.3	U	1.2	U	1.3	U	1.4	U	1.3	U	1.5	U
Tin	2.6	J	13	J	5.7	J	4.9	J	33	J	16	J	39	J
Vanadium	60		53		16		47		35		29		27	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-420-12/14-XXX SB-420 8/18/2009 12-14 ft		OC-SB-421-10.5/12.5-XXX SB-421 8/19/2009 10.5-12.5 ft		OC-SB-422-13/15-XXX SB-422 8/25/2009 13-15 ft		OC-SB-423-13/14-XXX SB-423 8/18/2009 13-14 ft		OC-SB-424-17/19-XXX SB-424 8/19/2009 17-19 ft		OC-SB-425-18/20-XXX SB-425 8/19/2009 18-20 ft		OC-SB-426-13/15-XXX SB-426 8/19/2009 13-15 ft	
Zinc	56		30		18		55		17		21		21	
Chloride	19	U	21	U	24	U	21	U	18	U	18	U	23	U
Nitrogen, as Ammonia	25		120		51		65		47		130		130	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	38	U	41	U	47	U	54		37		35	U	46	U
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene														
Toluene														
Xylenes, Total														
C5-C8 Aliphatics			6.4	J										
C5-C8 Aliphatics (unadj.)			6.4	J										
C9-C10 Aromatics			3.2	J										
C9-C12 Aliphatics			2.6	UJ										
C9-C12 Aliphatics (unadj.)			5.8	J										
Volatile Petroleum Hydrocarbons, Total			9.6	J										
EPH (mg/Kg)														
Benzo(a)anthracene														
Benzo(ghi)perylene														
C11-C22 Aromatics			88											
C11-C22 Aromatics (unadj.)			170											
C19-C36 Aliphatics			3.6	U										
C9-C18 Aliphatics			3.6	U										
Extractable Petroleum Hydrocarbons, Total			88											
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde	0.2	U	0.16	J	0.047	J			0.063	J	0.21	U		
Formaldehyde	0.39		0.53		0.34				0.61		0.28			
Phthalic Acid/Phthalic anhydride														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-427-12/14-XXX SB-427 9/10/2009 12-14 ft		OC-SB-427-17/19-XXX SB-427 9/10/2009 17-19 ft		OC-SB-428-23/25-XXX SB-428 9/10/2009 23-25 ft		OC-SB-429-16/18-XXX SB-429 8/25/2009 16-18 ft		OC-SB-430-19/21-XXX SB-430 8/25/2009 19-21 ft		OC-SB-432-14/16-XXX SB-432 8/20/2009 14-16 ft	
Volatile Organics (mg/Kg)												
1,2,3-Trichlorobenzene	1.3	U	0.0025	U	0.0027	U					0.078	J
1,2,4-Trimethylbenzene	1.3	U	0.0025	U	0.0027	U					0.15	
1,2-Dichlorobenzene	1.3	U	0.0025	U	0.0027	U					0.12	
1,3,5-Trimethylbenzene	1.3	U	0.0025	U	0.0027	U					0.057	J
2,4,4-Trimethyl-1-pentene	**890**		0.005	U	0.0053	U					0.25	J
2,4,4-Trimethyl-2-pentene	**180**		0.005	U	0.0053	U					0.23	U
2-Butanone	13	U	0.025	U	0.027	U					1.2	U
2-Hexanone	13	U	0.025	U	0.027	U					1.5	
4-iso-Propyltoluene	1.3	U	0.0025	U	0.0027	U					0.34	
Acetone	130	UJ	0.25	UJ	0.27	UJ					12	UJ
Carbon disulfide	1.3	U	0.0025	U	0.0027	U					0.12	U
Chloromethane	2.7	U	0.005	U	0.0053	U					0.23	U
Dibromomethane	1.3	U	0.0025	U	0.0027	U					0.12	U
Ethyl benzene	1.3	U	0.0025	U	0.0027	U					4.3	
Naphthalene	13	U	0.025	U	0.027	U					0.077	J
Styrene	1.3	U	0.0025	U	0.0027	U					0.12	U
Tetrahydrofuran	13	U	0.025	U	0.027	U					1.2	U
Toluene	1.3	U	0.0025	U	0.0027	U					0.91	
Trichloroethene	1.3	U	0.0025	U	0.0027	U					0.057	J
Xylene, o	1.3	U	0.0025	U	0.0027	U					2.6	
Xylenes (m&p)	2.7	U	0.005	U	0.0053	U					10	
Xylenes, Total	2.7	U	0.005	U	0.0053	U					12.6	
Semivolatile Organics (mg/Kg)												
1-Methylnaphthalene	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
2,4-Dimethylphenol	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
2-Methylnaphthalene	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
2-Methylphenol	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
4-Bromophenyl phenyl ether	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
4-Chlorophenyl phenyl ether	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Acenaphthene	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Acetophenone	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Benzo(a)anthracene	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Benzo(a)pyrene	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Benzo(b)fluoranthene	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Benzo(ghi)perylene	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Benzoic Acid	3.7	U	0.18	U	0.19	U	0.18	U	0.17	U		R
Biphenyl	1.2		0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Bis(2-Ethylhexyl)phthalate	**10000**	JEB	13	JEB	0.42	U	0.027	JEB	0.017	JEB	**600**	EB
Butylbenzylphthalate	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Chrysene	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-427-12/14-XXX SB-427 9/10/2009 12-14 ft		OC-SB-427-17/19-XXX SB-427 9/10/2009 17-19 ft		OC-SB-428-23/25-XXX SB-428 9/10/2009 23-25 ft		OC-SB-429-16/18-XXX SB-429 8/25/2009 16-18 ft		OC-SB-430-19/21-XXX SB-430 8/25/2009 19-21 ft		OC-SB-432-14/16-XXX SB-432 8/20/2009 14-16 ft	
Dibenzofuran	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Di-n-butylphthalate	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Di-n-octylphthalate	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Diphenyl ether	6.9		0.036	U	0.044		0.036	U	0.034	U	0.35	U
Diphenylamine	340		0.037								0.35	U
Diphenylmethanone	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Fluorene	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Naphthalene	1.8	U	0.086	U	0.09	U	0.085	U	0.082	U	0.85	U
N-Nitrosodiphenylamine	160	EB	0.11	EB	0.037	U	0.036	U	0.034	U	0.35	U
Phenanthrene	0.38	J	0.043	U	0.045	U	0.043	U	0.041	U	0.43	U
Phenol	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Pyrene	0.74	U	0.036	U	0.037	U	0.036	U	0.034	U	0.35	U
Inorganics (mg/Kg)												
Aluminum	4300		3500		5500		15000		13000		2700	
Antimony	0.7	UJ	0.73	UJ	0.59	UJ	1.3	UJ	0.66	UJ	0.58	UJ
Arsenic	**3.8**		2		**4.9**		0.99	J	**3.2**		**2.5**	
Barium	11		8.9		18		23		160		35	J
Beryllium	0.2	J	0.22	J	0.2	J	0.21	J	0.18	J	0.082	J
Cadmium	0.092	J	0.28	J	0.26		0.42	J	0.39		0.098	J
Calcium	610		750		2100		3800		5900		1300	
Chromium	8.7	J	7.6		21		29		22		18	
Chromium, Hexavalent												
Cobalt	2.9		3		7.1		13		16		2.8	
Copper	4.6	J	6.9		29		18		29		5.2	
Iron	5700		5000		12000		27000		23000		6800	
Lead	1.9		1.6		2.5		1.3		1.1		1.9	J
Magnesium	1400		1200		2900		14000		10000		1400	J
Manganese	48		45		100		330		240		43	
Nickel	8.2		6.5		10		25		15		4.3	J
Potassium	750	J	710		1100		1100		5800		1000	J
Silver	0.7	U	0.73	U	0.59	U	0.24	J	2.2		0.085	J
Sodium	140	U	150	U	57	J	140	J	310		120	
Thallium	1.4	U	1.5	U	1.2	U	2.7	U	1.3	U	1.2	UJ
Tin	3.1	J	2.8	J	7.6	J	10	J	6.9	J	6.8	J
Vanadium	8.1		5.8		19		34		42		9.8	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-427-12/14-XXX SB-427 9/10/2009 12-14 ft		OC-SB-427-17/19-XXX SB-427 9/10/2009 17-19 ft		OC-SB-428-23/25-XXX SB-428 9/10/2009 23-25 ft		OC-SB-429-16/18-XXX SB-429 8/25/2009 16-18 ft		OC-SB-430-19/21-XXX SB-430 8/25/2009 19-21 ft		OC-SB-432-14/16-XXX SB-432 8/20/2009 14-16 ft	
Zinc	13		24		22		39		35		6.3	
Chloride	22	U	22	U	23	U	21	U	21	U	22	U
Nitrogen, as Ammonia	6.1	U	7.9		76		160		79		12	EB
Oxidation Reduction Potential **(mV)**												
pH **(pH units)**												
Sulfate	44	U	44	U	45	U	42	U	42	U	43	U
Sulfate **(mg/L)**												
VPH (mg/Kg)												
Ethyl benzene												
Toluene												
Xylenes, Total												
C5-C8 Aliphatics	**1400**	J	3	U	2.2	U					23	UJ
C5-C8 Aliphatics (unadj.)	**1400**	J	3	U	2.2	U					23	UJ
C9-C10 Aromatics	28	J	3	U	2.2	U					61	J
C9-C12 Aliphatics	27	UJ	3	U	2.2	U					23	UJ
C9-C12 Aliphatics (unadj.)	27	UJ	3	U	2.2	U					75	J
Volatile Petroleum Hydrocarbons, Total	1400	J	3	U	2.2	U					61	J
EPH (mg/Kg)												
Benzo(a)anthracene												
Benzo(ghi)perylene												
C11-C22 Aromatics	890		3.6	U	5.2						1700	
C11-C22 Aromatics (unadj.)	**7200**		5.7		5.2						1900	
C19-C36 Aliphatics	3200		4		6.4						110	
C9-C18 Aliphatics	520		3.6	U	3.7	U					72	U
Extractable Petroleum Hydrocarbons, Total	4600		4		12						1800	
Specialty Compounds (mg/Kg)												
Hydrazine											0.0025	
Acetaldehyde	0.22	UJ	0.22	UJ	0.073	J			0.041	J	0.051	J
Formaldehyde	0.11	J	0.13		0.52				0.81		0.49	J
Phthalic Acid/Phthalic anhydride	0.034	J									0.048	J

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-433-20/22-XXX SB-433 8/24/2009 20-22 ft		OC-SB-434-15/16-XXX SB-434 9/10/2009 15-16 ft		OC-SB-435-11/15-XXX SB-435 9/17/2009 111-15 ft		OC-SB-436-13/15-XXX SB-436 8/20/2009 13-15 ft		OC-SB-437-21/23-XXX SB-437 8/21/2009 21-23 ft		OC-SB-438-20/22-XXX SB-438 8/24/2009 20-22 ft		OC-SB-439-16/18-XXX SB-439 8/24/2009 16-18 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene					0.0023	U					0.0021	U		
1,2,4-Trimethylbenzene					0.0023	U					0.0021	U		
1,2-Dichlorobenzene					0.0023	U					0.0021	U		
1,3,5-Trimethylbenzene					0.0023	U					0.0021	U		
2,4,4-Trimethyl-1-pentene					0.0047	U					0.0042	U		
2,4,4-Trimethyl-2-pentene					0.0047	U					0.0042	U		
2-Butanone					0.023	U					0.021	U		
2-Hexanone					0.023	U					0.021	U		
4-iso-Propyltoluene					0.0023	U					0.0021	U		
Acetone					0.23	UJ					0.21	UJ		
Carbon disulfide					0.0023	U					0.0021	U		
Chloromethane					0.0047	U					0.0042	U		
Dibromomethane					0.0023	U					0.0021	U		
Ethyl benzene					0.0023	U					0.0021	U		
Naphthalene					0.023	U					0.021	U		
Styrene					0.0023	U					0.0021	U		
Tetrahydrofuran					0.023	U					0.021	U		
Toluene					0.0023	U					0.0021	U		
Trichloroethene					0.0023	U					0.0021	U		
Xylene, o					0.0023	U					0.0021	U		
Xylenes (m&p)					0.0047	U					0.0042	U		
Xylenes, Total					0.0047	U					0.0042	U		
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
2,4-Dimethylphenol	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
2-Methylnaphthalene	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
2-Methylphenol	0.036	U	0.038	U	0.036	U	0.034	UJ	0.035	U	0.035	U		
4-Bromophenyl phenyl ether	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
4-Chlorophenyl phenyl ether	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Acenaphthene	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Acetophenone	0.036	U	0.038	U	0.036	U	0.034	UJ	0.035	U	0.035	U		
Benzo(a)anthracene	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Benzo(a)pyrene	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Benzo(b)fluoranthene	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Benzo(ghi)perylene	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	UJ		
Benzoic Acid		R	0.19	U	0.18	U	0.17	UJ		R		R		
Biphenyl	0.036	U	0.018	J	0.036	U	0.034	U	0.035	U	0.035	U		
Bis(2-Ethylhexyl)phthalate	0.044	EB	0.38	U	0.036	U	0.034	U	0.035	U	0.021	JEB		
Butylbenzylphthalate	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Chrysene	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-433-20/22-XXX SB-433 8/24/2009 20-22 ft		OC-SB-434-15/16-XXX SB-434 9/10/2009 15-16 ft		OC-SB-435-11/15-XXX SB-435 9/17/2009 111-15 ft		OC-SB-436-13/15-XXX SB-436 8/20/2009 13-15 ft		OC-SB-437-21/23-XXX SB-437 8/21/2009 21-23 ft		OC-SB-438-20/22-XXX SB-438 8/24/2009 20-22 ft		OC-SB-439-16/18-XXX SB-439 8/24/2009 16-18 ft	
Dibenzofuran	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Di-n-butylphthalate	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Di-n-octylphthalate	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Diphenyl ether	0.036	U	0.029	J	0.036	U	0.034	U	0.035	U	0.035	U		
Diphenylamine					0.036	U								
Diphenylmethanone	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Fluorene	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Naphthalene	0.086	U	0.091	U	0.087	U	0.082	U	0.084	U	0.085	U		
N-Nitrosodiphenylamine	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Phenanthrene	0.043	U	0.046	U	0.043	U	0.041	U	0.042	U	0.042	U		
Phenol	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Pyrene	0.036	U	0.038	U	0.036	U	0.034	U	0.035	U	0.035	U		
Inorganics (mg/Kg)														
Aluminum	17000		11000	J	5600		14000		9500		6400		4800	
Antimony	1.3	UJ	0.68	UJ	0.72	UJ	1.3	UJ	0.63	UJ	0.59	UJ	0.65	UJ
Arsenic	**3.3**		**5.8**	J	1.5		**2.8**		**3.7**		**2.7**		**3.2**	
Barium	100		39		17		96		40		23		24	
Beryllium	0.39	J	0.31		0.19	J	0.23	J	0.22	J	0.16	J	0.19	J
Cadmium	0.34	J	0.41	J	0.17	J	0.37	J	0.26		0.15	J	0.17	J
Calcium	3300		4400	J	1900		4300		3200	J	1600		1600	
Chromium	49		40	J	11		200		35		17		17	
Chromium, Hexavalent														
Cobalt	13		11	J	5.8		15		7.5		5		6.1	
Copper	18		31	J	20		39		15		18		12	
Iron	28000		22000	J	10000		25000		18000		12000		9600	
Lead	1.1	J	2.4	J	2.5		2.7		1.3	J	1		1.5	
Magnesium	11000		5400		3200		9400		6200	J	3800		2400	
Manganese	190		200	J	98		190		150		85		75	
Nickel	32		18	J	8.5		24		15	J	11		13	
Potassium	7400		2000		900		3900		2600		1600		920	
Silver	1.3	U	0.13	J	0.72	U	2.8		0.07	J	0.59	U	0.65	U
Sodium	150	J	320		62	J	250	J	130		59	J	88	J
Thallium	2.6	U	1.4	U	1.4	U	2.6	U	1.3	U	1.2	U	1.3	U
Tin	17	J	15	J	3.7	J	79	J	12	J	5.8	J	6.4	J
Vanadium	43		37		17		46		31		17		15	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-433-20/22-XXX SB-433 8/24/2009 20-22 ft		OC-SB-434-15/16-XXX SB-434 9/10/2009 15-16 ft		OC-SB-435-11/15-XXX SB-435 9/17/2009 111-15 ft		OC-SB-436-13/15-XXX SB-436 8/20/2009 13-15 ft		OC-SB-437-21/23-XXX SB-437 8/21/2009 21-23 ft		OC-SB-438-20/22-XXX SB-438 8/24/2009 20-22 ft		OC-SB-439-16/18-XXX SB-439 8/24/2009 16-18 ft	
Zinc	26		32		19		26		24		16		20	
Chloride	22	U	23	U	21	U	21	U	21	U	21	U	23	U
Nitrogen, as Ammonia	110		150		140		310		160	EB	100		180	
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate	43	U	46	U	42	U	200		42	U	96	EB	46	U
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene														
Toluene														
Xylenes, Total														
C5-C8 Aliphatics														
C5-C8 Aliphatics (unadj.)														
C9-C10 Aromatics														
C9-C12 Aliphatics														
C9-C12 Aliphatics (unadj.)														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)anthracene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine					0.0022	U								
Acetaldehyde			0.23	U	0.22	U			0.05	J				
Formaldehyde			1		0.17				0.33					
Phthalic Acid/Phthalic anhydride					0.11	U								

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-440-23/25-XXX SB-440 8/24/2009 23-25 ft		OC-SB-441-17/19-XXX SB-441 8/24/2009 17-19 ft		OC-SB-442-20/22-XXX SB-442 8/31/2009 20-22 ft		OC-SB-443-18/20-XXX SB-443 8/20/2009 18-20 ft		OC-SB-444-12/14-XXX SB-444 8/27/2009 12-14 ft		OC-SB-445-25/27-XXX SB-445 8/21/2009 25-27 ft	
Volatile Organics (mg/Kg)												
1,2,3-Trichlorobenzene	0.0022	UJ							0.0023	U		
1,2,4-Trimethylbenzene	0.0022	UJ							0.0023	U		
1,2-Dichlorobenzene	0.0022	UJ							0.0023	U		
1,3,5-Trimethylbenzene	0.0022	UJ							0.0023	U		
2,4,4-Trimethyl-1-pentene	0.0044	UJ							0.0047	U		
2,4,4-Trimethyl-2-pentene	0.0044	UJ							0.0047	U		
2-Butanone	0.022	UJ							0.065			
2-Hexanone	0.022	UJ							0.023	U		
4-iso-Propyltoluene	0.0022	UJ							0.0023	U		
Acetone	0.22	UJ							0.22	J		
Carbon disulfide	0.0022	UJ							0.0034			
Chloromethane	0.0044	UJ							0.0047	U		
Dibromomethane	0.0022	UJ							0.0023	U		
Ethyl benzene	0.0022	UJ							0.0023	U		
Naphthalene	0.022	UJ							0.023	U		
Styrene	0.0022	UJ							0.0023	U		
Tetrahydrofuran	0.022	UJ							0.023	U		
Toluene	0.0022	UJ							0.0023	U		
Trichloroethene	0.0022	UJ							0.0023	U		
Xylene, o	0.0022	UJ							0.0023	U		
Xylenes (m&p)	0.0044	UJ							0.0047	U		
Xylenes, Total	0.0044	UJ							0.0047	U		
Semivolatile Organics (mg/Kg)												
1-Methylnaphthalene	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
2,4-Dimethylphenol	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
2-Methylnaphthalene	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
2-Methylphenol	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
4-Bromophenyl phenyl ether	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
4-Chlorophenyl phenyl ether	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Acenaphthene	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Acetophenone	0.036	U	0.036	U	0.036	U	0.036	U	0.0041	JEB	0.036	U
Benzo(a)anthracene	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Benzo(a)pyrene	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Benzo(b)fluoranthene	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Benzo(ghi)perylene	0.036	U	0.036	UJ	0.036	U	0.036	U	0.035	U	0.036	U
Benzoic Acid		R		R	0.18	UJ		R		R		R
Biphenyl	0.044		0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Bis(2-Ethylhexyl)phthalate	0.023	JEB	0.025	JEB	0.036	U	0.034	JEB	0.035	U	0.018	JEB
Butylbenzylphthalate	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Chrysene	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-440-23/25-XXX SB-440 8/24/2009 23-25 ft		OC-SB-441-17/19-XXX SB-441 8/24/2009 17-19 ft		OC-SB-442-20/22-XXX SB-442 8/31/2009 20-22 ft		OC-SB-443-18/20-XXX SB-443 8/20/2009 18-20 ft		OC-SB-444-12/14-XXX SB-444 8/27/2009 12-14 ft		OC-SB-445-25/27-XXX SB-445 8/21/2009 25-27 ft	
Dibenzofuran	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Di-n-butylphthalate	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.021	J
Di-n-octylphthalate	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Diphenyl ether	0.13		0.14		0.036	U	0.036	U	0.035	U	0.036	U
Diphenylamine												
Diphenylmethanone	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Fluorene	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Naphthalene	0.087	U	0.086	U	0.085	U	0.085	U	0.084	U	0.087	U
N-Nitrosodiphenylamine	0.036	U	0.036	U	0.036	U	0.036	U	0.026	JEB	0.036	U
Phenanthrene	0.043	U	0.043	U	0.043	U	0.043	U	0.042	U	0.044	U
Phenol	0.029	J	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Pyrene	0.036	U	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U
Inorganics (mg/Kg)												
Aluminum	5800		8800		4600		6900		7800		8500	
Antimony	0.73	UJ	0.7	UJ	0.55	UJ	0.68	UJ	0.71	UJ	0.7	UJ
Arsenic	2.2		**3**		**2.6**		**4.5**		**6.4**		**4.9**	
Barium	16		48		14		42		33		37	
Beryllium	0.24	J	0.25	J	0.14	J	0.12	J	0.19	J	0.22	J
Cadmium	0.15	J	0.32		0.16	J	0.31		0.27	J	0.26	J
Calcium	2900		3800		1500		4700	J	1700		3000	J
Chromium	13		19		13		20		130		48	
Chromium, Hexavalent												
Cobalt	4.5		12		6		6.8		5.1		7.8	
Copper	11		64		15		15		20		20	
Iron	11000		22000		9700		21000		17000		19000	
Lead	1.6		2.3		1.5		2.5	J	4.4		1.2	J
Magnesium	3000		4600		2700		3000	J	3600		5100	J
Manganese	91		130		93		83		110		110	
Nickel	9.5		14		9		9.3	J	11		17	J
Potassium	1400		2600		1100		2600		1300		2300	
Silver	0.73	U	0.7	U	0.55	U	2.2		1.8		0.28	J
Sodium	140	J	120	J	61	J	800		52	J	120	J
Thallium	1.5	U	1.4	U	1.1	U	1.4	U	1.4	U	1.4	U
Tin	4.1	J	5.9	J	4.2	J	6.1	J	54	J	17	J
Vanadium	12		42		13		45		23		31	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-440-23/25-XXX SB-440 8/24/2009 23-25 ft		OC-SB-441-17/19-XXX SB-441 8/24/2009 17-19 ft		OC-SB-442-20/22-XXX SB-442 8/31/2009 20-22 ft		OC-SB-443-18/20-XXX SB-443 8/20/2009 18-20 ft		OC-SB-444-12/14-XXX SB-444 8/27/2009 12-14 ft		OC-SB-445-25/27-XXX SB-445 8/21/2009 25-27 ft	
Zinc	18		39		12		11		19		20	
Chloride	22	U	22	U	22	U	21	U	19	U	22	U
Nitrogen, as Ammonia	170		87		220		220	EB	310		160	EB
Oxidation Reduction Potential **(mV)**												
pH **(pH units)**												
Sulfate	45	EB	44	U	43	U	190		37	U	140	
Sulfate **(mg/L)**												
VPH (mg/Kg)												
Ethyl benzene												
Toluene												
Xylenes, Total												
C5-C8 Aliphatics	2.4	UJ	2.1	U								
C5-C8 Aliphatics (unadj.)	2.4	UJ	2.1	U								
C9-C10 Aromatics	2.4	UJ	2.1	U								
C9-C12 Aliphatics	2.4	UJ	2.1	U								
C9-C12 Aliphatics (unadj.)	2.4	UJ	2.1	U								
Volatile Petroleum Hydrocarbons, Total	2.4	UJ	2.1	U								
EPH (mg/Kg)												
Benzo(a)anthracene												
Benzo(ghi)perylene												
C11-C22 Aromatics	3.6	U	4.7									
C11-C22 Aromatics (unadj.)	3.6	U	4.7									
C19-C36 Aliphatics	3.6	U	3.4	U								
C9-C18 Aliphatics	3.6	U	3.4	U								
Extractable Petroleum Hydrocarbons, Total	3.6	U	4.7									
Specialty Compounds (mg/Kg)												
Hydrazine												
Acetaldehyde					0.036	J	0.21	U	0.036	J	0.21	U
Formaldehyde					0.26		0.18		0.25		0.21	
Phthalic Acid/Phthalic anhydride												

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-446-15/17-XXX SB-446 8/25/2009 15-17 ft		OC-SB-447-18/20-XXX SB-447 8/31/2009 18-20 ft		OC-SB-448-17/19-XXX SB-448 8/25/2009 17-19 ft		OC-SB-449-11/13-XXX SB-449 8/27/2009 111-13 ft		OC-SB-450-33/35-XXX SB-450 9/9/2009 33-35 ft		OC-SB-451-18/20-XXX SB-451 8/28/2009 18-20 ft	
Volatile Organics (mg/Kg)												
1,2,3-Trichlorobenzene			0.0023	U	0.0022	U						
1,2,4-Trimethylbenzene			0.0023	U	0.0022	U						
1,2-Dichlorobenzene			0.0023	U	0.0022	U						
1,3,5-Trimethylbenzene			0.0023	U	0.0022	U						
2,4,4-Trimethyl-1-pentene			0.0047	U	0.0044	U						
2,4,4-Trimethyl-2-pentene			0.0047	U	0.0044	U						
2-Butanone			0.023	U	0.022	U						
2-Hexanone			0.023	U	0.022	U						
4-iso-Propyltoluene			0.0023	U	0.0022	U						
Acetone			0.23	UJ	0.22	UJ						
Carbon disulfide			0.0023	U	0.0022	U						
Chloromethane			0.0047	U	0.0044	U						
Dibromomethane			0.0023	U	0.0022	U						
Ethyl benzene			0.0023	U	0.0022	U						
Naphthalene			0.023	U	0.022	U						
Styrene			0.0023	U	0.0022	U						
Tetrahydrofuran			0.023	U	0.022	U						
Toluene			0.0023	U	0.0022	U						
Trichloroethene			0.0023	U	0.0022	U						
Xylene, o			0.0023	U	0.0022	U						
Xylenes (m&p)			0.0047	U	0.0044	U						
Xylenes, Total			0.0047	U	0.0044	U						
Semivolatile Organics (mg/Kg)												
1-Methylnaphthalene	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
2,4-Dimethylphenol	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
2-Methylnaphthalene	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
2-Methylphenol	0.036	U	0.037	U	0.036	U	0.015	J	0.036	U	0.037	U
4-Bromophenyl phenyl ether	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
4-Chlorophenyl phenyl ether	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Acenaphthene	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Acetophenone	0.036	U	0.037	U	0.036	U	0.0044	JEB	0.036	U	0.037	U
Benzo(a)anthracene	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Benzo(a)pyrene	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Benzo(b)fluoranthene	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Benzo(ghi)perylene	0.036	UJ	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Benzoic Acid		R		R		R		R	0.18	U	0.19	UJ
Biphenyl	0.032	J	0.33		0.036	U	0.037	U	0.036	U	0.032	J
Bis(2-Ethylhexyl)phthalate	0.024	JEB	0.022	JEB	0.029	JEB	0.037	U	0.34	U	0.037	U
Butylbenzylphthalate	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Chrysene	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-446-15/17-XXX SB-446 8/25/2009 15-17 ft		OC-SB-447-18/20-XXX SB-447 8/31/2009 18-20 ft		OC-SB-448-17/19-XXX SB-448 8/25/2009 17-19 ft		OC-SB-449-11/13-XXX SB-449 8/27/2009 111-13 ft		OC-SB-450-33/35-XXX SB-450 9/9/2009 33-35 ft		OC-SB-451-18/20-XXX SB-451 8/28/2009 18-20 ft	
Dibenzofuran	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Di-n-butylphthalate	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Di-n-octylphthalate	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Diphenyl ether	0.13		1.1		0.036	U	0.037	U	0.036	U	0.094	
Diphenylamine					0.0076	J						
Diphenylmethanone	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Fluorene	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Naphthalene	0.086	U	0.088	U	0.087	U	0.09	U	0.086	U	0.089	U
N-Nitrosodiphenylamine	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Phenanthrene	0.043	U	0.044	U	0.044	U	0.045	U	0.043	U	0.044	U
Phenol	0.013	J	0.018	J	0.036	U	0.037	U	0.036	U	0.037	U
Pyrene	0.036	U	0.037	U	0.036	U	0.037	U	0.036	U	0.037	U
Inorganics (mg/Kg)												
Aluminum	9800		7400		10000		5600		7900	J	7400	
Antimony	0.59	UJ	0.68	UJ	0.24	J	0.59	UJ	0.64	UJ	0.71	UJ
Arsenic	**3.6**		**3.9**		1.5		**4.6**		**4.5**	J	**6**	
Barium	32		30		76		20		24		33	
Beryllium	0.35		0.22	J	0.22	J	0.15	J	0.23	J	0.42	
Cadmium	0.2	J	0.22	J	0.23	J	0.11	J	0.23	J	0.27	J
Calcium	2700		2000		2300		1300		2600	J	1400	
Chromium	26		12		390		160		18	J	48	
Chromium, Hexavalent												
Cobalt	7.1		6		9.1		2.8		6.6	J	5.9	
Copper	22		26		15		8.3		20	J	12	
Iron	14000		15000		18000		7000		13000	J	12000	
Lead	1.7		1.4		1.2		2.4		1.7	J	2.9	
Magnesium	4600		3500		8100	J	1900		4000		3000	
Manganese	96		93		200		79		100	J	110	
Nickel	16		9.8		20		7.5		13	J	16	
Potassium	2100		1900		2700		1000		1500		1600	
Silver	1.9		0.68	U	6.9		2.5		0.64	U	0.34	J
Sodium	200		61	J	83	J	57	J	150		22	J
Thallium	1.2	U	1.4	U	1.3	U	1.2	U	1.3	U	1.4	U
Tin	9.4	J	3.6	J	160	J	67	J	6.5	J	19	J
Vanadium	24		19		24		11		21		17	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-446-15/17-XXX SB-446 8/25/2009 15-17 ft		OC-SB-447-18/20-XXX SB-447 8/31/2009 18-20 ft		OC-SB-448-17/19-XXX SB-448 8/25/2009 17-19 ft		OC-SB-449-11/13-XXX SB-449 8/27/2009 111-13 ft		OC-SB-450-33/35-XXX SB-450 9/9/2009 33-35 ft		OC-SB-451-18/20-XXX SB-451 8/28/2009 18-20 ft	
Zinc	23		22		25		16		21		66	
Chloride	22	U	22	U	22	U	22	U	22	U	21	U
Nitrogen, as Ammonia	400		210		70		20		210		85	
Oxidation Reduction Potential **(mV)**												
pH **(pH units)**												
Sulfate	59	EB	44	U	44	U	44	U	69		42	U
Sulfate **(mg/L)**												
VPH (mg/Kg)												
Ethyl benzene												
Toluene												
Xylenes, Total												
C5-C8 Aliphatics			2.6	U								
C5-C8 Aliphatics (unadj.)			2.6	U								
C9-C10 Aromatics			2.6	U								
C9-C12 Aliphatics			2.6	U								
C9-C12 Aliphatics (unadj.)			2.6	U								
Volatile Petroleum Hydrocarbons, Total			2.6	U								
EPH (mg/Kg)												
Benzo(a)anthracene												
Benzo(ghi)perylene												
C11-C22 Aromatics			3.6	U								
C11-C22 Aromatics (unadj.)			3.6	U								
C19-C36 Aliphatics			3.6	U								
C9-C18 Aliphatics			3.6	U								
Extractable Petroleum Hydrocarbons, Total			3.6	U								
Specialty Compounds (mg/Kg)												
Hydrazine					0.0021	U						
Acetaldehyde	0.033	J			0.035	J			0.22	U	0.037	J
Formaldehyde	0.15				0.26				0.32		0.14	
Phthalic Acid/Phthalic anhydride					0.11	U						

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-452-13/15-XXX SB-452 8/31/2009 13-15 ft		OC-SB-454-18/20-XXX SB-454 8/27/2009 18-20 ft		OC-SB-455-28/30-XXX SB-455 8/28/2009 28-30 ft		OC-SB-456-16/18-XXX SB-456 9/11/2009 16-18 ft		OC-SB-457-28/30-XXX SB-457 9/14/2009 28-30 ft		OC-SB-458-22/24-XXX SB-458 8/31/2009 22-24 ft		OC-SB-459-26/28-XXX SB-459 9/3/2009 26-28 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene							0.0026	U	0.0021	U			0.0023	U
1,2,4-Trimethylbenzene							0.0026	U	0.0021	U			0.0023	U
1,2-Dichlorobenzene							0.0026	U	0.0021	U			0.0023	U
1,3,5-Trimethylbenzene							0.0026	U	0.0021	U			0.0023	U
2,4,4-Trimethyl-1-pentene							0.0053	U	0.0041	U			0.0047	U
2,4,4-Trimethyl-2-pentene							0.0053	U	0.0041	U			0.0047	U
2-Butanone							0.026	U	0.021	U			0.023	U
2-Hexanone							0.026	U	0.021	U			0.023	U
4-iso-Propyltoluene							0.0026	U	0.0021	U			0.0023	U
Acetone							0.26	UJ	0.21	UJ			0.23	UJ
Carbon disulfide							0.0014	J	0.0021	U			0.0023	U
Chloromethane							0.0053	U	0.0041	U			0.0047	U
Dibromomethane							0.0026	U	0.0021	U			0.0023	U
Ethyl benzene							0.0026	U	0.0021	U			0.0023	U
Naphthalene							0.026	U	0.021	U			0.023	U
Styrene							0.0026	U	0.0021	U			0.0023	U
Tetrahydrofuran							0.029	U	0.021	U			0.023	U
Toluene							0.0026	U	0.0021	U			0.0023	U
Trichloroethene							0.0026	U	0.0021	U			0.0023	U
Xylene, o							0.0026	U	0.0021	U			0.0023	U
Xylenes (m&p)							0.0053	U	0.0041	U			0.0047	U
Xylenes, Total							0.0053	U	0.0041	U			0.0047	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
2,4-Dimethylphenol	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
2-Methylnaphthalene	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
2-Methylphenol	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
4-Bromophenyl phenyl ether	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
4-Chlorophenyl phenyl ether	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Acenaphthene	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Acetophenone	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Benzo(a)anthracene	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Benzo(a)pyrene	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Benzo(b)fluoranthene	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Benzo(ghi)perylene	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Benzoic Acid	0.18	U	0.18	UJ	0.18	UJ	0.18	U	0.21	U	0.18	U	0.18	U
Biphenyl	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Bis(2-Ethylhexyl)phthalate	0.023	JEB	0.035	U	0.035	U	0.34	U	0.075	U	0.036	U	0.11	U
Butylbenzylphthalate	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Chrysene	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-452-13/15-XXX SB-452 8/31/2009 13-15 ft		OC-SB-454-18/20-XXX SB-454 8/27/2009 18-20 ft		OC-SB-455-28/30-XXX SB-455 8/28/2009 28-30 ft		OC-SB-456-16/18-XXX SB-456 9/11/2009 16-18 ft		OC-SB-457-28/30-XXX SB-457 9/14/2009 28-30 ft		OC-SB-458-22/24-XXX SB-458 8/31/2009 22-24 ft		OC-SB-459-26/28-XXX SB-459 9/3/2009 26-28 ft	
Dibenzofuran	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Di-n-butylphthalate	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Di-n-octylphthalate	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Diphenyl ether	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Diphenylamine							0.036	U	0.042	U				
Diphenylmethanone	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Fluorene	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Naphthalene	0.087	U	0.084	U	0.085	U	0.086	U	0.1	U	0.086	U	0.088	U
N-Nitrosodiphenylamine	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Phenanthrene	0.043	U	0.042	U	0.042	U	0.043	U	0.051	U	0.043	U	0.044	U
Phenol	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Pyrene	0.036	U	0.035	U	0.035	U	0.036	U	0.042	U	0.036	U	0.037	U
Inorganics (mg/Kg)														
Aluminum	7300		10000		6500		11000		8600		5800		7500	
Antimony	0.69	UJ	0.56	UJ	0.64	UJ	0.62	UJ	0.29	J	0.61	UJ	0.59	UJ
Arsenic	**7.8**		**4.4**		**2.9**		**3.5**		**4**		**3.5**		**3.8**	
Barium	24		31		26		52		41	J	16		11	
Beryllium	0.21	J	0.26		0.16	J	0.24	J	0.21	J	0.18	J	0.27	
Cadmium	0.23	J	0.25		0.22	J	0.28		0.26	J	0.14	J	0.14	J
Calcium	3200		2800		2800		3400		2800		1500		1400	
Chromium	17		250		18		280	J	180		13		460	
Chromium, Hexavalent			**10**				**9.7**		**11**					
Cobalt	7.2		7.6		7.8		8.9		7.7		4		3.7	
Copper	29		25		23		35	J	25		11		16	
Iron	15000		17000		14000		20000		19000		10000		11000	
Lead	2.5		1.4		1.3		3.6		3	J	1.5		1.7	
Magnesium	3200		5300		4200		6000		5200		2600		2800	
Manganese	110		110		150		210		140		85		80	
Nickel	13		18		14		13		14		8.2		8.6	
Potassium	1000		2000		1700		2600	J	2600		1100		840	
Silver	0.69	U	4		0.64	U	4.4		2.7		0.61	U	8.4	
Sodium	130	J	260		110	J	140		410		68	J	430	
Thallium	1.4	U	1.1	U	1.3	U	0.25	JEB	1.5	U	1.2	U	1.2	U
Tin	5.5	J	100	J	6	J	110	J	69	J	4.2	J	190	J
Vanadium	30		28		21		39		32		13		18	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-452-13/15-XXX SB-452 8/31/2009 13-15 ft		OC-SB-454-18/20-XXX SB-454 8/27/2009 18-20 ft		OC-SB-455-28/30-XXX SB-455 8/28/2009 28-30 ft		OC-SB-456-16/18-XXX SB-456 9/11/2009 16-18 ft		OC-SB-457-28/30-XXX SB-457 9/14/2009 28-30 ft		OC-SB-458-22/24-XXX SB-458 8/31/2009 22-24 ft		OC-SB-459-26/28-XXX SB-459 9/3/2009 26-28 ft	
Zinc	20		16		17		36		23		16		14	
Chloride	21	U	24		20	U	21	U	25	U	21	U	21	U
Nitrogen, as Ammonia	210		150		330		390	J	130		240		220	
Oxidation Reduction Potential **(mV)**			380				320		370					
pH **(pH units)**			7.77	H			7.72		7.77					
Sulfate	43	U	99		41	U	63		210		43	U	490	
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene														
Toluene														
Xylenes, Total														
C5-C8 Aliphatics														
C5-C8 Aliphatics (unadj.)														
C9-C10 Aromatics														
C9-C12 Aliphatics														
C9-C12 Aliphatics (unadj.)														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)anthracene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine							0.00058	J	0.0028					
Acetaldehyde	0.039	J					0.22	UJ	0.066	J	0.22	U	0.21	UJ
Formaldehyde	0.26						0.23		0.65		0.25		0.15	
Phthalic Acid/Phthalic anhydride							0.11	U	0.13	U				

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-460-30/32-XXX SB-460 9/1/2009 30-32 ft		OC-SB-461-28/30-XXX SB-461 9/3/2009 28-30 ft		OC-SB-462-31/33-XXX SB-462 9/3/2009 31-33 ft		OC-SB-463-28/30-XXX SB-463 9/1/2009 28-30 ft		OC-SB-464-26/28-XXX SB-464 9/1/2009 26-28 ft		OC-SB-465-16/18-XXX SB-465 9/2/2009 16-18 ft		OC-SB-466-30/32-XXX SB-466 9/8/2009 30-32 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene			0.0022	U	0.0023	U					0.0027	U	0.0022	U
1,2,4-Trimethylbenzene			0.0022	U	0.0023	U					0.0027	U	0.0022	U
1,2-Dichlorobenzene			0.0022	U	0.0023	U					0.0027	U	0.0022	U
1,3,5-Trimethylbenzene			0.0022	U	0.0023	U					0.0027	U	0.0022	U
2,4,4-Trimethyl-1-pentene			0.0044	U	0.0045	U					0.0053	U	0.0044	U
2,4,4-Trimethyl-2-pentene			0.0044	U	0.0045	U					0.0053	U	0.0044	U
2-Butanone			0.022	U	0.023	U					0.0079	J	0.022	U
2-Hexanone			0.022	U	0.023	U					0.027	U	0.022	U
4-iso-Propyltoluene			0.0022	U	0.0023	U					0.0027	U	0.0022	U
Acetone			0.22	UJ	0.23	UJ					0.27	UJ	0.22	UJ
Carbon disulfide			0.0022	U	0.0023	U					0.0027	U	0.0046	
Chloromethane			0.0044	U	0.0045	U					0.0053	U	0.0044	U
Dibromomethane			0.0022	U	0.0023	U					0.0027	U	0.0017	J
Ethyl benzene			0.0022	U	0.0023	U					0.0027	U	0.0022	U
Naphthalene			0.022	U	0.023	U					0.027	U	0.022	U
Styrene			0.0022	U	0.0023	U					0.0027	U	0.0022	U
Tetrahydrofuran			0.022	U	0.023	U					0.027		0.022	U
Toluene			0.0022	U	0.0023	U					0.0027	U	0.0022	U
Trichloroethene			0.0022	U	0.0023	U					0.0027	U	0.0022	U
Xylene, o			0.0022	U	0.0023	U					0.0027	U	0.0022	U
Xylenes (m&p)			0.0044	U	0.0045	U					0.0053	U	0.0044	U
Xylenes, Total			0.0044	U	0.0045	U					0.0053	U	0.0044	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
2,4-Dimethylphenol	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
2-Methylnaphthalene	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
2-Methylphenol	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
4-Bromophenyl phenyl ether	0.037	U	0.017	J	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
4-Chlorophenyl phenyl ether	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Acenaphthene	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Acetophenone	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Benzo(a)anthracene	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Benzo(a)pyrene	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Benzo(b)fluoranthene	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Benzo(ghi)perylene	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Benzoic Acid	0.18	U	0.18	U	0.18	UJ	0.18	UJ	0.18	UJ	0.18	U	0.18	U
Biphenyl	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Bis(2-Ethylhexyl)phthalate	0.022	JEB	0.14	U	0.11	U	0.036	U	0.036	U	0.041	U	0.19	U
Butylbenzylphthalate	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Chrysene	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-460-30/32-XXX SB-460 9/1/2009 30-32 ft		OC-SB-461-28/30-XXX SB-461 9/3/2009 28-30 ft		OC-SB-462-31/33-XXX SB-462 9/3/2009 31-33 ft		OC-SB-463-28/30-XXX SB-463 9/1/2009 28-30 ft		OC-SB-464-26/28-XXX SB-464 9/1/2009 26-28 ft		OC-SB-465-16/18-XXX SB-465 9/2/2009 16-18 ft		OC-SB-466-30/32-XXX SB-466 9/8/2009 30-32 ft	
Dibenzofuran	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Di-n-butylphthalate	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Di-n-octylphthalate	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Diphenyl ether	0.017	J	0.05		0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Diphenylamine													0.036	U
Diphenylmethanone	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Fluorene	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Naphthalene	0.088	U	0.085	U	0.087	U	0.086	U	0.086	U	0.088	U	0.087	U
N-Nitrosodiphenylamine	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Phenanthrene	0.044	U	0.042	U	0.044	U	0.043	U	0.043	U	0.044	U	0.043	U
Phenol	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Pyrene	0.037	U	0.035	U	0.036	U	0.036	U	0.036	U	0.037	U	0.036	U
Inorganics (mg/Kg)														
Aluminum	5900		7300		6000		8100		9600		4700		21000	
Antimony	0.6	UJ	0.62	UJ	0.55	UJ	0.55	UJ	0.68	UJ	0.56	UJ	3.5	UJ
Arsenic	**3.9**		**4.8**		2.2		**3**		**3.2**		**6.6**		2	J
Barium	24		20		26		31		62		13		110	
Beryllium	0.19	J	0.16	J	0.17	J	0.24		0.22	J	0.17	J	0.3	J
Cadmium	0.28		0.26		0.18	J	0.24		0.22	J	0.09	J	0.4	J
Calcium	1900		2500		3400		2900	J	3700	J	840	J	4700	
Chromium	120		230		150		16		53		9.2		250	
Chromium, Hexavalent													**16**	
Cobalt	5.3		7.5		7.6		9.9		11		2.5		14	
Copper	19		25		20		16		50		6.2		66	
Iron	13000		16000		13000		16000		15000		7700		32000	
Lead	1.4		4		1.4		2.5		7.4		2.9		1.5	J
Magnesium	3300		4900		4100		6500		7100		1700		14000	
Manganese	96		110		160		330	J	230	J	61	J	340	
Nickel	9.9		13		6.3		15		23		6.5		27	
Potassium	1400		1000		1800		1700	J	3700	J	870	J	12000	
Silver	1.5		3.5		2.4		0.55	U	0.38	J	0.56	U	3.8	
Sodium	68	J	280		92	J	71	J	450	J	47	J	520	J
Thallium	1.2	U	1.2	U	1.1	U	1.1	U	1.4	U	1.1	U	0.54	J
Tin	50	J	100	J	59	J	5	J	19	J	2.9	J	99	J
Vanadium	19		31		17		20		24		9.3		45	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-460-30/32-XXX SB-460 9/1/2009 30-32 ft		OC-SB-461-28/30-XXX SB-461 9/3/2009 28-30 ft		OC-SB-462-31/33-XXX SB-462 9/3/2009 31-33 ft		OC-SB-463-28/30-XXX SB-463 9/1/2009 28-30 ft		OC-SB-464-26/28-XXX SB-464 9/1/2009 26-28 ft		OC-SB-465-16/18-XXX SB-465 9/2/2009 16-18 ft		OC-SB-466-30/32-XXX SB-466 9/8/2009 30-32 ft	
Zinc	17		20		15		27		28		11		46	
Chloride	22	U	20	U	18	U	22	U	31		22	U	29	
Nitrogen, as Ammonia	280		210		180		510	J	120	J	79	J	250	
Oxidation Reduction Potential **(mV)**													350	
pH **(pH units)**													7.98	H
Sulfate	44	U	200		37	U	43	U	43	U	44	U	950	
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene														
Toluene														
Xylenes, Total														
C5-C8 Aliphatics														
C5-C8 Aliphatics (unadj.)														
C9-C10 Aromatics														
C9-C12 Aliphatics														
C9-C12 Aliphatics (unadj.)														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)anthracene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine													0.0012	J
Acetaldehyde									0.22	U	0.22	U	0.22	U
Formaldehyde									0.5		0.25		0.66	
Phthalic Acid/Phthalic anhydride													0.11	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-467-30/32-XXX SB-467 9/2/2009 30-32 ft		OC-SB-468-31/33-XXX SB-468 9/2/2009 31-33 ft		OC-SB-469-28/30-XXX SB-469 9/9/2009 28-30 ft		OC-SB-470-31/33-XXX SB-470 9/4/2009 31-33 ft		OC-SB-471-26/28-XXX SB-471 9/2/2009 26-28 ft		OC-SB-472-30/32-XXX SB-472 9/4/2009 30-32 ft		OC-SB-473-13/15-XXX SB-473 9/18/2009 13-15 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
1,2,4-Trimethylbenzene	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
1,2-Dichlorobenzene	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
1,3,5-Trimethylbenzene	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
2,4,4-Trimethyl-1-pentene	0.0045	UJ			0.0047	U	0.0047	U			0.004	U		
2,4,4-Trimethyl-2-pentene	0.0045	UJ			0.0047	U	0.0047	U			0.004	U		
2-Butanone	0.023	UJ			0.023	U	0.024	U			0.02	U		
2-Hexanone	0.023	UJ			0.023	U	0.024	U			0.02	U		
4-iso-Propyltoluene	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
Acetone	0.23	UJ			0.23	UJ	0.24	UJ			0.2	UJ		
Carbon disulfide	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
Chloromethane	0.0045	UJ			0.0047	U	0.0047	U			0.004	U		
Dibromomethane	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
Ethyl benzene	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
Naphthalene	0.023	UJ			0.023	U	0.024	U			0.02	U		
Styrene	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
Tetrahydrofuran	0.023	UJ			0.023	U	0.024	U			0.02	U		
Toluene	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
Trichloroethene	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
Xylene, o	0.0023	UJ			0.0023	U	0.0024	U			0.002	U		
Xylenes (m&p)	0.0045	UJ			0.0047	U	0.0047	U			0.004	U		
Xylenes, Total	0.0045	UJ			0.0047	U	0.0047	U			0.004	U		
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
2,4-Dimethylphenol	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
2-Methylnaphthalene	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
2-Methylphenol	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
4-Bromophenyl phenyl ether	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
4-Chlorophenyl phenyl ether	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Acenaphthene	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Acetophenone	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Benzo(a)anthracene	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Benzo(a)pyrene	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	UJ	0.036	U
Benzo(b)fluoranthene	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	UJ	0.036	U
Benzo(ghi)perylene	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	UJ	0.036	U
Benzoic Acid	0.19	UJ	0.18	UJ	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Biphenyl	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Bis(2-Ethylhexyl)phthalate	0.075	U	0.036	U	0.23	U	0.087	U	0.083	U	0.11	U	0.036	U
Butylbenzylphthalate	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Chrysene	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-467-30/32-XXX SB-467 9/2/2009 30-32 ft		OC-SB-468-31/33-XXX SB-468 9/2/2009 31-33 ft		OC-SB-469-28/30-XXX SB-469 9/9/2009 28-30 ft		OC-SB-470-31/33-XXX SB-470 9/4/2009 31-33 ft		OC-SB-471-26/28-XXX SB-471 9/2/2009 26-28 ft		OC-SB-472-30/32-XXX SB-472 9/4/2009 30-32 ft		OC-SB-473-13/15-XXX SB-473 9/18/2009 13-15 ft	
Dibenzofuran	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Di-n-butylphthalate	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Di-n-octylphthalate	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	UJ	0.036	U
Diphenyl ether	0.037	U	0.036	U	0.036	U	0.018	J	0.036	U	0.036	U	0.036	U
Diphenylamine											0.036	U		
Diphenylmethanone	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Fluorene	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Naphthalene	0.089	U	0.086	U	0.087	U	0.087	U	0.015	J	0.086	U	0.086	U
N-Nitrosodiphenylamine	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Phenanthrene	0.045	U	0.043	U	0.043	U	0.044	U	0.043	U	0.043	U	0.043	U
Phenol	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Pyrene	0.037	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U	0.036	U
Inorganics (mg/Kg)														
Aluminum	8400		5900		1400	J	4000		7800		8100		8400	
Antimony	0.33	J	0.72	UJ	0.58	UJ	0.58	UJ	0.6	UJ	0.64	UJ	0.66	UJ
Arsenic	**4.2**		**3.8**		2.2	J	**5**		**3.6**		**4**		**7.5**	
Barium	73		42		11		48		43		39		28	
Beryllium	0.2	J	0.15	J	0.046	J	0.082	J	0.2	J	0.16	J	0.36	
Cadmium	0.24	J	0.15	J	0.38	J	0.22	J	0.2	J	0.31		0.25	J
Calcium	3100		3200	J	1200	J	1900		3300	J	3200		2000	
Chromium	250		23		33	J	50		21		280		360	
Chromium, Hexavalent							2.6	J			5.3			
Cobalt	13		7.1		2.6	J	4.3		9.6		8.5		6	
Copper	26		14		28	J	5.3		16		23		18	
Iron	17000		12000		21000	J	13000		16000		17000		14000	
Lead	1.7		1.6		1.1	J	3.6		1.3		2.2		2.5	
Magnesium	5400		3800		280		1800		5200		5000		3600	
Manganese	220		110	J	190	J	75		150	J	140		140	
Nickel	14		15		19	J	3.2		15		13		14	
Potassium	3600		2000	J	320		2300		2500	J	2100		1400	
Silver	3.9		0.72	U	0.15	J	0.35	J	0.6	U	4.1		5	
Sodium	200		190	J	150		260		170	J	170		53	J
Thallium	1.4	U	1.4	U	1.2	U	1.2	U	1.2	U	1.3	U	1.3	U
Tin	100	J	7.9	J	14	J	20	J	6.9	J	120	J	150	
Vanadium	27		18		2.8		21		25		30		20	

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-467-30/32-XXX SB-467 9/2/2009 30-32 ft		OC-SB-468-31/33-XXX SB-468 9/2/2009 31-33 ft		OC-SB-469-28/30-XXX SB-469 9/9/2009 28-30 ft		OC-SB-470-31/33-XXX SB-470 9/4/2009 31-33 ft		OC-SB-471-26/28-XXX SB-471 9/2/2009 26-28 ft		OC-SB-472-30/32-XXX SB-472 9/4/2009 30-32 ft		OC-SB-473-13/15-XXX SB-473 9/18/2009 13-15 ft	
Zinc	24		19		4.4		14		23		21		28	
Chloride	18	U	21	U	22	U	53		21	U	15	U	19	U
Nitrogen, as Ammonia	100		88	J	7.1		70		100	J	160		93	
Oxidation Reduction Potential **(mV)**					330		380				430			
pH **(pH units)**							5.89	HF			8.13	H		
Sulfate	36	U	390		43	U	320		63		100		78	
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene														
Toluene														
Xylenes, Total														
C5-C8 Aliphatics														
C5-C8 Aliphatics (unadj.)														
C9-C10 Aromatics														
C9-C12 Aliphatics														
C9-C12 Aliphatics (unadj.)														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)anthracene														
Benzo(ghi)perylene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine											0.0031			
Acetaldehyde			0.22	U					0.21	U	0.21	U	0.22	U
Formaldehyde			0.51						0.64		0.29		0.093	J
Phthalic Acid/Phthalic anhydride											0.11	U		

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-474-10.5/12.5-XXX SB-474 11/18/2010 10.5-12.5 ft		OC-SB-475-16/18-XXX SB-475 11/18/2010 16-18 ft		OC-SB-476-13/15-XXX SB-476 11/18/2010 15 ft		OC-SB-477-10/12-XXX SB-477 11/18/2010 10-12 ft		OC-SB-478-10/12-XXX SB-478 11/18/2010 10-12 ft		OC-SB-485-11/13-XXX SB-485 11/15/2010 11-13 ft		OC-SB-494-12/14-XXX SB-494 11/16/2010 12-14 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene	0.0026	U	0.0026	U	0.12	U	0.13	U	0.14	U	0.002	U	0.0024	U
1,2,4-Trimethylbenzene	0.0026	UJ	0.0026	UJ	0.12	U	0.13	U	0.14	UJ	0.002	UJ	0.0024	UJ
1,2-Dichlorobenzene	0.0026	U	0.0026	U	0.12	U	0.13	U	0.14	U	0.002	U	0.0024	U
1,3,5-Trimethylbenzene	0.0026	U	0.0026	U	0.12	U	0.13	U	0.14	U	0.002	U	0.0024	U
2,4,4-Trimethyl-1-pentene	0.0052	U	0.0052	U	**130**		**390**		**290**		0.012		0.0047	U
2,4,4-Trimethyl-2-pentene	0.0052	U	0.0052	U	23		**53**		**58**		0.004		0.0047	U
2-Butanone	0.026	UJ	0.026	U	1.2	U	1.3	U	1.4	U	0.02	U	0.024	U
2-Hexanone	0.026	U	0.026	U	1.2	U	1.3	U	1.4	U	0.02	U	0.024	U
4-iso-Propyltoluene	0.0026	U	0.0026	U	0.12	U	0.085	J	0.14	U	0.002	U	0.0024	U
Acetone	0.26	UJ	0.26	UJ	1.1	J	1.5	J	14	UJ	0.2	UJ	0.24	UJ
Carbon disulfide	0.0026	U	0.0026	U	0.12	U	0.13	U	0.14	U	0.002	U	0.0024	U
Chloromethane	0.0052	U	0.0052	U	0.25	U	0.26	U	0.28	U	0.0039	U	0.0047	U
Dibromomethane	0.0026	U	0.0026	U	0.12	U	0.13	U	0.14	U	0.002	U	0.0024	U
Ethyl benzene	0.0026	U	0.0026	U	0.12	U	0.13	U	0.14	U	0.002	U	0.0024	U
Naphthalene	0.026	U	0.026	U	1.2	U	1.3	U	1.4	U	0.02	U	0.024	U
Styrene	0.0026	U	0.0026	U	0.12	U	0.13	U	0.14	U	0.002	U	0.0024	U
Tetrahydrofuran	0.026	UJ	0.026	UJ	1.2	UJ	1.3	UJ	1.4	UJ	0.02	UJ	0.024	UJ
Toluene	0.0026	U	0.0026	U	0.12	U	0.13	U	0.14	U	0.002	U	0.0024	U
Trichloroethene	0.0026	U	0.0026	U	0.12	U	0.13	U	0.14	U	0.002	U	0.0024	U
Xylene, o	0.0026	U	0.0026	U	0.12	U	0.13	U	0.14	U	0.002	U	0.0024	U
Xylenes (m&p)	0.0052	U	0.0052	U	0.25	U	0.26	U	0.28	U	0.0039	U	0.0047	U
Xylenes, Total	0.0052	U	0.0052	U	0.25	U	0.26	U	0.28	U	0.0039	U	0.0047	U
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
2,4-Dimethylphenol	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
2-Methylnaphthalene	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
2-Methylphenol	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
4-Bromophenyl phenyl ether	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
4-Chlorophenyl phenyl ether	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Acenaphthene	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Acetophenone	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.053	
Benzo(a)anthracene	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Benzo(a)pyrene	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Benzo(b)fluoranthene	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Benzo(ghi)perylene	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Benzoic Acid	0.12	J	0.1	J	37	UJ	4.8	UJ	9.7	UJ	0.05	J	0.18	UJ
Biphenyl	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Bis(2-Ethylhexyl)phthalate	0.05		0.48		**1900**		28		**1600**		0.036	U	0.022	J
Butylbenzylphthalate	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.11	
Chrysene	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-474-10.5/12.5-XXX SB-474 11/18/2010 10.5-12.5 ft		OC-SB-475-16/18-XXX SB-475 11/18/2010 16-18 ft		OC-SB-476-13/15-XXX SB-476 11/18/2010 15 ft		OC-SB-477-10/12-XXX SB-477 11/18/2010 10-12 ft		OC-SB-478-10/12-XXX SB-478 11/18/2010 10-12 ft		OC-SB-485-11/13-XXX SB-485 11/15/2010 11-13 ft		OC-SB-494-12/14-XXX SB-494 11/16/2010 12-14 ft	
Dibenzofuran	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Di-n-butylphthalate	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Di-n-octylphthalate	0.04	U	0.036		7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Diphenyl ether	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Diphenylamine														
Diphenylmethanone	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Fluorene	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Naphthalene	0.095	U	0.087	U	18	U	2.3	U	4.7	U	0.085	U	0.062	J
N-Nitrosodiphenylamine	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Phenanthrene	0.048	U	0.043	U	9	U	1.2	U	2.3	U	0.043	U	0.043	U
Phenol	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Pyrene	0.04	U	0.036	U	7.5	U	0.96	U	1.9	U	0.036	U	0.036	U
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent														
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Nickel														
Potassium														
Silver														
Sodium														
Thallium														
Tin														
Vanadium														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-474-10.5/12.5-XXX SB-474 11/18/2010 10.5-12.5 ft		OC-SB-475-16/18-XXX SB-475 11/18/2010 16-18 ft		OC-SB-476-13/15-XXX SB-476 11/18/2010 13-15 ft		OC-SB-477-10/12-XXX SB-477 11/18/2010 10-12 ft		OC-SB-478-10/12-XXX SB-478 11/18/2010 10-12 ft		OC-SB-485-11/13-XXX SB-485 11/15/2010 11-13 ft		OC-SB-494-12/14-XXX SB-494 11/16/2010 12-14 ft	
Zinc														
Chloride														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**														
pH **(pH units)**														
Sulfate														
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene														
Toluene														
Xylenes, Total														
C5-C8 Aliphatics	2.7	U	2.3	U	230		91		**510**		2	U	2.4	U
C5-C8 Aliphatics (unadj.)	2.7	U	2.3	U	230		91		**510**		2	U	2.4	U
C9-C10 Aromatics	2.7	U	2.3	U	12		24	U	37		2	U	2.4	U
C9-C12 Aliphatics	2.7	U	2.3	U	12	U	24	U	21		2	U	2.4	U
C9-C12 Aliphatics (unadj.)	2.7	U	2.3	U	14		24	U	58		2	U	2.4	U
Volatile Petroleum Hydrocarbons, Total	2.7	U	2.3	U	240		91		570		2	U	2.4	U
EPH (mg/Kg)														
Benzo(a)anthracene														
Benzo(ghi)perylene														
C11-C22 Aromatics	3.9	U	3.6	U	1000		41		350		3.6	U	3.6	U
C11-C22 Aromatics (unadj.)	3.9	U	3.6	U	1000		12		350		3.6	U	3.6	U
C19-C36 Aliphatics	3.9	U	3.6	U	59		3.8	U	4.1		3.6	U	3.6	U
C9-C18 Aliphatics	3.9	U	3.6	U	35		3.8	U	120		3.6	U	3.6	U
Extractable Petroleum Hydrocarbons, Total	3.9	U	3.6	U	1100		41		470		3.6	U	3.6	U
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-497-11/13-XXX SB-497 11/17/2010 11-13 ft		OC-SB-503-13/15-XXX SB-503 12/10/2012 13-15 ft		OC-SB-506-10/12-XXX SB-506 12/10/2012 10-12 ft		OC-SB-507-13/15-XXX SB-507 12/10/2012 13-15 ft		OC-SB-508-12/14-XXX SB-508 12/11/2012 12-14 ft		OC-SB-511-11/13-XXX SB-511 12/10/2012 11-13 ft		OC-SB-512-13/15-XXX SB-512 12/10/2012 13-15 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene	0.0021	U												
1,2,4-Trimethylbenzene	0.0021	UJ												
1,2-Dichlorobenzene	0.0021	U												
1,3,5-Trimethylbenzene	0.0021	U												
2,4,4-Trimethyl-1-pentene	0.0041	U												
2,4,4-Trimethyl-2-pentene	0.0041	U												
2-Butanone	0.021	U												
2-Hexanone	0.021	U												
4-iso-Propyltoluene	0.0021	U												
Acetone	0.21	UJ												
Carbon disulfide	0.0021	U												
Chloromethane	0.0041	U												
Dibromomethane	0.0021	U												
Ethyl benzene	0.0021	U												
Naphthalene	0.021	U												
Styrene	0.0021	U												
Tetrahydrofuran	0.021	UJ												
Toluene	0.0021	U												
Trichloroethene	0.0021	U												
Xylene, o	0.0021	U												
Xylenes (m&p)	0.0041	U												
Xylenes, Total	0.0041	U												
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.073	U												
2,4-Dimethylphenol	0.073	U												
2-Methylnaphthalene	0.073	U												
2-Methylphenol	0.073	U												
4-Bromophenyl phenyl ether	0.073	U												
4-Chlorophenyl phenyl ether	0.073	U												
Acenaphthene	0.073	U												
Acetophenone	0.073	U												
Benzo(a)anthracene	0.073	U												
Benzo(a)pyrene	0.073	U												
Benzo(b)fluoranthene	0.073	U												
Benzo(ghi)perylene	0.073	U												
Benzoic Acid	0.36	UJ												
Biphenyl	0.073	U												
Bis(2-Ethylhexyl)phthalate	0.92													
Butylbenzylphthalate	0.073	U												
Chrysene	0.073	U												

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-497-11/13-XXX SB-497 11/17/2010 11-13 ft		OC-SB-503-13/15-XXX SB-503 12/10/2012 13-15 ft		OC-SB-506-10/12-XXX SB-506 12/10/2012 10-12 ft		OC-SB-507-13/15-XXX SB-507 12/10/2012 13-15 ft		OC-SB-508-12/14-XXX SB-508 12/11/2012 12-14 ft		OC-SB-511-11/13-XXX SB-511 12/10/2012 11-13 ft		OC-SB-512-13/15-XXX SB-512 12/10/2012 13-15 ft	
Dibenzofuran	0.073	U												
Di-n-butylphthalate	0.073	U												
Di-n-octylphthalate	0.073	U												
Diphenyl ether	0.073	U												
Diphenylamine														
Diphenylmethanone	0.073	U												
Fluorene	0.073	U												
Naphthalene	0.17	U												
N-Nitrosodiphenylamine	0.073	U												
Phenanthrene	0.087	U												
Phenol	0.073	U												
Pyrene	0.073	U												
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent			2.3	U	0.23	U	4.1		0.26	J	2.3		1.4	
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Nickel														
Potassium														
Silver														
Sodium														
Thallium														
Tin														
Vanadium														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-497-11/13-XXX SB-497 11/17/2010 11-13 ft		OC-SB-503-13/15-XXX SB-503 12/10/2012 13-15 ft		OC-SB-506-10/12-XXX SB-506 12/10/2012 10-12 ft		OC-SB-507-13/15-XXX SB-507 12/10/2012 13-15 ft		OC-SB-508-12/14-XXX SB-508 12/11/2012 12-14 ft		OC-SB-511-11/13-XXX SB-511 12/10/2012 11-13 ft		OC-SB-512-13/15-XXX SB-512 12/10/2012 13-15 ft	
Zinc														
Chloride														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**			24		14		6		13		12		16	
pH **(pH units)**			6.44		6.41		6.44		7.44		7.36		6.65	
Sulfate														
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene														
Toluene														
Xylenes, Total														
C5-C8 Aliphatics	2.2	U												
C5-C8 Aliphatics (unadj.)	2.2	U												
C9-C10 Aromatics	2.2	U												
C9-C12 Aliphatics	2.2	U												
C9-C12 Aliphatics (unadj.)	2.2	U												
Volatile Petroleum Hydrocarbons, Total	2.2	U												
EPH (mg/Kg)														
Benzo(a)anthracene							1.1	U						
Benzo(ghi)perylene							1.1	U						
C11-C22 Aromatics	3.6	U					3.9	U						
C11-C22 Aromatics (unadj.)	3.6	U					11	U						
C19-C36 Aliphatics	3.6	U					11	U						
C9-C18 Aliphatics	3.6	U					11	U						
Extractable Petroleum Hydrocarbons, Total	3.6	U												
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-513-10/12-XXX SB-513 12/12/2012 10-12 ft		OC-SB-514-15/17-XXX SB-514 12/12/2012 15-17 ft		OC-SB-515-13/15-XXX SB-515 12/12/2012 13 15 ft		OC-SB-516-15/17-XXX SB-516 12/12/2012 15 17 ft		OC-SB-517-18/20-XXX SB-517 12/12/2012 18-20 ft		OC-SB-518-13/15-XXX SB-518 12/14/2012 13-15 ft		OC-SB-519-12/14-XXX SB-519 12/14/2012 12-14 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene					0.24	U	0.029	J	0.17	J	0.0018	J		
2,4,4-Trimethyl-2-pentene					0.24	U	0.31	U	0.038	J	0.0013	J		
2-Butanone														
2-Hexanone														
4-iso-Propyltoluene														
Acetone														
Carbon disulfide														
Chloromethane														
Dibromomethane														
Ethyl benzene														
Naphthalene														
Styrene														
Tetrahydrofuran														
Toluene														
Trichloroethene														
Xylene, o														
Xylenes (m&p)														
Xylenes, Total														
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
2,4-Dimethylphenol			0.036	UJ	0.039	U	0.042	UJ	0.042	UJ	0.82	U	0.042	U
2-Methylnaphthalene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
2-Methylphenol			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
4-Bromophenyl phenyl ether			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	UJ
4-Chlorophenyl phenyl ether			0.036	U	0.039	U	0.017	J	0.042	U	0.82	U	0.042	U
Acenaphthene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Acetophenone			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Benzo(a)anthracene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Benzo(a)pyrene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Benzo(b)fluoranthene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Benzo(ghi)perylene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Benzoic Acid			0.18	UJ	0.19	U	0.21	UJ	0.21	UJ	4.1	U	0.21	U
Biphenyl			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Bis(2-Ethylhexyl)phthalate			0.18	U	0.19	U	0.21	U	0.21	U	12		0.21	U
Butylbenzylphthalate			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Chrysene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-513-10/12-XXX SB-513 12/12/2012 10-12 ft		OC-SB-514-15/17-XXX SB-514 12/12/2012 15-17 ft		OC-SB-515-13/15-XXX SB-515 12/12/2012 13 15 ft		OC-SB-516-15/17-XXX SB-516 12/12/2012 15 17 ft		OC-SB-517-18/20-XXX SB-517 12/12/2012 18-20 ft		OC-SB-518-13/15-XXX SB-518 12/14/2012 13-15 ft		OC-SB-519-12/14-XXX SB-519 12/14/2012 12-14 ft	
Dibenzofuran			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Di-n-butylphthalate			0.18	U	0.19	U	0.21	U	0.21	U	4.1	U	0.21	UJ
Di-n-octylphthalate			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Diphenyl ether			0.036	U	0.039	U	0.043		0.042	U	0.82	U	0.042	U
Diphenylamine														
Diphenylmethanone			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Fluorene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Naphthalene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
N-Nitrosodiphenylamine			0.036	UJ	0.039	U	0.042	U	0.042	U	0.82	U	0.042	UJ
Phenanthrene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	UJ
Phenol			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Pyrene			0.036	U	0.039	U	0.042	U	0.042	U	0.82	U	0.042	U
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent	0.47	J	0.88	J					**8**	J	**36**	J	2.2	J
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Nickel														
Potassium														
Silver														
Sodium														
Thallium														
Tin														
Vanadium														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-513-10/12-XXX SB-513 12/12/2012 10-12 ft		OC-SB-514-15/17-XXX SB-514 12/12/2012 15-17 ft		OC-SB-515-13/15-XXX SB-515 12/12/2012 13 15 ft		OC-SB-516-15/17-XXX SB-516 12/12/2012 15 17 ft		OC-SB-517-18/20-XXX SB-517 12/12/2012 18-20 ft		OC-SB-518-13/15-XXX SB-518 12/14/2012 13-15 ft		OC-SB-519-12/14-XXX SB-519 12/14/2012 12-14 ft	
Zinc														
Chloride														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**	20		14						5		7		15	
pH **(pH units)**	7.08		6.85						6.36		6.52		6.58	
Sulfate														
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene														
Toluene														
Xylenes, Total														
C5-C8 Aliphatics														
C5-C8 Aliphatics (unadj.)														
C9-C10 Aromatics														
C9-C12 Aliphatics														
C9-C12 Aliphatics (unadj.)														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)anthracene			1	U	1.1	U	1.2	U	1.3	U				
Benzo(ghi)perylene			1	U	1.1	U	1.2	U	1.3	U				
C11-C22 Aromatics			3.6	U	4	U	4.2	U	4.2	U				
C11-C22 Aromatics (unadj.)			10	U	11	U	12	U	13	U				
C19-C36 Aliphatics			10	U	11	U	12	U	13	U				
C9-C18 Aliphatics			10	U	11	U	12	U	13	U				
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-520-18/20-XXX SB-520 12/13/2012 18-20 ft		OC-SB-521-16/18-XXX SB-521 12/14/2012 16-18 ft		OC-SB-522-13/15-XXX SB-522 12/13/2012 13-15 ft		OC-SB-523-22/24-XXX SB-523 12/12/2012 22-24 ft		OC-SB-524-27/29-XXX SB-524 12/12/2012 27-29 ft		OC-SB-525-18/20-XXX SB-525 12/13/2012 18-20 ft		OC-SB-532-11/13-XXX SB-532 12/13/2012 11-13 ft	
Volatile Organics (mg/Kg)														
1,2,3-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dichlorobenzene														
1,3,5-Trimethylbenzene														
2,4,4-Trimethyl-1-pentene	0.0014	J												
2,4,4-Trimethyl-2-pentene	0.0011	J												
2-Butanone														
2-Hexanone														
4-iso-Propyltoluene														
Acetone														
Carbon disulfide														
Chloromethane														
Dibromomethane														
Ethyl benzene														
Naphthalene														
Styrene														
Tetrahydrofuran														
Toluene														
Trichloroethene														
Xylene, o														
Xylenes (m&p)														
Xylenes, Total														
Semivolatile Organics (mg/Kg)														
1-Methylnaphthalene	0.035	U			0.04	U								
2,4-Dimethylphenol	0.035	UJ			0.04	UJ								
2-Methylnaphthalene	0.035	U			0.04	U								
2-Methylphenol	0.035	U			0.04	U								
4-Bromophenyl phenyl ether	0.035	U			0.04	U								
4-Chlorophenyl phenyl ether	0.035	U			0.04	U								
Acenaphthene	0.035	U			0.04	U								
Acetophenone	0.035	U			0.04	U								
Benzo(a)anthracene	0.035	U			0.04	U								
Benzo(a)pyrene	0.035	U			0.04	U								
Benzo(b)fluoranthene	0.035	U			0.04	U								
Benzo(ghi)perylene	0.035	U			0.04	U								
Benzoic Acid	0.18	U			0.2	U								
Biphenyl	0.035	U			0.04	U								
Bis(2-Ethylhexyl)phthalate	0.18	U			0.2	U								
Butylbenzylphthalate	0.035	U			0.04	U								
Chrysene	0.035	U			0.04	U								

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-520-18/20-XXX SB-520 12/13/2012 18-20 ft		OC-SB-521-16/18-XXX SB-521 12/14/2012 16-18 ft		OC-SB-522-13/15-XXX SB-522 12/13/2012 13-15 ft		OC-SB-523-22/24-XXX SB-523 12/12/2012 22-24 ft		OC-SB-524-27/29-XXX SB-524 12/12/2012 27-29 ft		OC-SB-525-18/20-XXX SB-525 12/13/2012 18-20 ft		OC-SB-532-11/13-XXX SB-532 12/13/2012 11-13 ft	
Dibenzofuran	0.035	U			0.04	U								
Di-n-butylphthalate	0.18	U			0.2	U								
Di-n-octylphthalate	0.035	U			0.04	U								
Diphenyl ether	0.035	U			0.04	U								
Diphenylamine														
Diphenylmethanone	0.035	U			0.04	U								
Fluorene	0.035	U			0.04	U								
Naphthalene	0.035	U			0.04	U								
N-Nitrosodiphenylamine	0.026	J			0.04	UJ								
Phenanthrene	0.035	U			0.04	U								
Phenol	0.035	U			0.04	U								
Pyrene	0.035	U			0.04	U								
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium														
Chromium, Hexavalent			**48**	J	0.2	J	1.1	J	0.25	UJ	**9.7**	J		
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Nickel														
Potassium														
Silver														
Sodium														
Thallium														
Tin														
Vanadium														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-520-18/20-XXX SB-520 12/13/2012 18-20 ft		OC-SB-521-16/18-XXX SB-521 12/14/2012 16-18 ft		OC-SB-522-13/15-XXX SB-522 12/13/2012 13-15 ft		OC-SB-523-22/24-XXX SB-523 12/12/2012 22-24 ft		OC-SB-524-27/29-XXX SB-524 12/12/2012 27-29 ft		OC-SB-525-18/20-XXX SB-525 12/13/2012 18-20 ft		OC-SB-532-11/13-XXX SB-532 12/13/2012 11-13 ft	
Zinc														
Chloride														
Nitrogen, as Ammonia														
Oxidation Reduction Potential **(mV)**			34		10		30		10		6			
pH **(pH units)**			5.82		6.59		6.49		6.89		7.21			
Sulfate														
Sulfate **(mg/L)**														
VPH (mg/Kg)														
Ethyl benzene														
Toluene														
Xylenes, Total														
C5-C8 Aliphatics														
C5-C8 Aliphatics (unadj.)														
C9-C10 Aromatics														
C9-C12 Aliphatics														
C9-C12 Aliphatics (unadj.)														
Volatile Petroleum Hydrocarbons, Total														
EPH (mg/Kg)														
Benzo(a)anthracene													1.3	U
Benzo(ghi)perylene													1.3	U
C11-C22 Aromatics													4.4	U
C11-C22 Aromatics (unadj.)													13	U
C19-C36 Aliphatics													13	U
C9-C18 Aliphatics													13	U
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Hydrazine														
Acetaldehyde														
Formaldehyde														
Phthalic Acid/Phthalic anhydride														

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-533-13/15-XXX SB-533 12/13/2012 13-15 ft		SVE-6B S3 10 SVE-6B 10/17/2000 10-10 ft		SVESB-9-10-12 SVEMW-9 7/16/2004 10-12 ft		TE2.10.11-12 TE2.10 4/14/1998 11-12 ft	
Volatile Organics (mg/Kg)								
1,2,3-Trichlorobenzene							0.006	U
1,2,4-Trimethylbenzene							0.006	U
1,2-Dichlorobenzene							0.006	U
1,3,5-Trimethylbenzene							0.006	U
2,4,4-Trimethyl-1-pentene			**73**		0.55			
2,4,4-Trimethyl-2-pentene			22		0.19			
2-Butanone			15	U			0.12	U
2-Hexanone			15	U			0.024	U
4-iso-Propyltoluene							0.006	U
Acetone			15	U			0.12	U
Carbon disulfide			15	U			0.006	U
Chloromethane			15	U			0.012	U
Dibromomethane								
Ethyl benzene			15	U			0.006	U
Naphthalene							0.06	U
Styrene			15	U			0.006	U
Tetrahydrofuran								
Toluene			15	U			0.006	U
Trichloroethene			15	U			0.006	U
Xylene, o								
Xylenes (m&p)								
Xylenes, Total			15	U			0.006	U
Semivolatile Organics (mg/Kg)								
1-Methylnaphthalene								
2,4-Dimethylphenol							0.396	U
2-Methylnaphthalene							0.396	U
2-Methylphenol							0.396	U
4-Bromophenyl phenyl ether							0.396	U
4-Chlorophenyl phenyl ether							0.396	U
Acenaphthene							0.396	U
Acetophenone								
Benzo(a)anthracene							0.396	U
Benzo(a)pyrene							0.396	U
Benzo(b)fluoranthene							0.396	U
Benzo(ghi)perylene							0.396	U
Benzoic Acid							1.98	U
Biphenyl								
Bis(2-Ethylhexyl)phthalate							0.396	U
Butylbenzylphthalate							0.396	U
Chrysene							0.396	U

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-533-13/15-XXX SB-533 12/13/2012 13-15 ft		SVE-6B S3 10 SVE-6B 10/17/2000 10-10 ft		SVESB-9-10-12 SVEMW-9 7/16/2004 10-12 ft		TE2.10.11-12 TE2.10 4/14/1998 11-12 ft	
Dibenzofuran							0.396	U
Di-n-butylphthalate							0.396	U
Di-n-octylphthalate							0.396	U
Diphenyl ether								
Diphenylamine								
Diphenylmethanone								
Fluorene							0.396	U
Naphthalene							0.396	U
N-Nitrosodiphenylamine							0.396	U
Phenanthrene							0.33	U
Phenol							0.396	U
Pyrene							0.396	U
Inorganics (mg/Kg)								
Aluminum							4090	
Antimony							1.21	U
Arsenic							**3.74**	
Barium								
Beryllium							0.4	U
Cadmium							1	U
Calcium								
Chromium							53.5	
Chromium, Hexavalent								
Cobalt								
Copper							5.1	
Iron								
Lead							10	U
Magnesium								
Manganese								
Nickel							5	
Potassium								
Silver							2	U
Sodium							265	
Thallium							1.21	U
Tin								
Vanadium								

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-533-13/15-XXX SB-533 12/13/2012 13-15 ft		SVE-6B S3 10 SVE-6B 10/17/2000 10-10 ft		SVESB-9-10-12 SVEMW-9 7/16/2004 10-12 ft		TE2.10.11-12 TE2.10 4/14/1998 11-12 ft	
Zinc							10.2	
Chloride							37.9	
Nitrogen, as Ammonia							4.7	U
Oxidation Reduction Potential **(mV)**								
pH **(pH units)**								
Sulfate							298	
Sulfate **(mg/L)**								
VPH (mg/Kg)								
Ethyl benzene			1.7		0.27	U		
Toluene			1.4		0.27	U		
Xylenes, Total			0.48		0.27	U		
C5-C8 Aliphatics			82		2.7	U		
C5-C8 Aliphatics (unadj.)			84		2.7	U		
C9-C10 Aromatics			3.1		2.7	U		
C9-C12 Aliphatics			2.7	U	2.7	U		
C9-C12 Aliphatics (unadj.)			7.6		2.7	U		
Volatile Petroleum Hydrocarbons, Total			85		2.7	U		
EPH (mg/Kg)								
Benzo(a)anthracene	1.2	U	0.4	U				
Benzo(ghi)perylene	1.2	U	2.6					
C11-C22 Aromatics	4	U	260					
C11-C22 Aromatics (unadj.)	12	U	260					
C19-C36 Aliphatics	12	U	6.9					
C9-C18 Aliphatics	12	U	6.9					
Extractable Petroleum Hydrocarbons, Total			270					
Specialty Compounds (mg/Kg)								
Hydrazine								
Acetaldehyde								
Formaldehyde								
Phthalic Acid/Phthalic anhydride								

Appendix F-3
Summary of Detected Chemicals for OU1 Deep Subsurface Soil Samples (>10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)	Risk-Based SSL (2)	MCL-Based SSL (2) (mg/Kg)	1160-LAKE POLY 1-B LAKE POLY 1-B 11/17/2000	1160-LPB18-S3 LPB18 7/10/2001 10-10.5 ft	AS-1 12-13 AS-1 10/10/2000 12-13 ft	AS-2-15 AS-2 10/12/2000 15-15 ft	AS-3 10-12 AS-3 10/11/2000 10-12 ft

(1) Values are the Industrial Soil Regional Screening Levels (RSLs).
United States Environmental Protection Agency Regions 3, 6, and 9. November 2013. Regional Screening Levels for Chemical Contaminants at Superfund Sites.
http://www.epa.gov/reg3hwmd/risk/human/rb-concentrations_table/index.htm
RSL for 2,4,4-Trimethyl-1-pentene and 2,4,4-Trimethyl-2-pentene calculated consistent with RSL Guidance.
RSL for Chromium (III) used for chromium.
MCP Method 1 Soil category S-2 Standards were used for screening EPH/VPH.
c - RSL is based on an excess lifetime cancer risk of 1 in 1 million.
c* - where n RSL < 100X c RSL.
c** - where n RSL < 10X c RSL.
n - RSL is based on a non-cancer hazard quotient.
nm - RSL is based on a non-cancer hazard quotient; concentration may exceed ceiling limit.
nms - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat and the ceiling limit.
ns - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat.
(2) Values are the Risk- and MCL-based Soil Screening Levels (SSLs) as presented in the RSLs.

mg/Kg = milligram per kilogram
mg/L = milligram per liter
mV = millivolts

U = not detected, value is the reporting limit
J = value is estimated
JEB = value is estimated, analyte detected in the blank
G = value is estimated due to duplicate precision outside of control limits
R = value is rejected

BOLD outlined cells indicate a concentration greater than the Industrial RSL.
Shaded cells indicate a concentration greater than the risk-based or MCL-based SSL.

Prepared by / Date: KJC 03/02/14
Checked by / Date: CTM 03/10/14

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1010-SED-SDF-1S SDF-1 9/17/2001 0-0.5 ft		1010-SED-SDF-2S SDF-2 9/17/2001 0-0.5 ft		BS040LSD BS040 8/22/2005 0-0.5 ft		OC-SB-526-0.0/1.0-XXX SB-526 12/5/2012 0-1 ft		OC-SB-527-0.0/1.0-XXX SB-527 12/5/2012 0-1 ft	
Volatile Organics (mg/Kg)														
2,4,4-Trimethyl-2-pentene	39	n			0.47	U	0.56	U						
Semivolatile Organics (mg/Kg)														
1,2-Dichlorobenzene	9800	ns	0.27	0.58	26	U	33	U	0.99	U	0.056	U		
1,4-Dichlorobenzene	12	c	0.0004	0.072	26	U	33	U	0.99	U	0.056	U		
1-Methylnaphthalene	53	c	0.0051								0.056	U		
2-Methylnaphthalene	2200	n	0.14		26	U	33	U	0.5	U	0.056	U		
3-Nitroaniline					130	U	170	U	5	U	0.28	U		
Acenaphthylene					26	U	33	U	0.5	U	0.056	U		
Acetophenone	100000	nms	0.45						0.99	U	0.056	U		
Aniline	300	c*	0.0039		130	U	170	U	5	U	0.056	U		
Anthracene	170000	nm	42		26	U	33	U	0.5	U	0.056	U		
Benzaldehyde	100000	nms	0.33								0.056			
Benzo(a)anthracene	2.1	c	0.01		26	U	33	U	0.5	UJ	0.056	U		
Benzo(a)pyrene	0.21	c	0.0035	0.24	26	U	33	U	0.5	UJ	0.056	U		
Benzo(b)fluoranthene	2.1	c	0.035		26	U	33	U	0.31	J	0.056	U		
Benzo(ghi)perylene					26	U	33	U	0.5	UJ	0.056	U		
Benzo(k)fluoranthene	21	c	0.35		26	U	33	U	0.5	UJ	0.056	U		
Biphenyl	210	n	0.0087								0.056	U		
Bis(2-Ethylhexyl)phthalate	120	c	1.1	1.4	**216**		106		46		0.28	U		
Carbazole											0.056	U		
Chrysene	210	c	1.1		26	U	33	U	0.25	J	0.056	U		
Dibenzofuran	1000	n	0.11		26	U	33	U	0.99	U	0.056	U		
Di-n-butylphthalate	62000	n	1.7		26	U	33	U	0.99	U	0.28	U		
Diphenyl ether											0.056	U		
Fluoranthene	22000	n	70		26	U	33	U	0.5	U	0.056	U		
Indeno(1,2,3-cd)pyrene	2.1	c	0.2		26	U	33	U	0.5	UJ	0.056	U		
Naphthalene	18	c*	0.00047		26	U	33	U	0.5	U	0.056	U		
N-Nitrosodi-n-propylamine	0.25	c	0.000007		26	U	33	U	0.99	U	0.056	U		
N-Nitrosodiphenylamine	350	c	0.057		26	U	33	U	0.63	J	0.056	U		
Phenanthrene					26	U	33	U	0.5	U	0.056	U		
Phenol	180000	nm	2.6		26	U	33	U	0.99	U	0.056	U		
Pyrene	17000	n	9.5		26	U	33	U	0.79	J	0.056	U		

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1010-SED-SDF-1S SDF-1 9/17/2001 0-0.5 ft		1010-SED-SDF-2S SDF-2 9/17/2001 0-0.5 ft		BS040LSD BS040 8/22/2005 0-0.5 ft		OC-SB-526-0.0/1.0-XXX SB-526 12/5/2012 0-1 ft		OC-SB-527-0.0/1.0-XXX SB-527 12/5/2012 0-1 ft	
PAHs (mg/Kg)														
Benzo(a)anthracene	2.1	c	0.01						**2.3**					
Benzo(a)pyrene	0.21	c	0.0035	0.24					**0.44**					
Benzo(b)fluoranthene	2.1	c	0.035						0.6					
Benzo(ghi)perylene									0.51					
Benzo(k)fluoranthene	21	c	0.35						0.24					
Chrysene	210	c	1.1						0.56					
Fluoranthene	22000	n	70						1.3					
Phenanthrene									0.41					
Pyrene	17000	n	9.5						0.73					
Pesticides (mg/Kg)														
4,4'-DDT	7	c*	0.067						0.045					
Hexachlorobenzene	1.1	c	0.00053	0.013					0.029					
Inorganics (mg/Kg)														
Aluminum	990000	nm	23000						43000					
Antimony	410	n	0.27	0.27					6.9	U				
Arsenic	2.4	cR	0.0013	0.29	37	U	**40**		**14**					
Barium	190000	nm	120	82	65		23		16					
Beryllium	2000	n	13	3.2					2.8					
Cadmium	800	n	0.52	0.38	4	U	4	U	0.69	U				
Calcium									740					
Chromium	1500000	nm		180000	21000		12000		5000					
Chromium, Hexavalent	5.6	c	0.00059		**28**	T	**26**	T	30	U	3.4	U	2.9	U
Cobalt	300	n	0.21						10					
Copper	41000	n	22	46					69					
Iron	720000	nm	270						31000					
Lead	800	L		14	120		85		41					
Magnesium									1000					
Manganese	23000	n	21						170					
Mercury	43	ns	0.033	0.1	1.4		1.5		0.28					
Nickel	20000	n	20						16					
Potassium									1400	U				
Silver	5100	n	0.6		19	U	18	U	3.5	U				

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1010-SED-SDF-1S SDF-1 9/17/2001 0-0.5 ft		1010-SED-SDF-2S SDF-2 9/17/2001 0-0.5 ft		BS040LSD BS040 8/22/2005 0-0.5 ft		OC-SB-526-0.0/1.0-XXX SB-526 12/5/2012 0-1 ft		OC-SB-527-0.0/1.0-XXX SB-527 12/5/2012 0-1 ft	
Thallium	10	n	0.011	0.14					3.5	U				
Tin	610000	nm	2300											
Vanadium	5100	n	63						32					
Zinc	310000	nm	290						47					
Cyanide, Total	140	n	0.014	2					6.5					
Nitrogen, as Ammonia									340					
Oxidation Reduction Potential **(mV)**					220		220				75		79	
pH **(pH units)**					4.74		4.58				4.04		3.73	
Sulfate														
Total Organic Carbon														
Total Organic Carbon **(%)**									11	>				
EPH (mg/Kg)														
Benzo(ghi)perylene					2.6	U	2.3							
Fluoranthene	22000	n	70		2.6		2.2	U						
Indeno(1,2,3-cd)pyrene	2.1	c	0.2		**13**		2.2	U						
C11-C22 Aromatics	3000				**7500**		1400							
C11-C22 Aromatics (unadj.)	3000				**7500**		1400							
C19-C36 Aliphatics	5000				4900		1800							
C9-C18 Aliphatics	3000				780	J	200	J						
Extractable Petroleum Hydrocarbons, Total					13000		3400							
Specialty Compounds (mg/Kg)														
Acetaldehyde	52	c**	0.00045											
Formaldehyde	120000	nm	0.62											

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-528-0.0/1.0-XXX SB-528 12/5/2012 0-1 ft		OC-SB-529-0.0/1.0-XXX SB-529 12/5/2012 0-1 ft		OC-SS-438-0.0/1.0-XXX SS-438 6/3/2010 0-1 ft		OC-SS-439-0.0/1.0-XXX SS-439 6/3/2010 0-1 ft		OC-SS-441-0.0/1.0-XXX SS-441 6/3/2010 0-1 ft		OC-SS-443-0.0/1.0-XXX SS-443 6/3/2010 0-1 ft		OC-SS-444-0.0/1.0-XXX SS-444 6/3/2010 0-1 ft	
Volatile Organics (mg/Kg)														
2,4,4-Trimethyl-2-pentene					0.01	U	0.0095	U	0.0096	U	0.0086	U	0.0095	U
Semivolatile Organics (mg/Kg)														
1,2-Dichlorobenzene		R	0.056	U	0.063	U	0.21	J	0.055	U	0.059	U	0.057	U
1,4-Dichlorobenzene		R	0.056	U	0.063	U	0.053	J	0.055	U	0.059	U	0.057	U
1-Methylnaphthalene		R	0.056	U	0.063	U	0.023	J	0.037	J	0.059	U	0.057	U
2-Methylnaphthalene		R	0.056	U	0.063	U	0.026	J	0.041	J	0.059	U	0.057	U
3-Nitroaniline		R	0.28	U	0.31	U		R	0.28	U	0.3	U	0.28	U
Acenaphthylene		R	0.056	U	0.063	U	0.07	UJ	0.055	U	0.059	U	0.057	U
Acetophenone		R	0.018	J	0.063	U	0.07	UJ	0.055	U	0.059	U	0.057	U
Aniline		R	0.056	U	0.063	UJ	0.07	UJ	0.055	UJ	0.059	UJ	0.057	UJ
Anthracene		R	0.056	U	0.063	U	0.07	UJ	0.055	U	0.059	U	0.057	U
Benzaldehyde		R	0.097		0.045	J	0.029	J	0.065		0.032	J	0.055	J
Benzo(a)anthracene		R	0.056	U	0.063	U	0.07	U	0.055	U	0.059	U	0.057	U
Benzo(a)pyrene		R	0.056	U	0.063	U	0.07	UJ	0.027	J	0.059	U	0.057	U
Benzo(b)fluoranthene		R	0.056	U	0.063	U	0.07	UJ	0.025	J	0.059	U	0.057	U
Benzo(ghi)perylene		R	0.056	U	0.063	U	0.07	UJ	0.023	J	0.059	U	0.057	U
Benzo(k)fluoranthene		R	0.056	U	0.022	J	0.07	UJ	0.041	J	0.059	U	0.057	U
Biphenyl	0.93	J	0.056	U	0.063	U	0.07	U	0.055	U	0.059	U	0.057	U
Bis(2-Ethylhexyl)phthalate	41	J	0.28	U	0.026	J	0.028	J	0.05	J	0.027	J	0.057	U
Carbazole		R	0.056	U	0.063	U	0.07	UJ	0.055	U	0.059	U	0.057	U
Chrysene		R	0.056	U	0.063	U	0.07	U	0.029	J	0.059	U	0.057	U
Dibenzofuran		R	0.056	U	0.08		0.07	U	0.068		0.022	J	0.024	J
Di-n-butylphthalate		R	0.28	U	0.063	UJ	0.07	UJ	0.055	UJ	0.059	UJ	0.057	UJ
Diphenyl ether	1.9	J	0.056	U	0.063	U	0.07	UJ	0.055	U	0.059	U	0.057	U
Fluoranthene		R	0.018	J	0.028	J	0.036	J	0.066		0.059	U	0.039	J
Indeno(1,2,3-cd)pyrene		R	0.056	U	0.063	U	0.07	UJ	0.027	J	0.059	U	0.057	U
Naphthalene		R	0.026	J	0.15	U	0.021	J	0.037	J	0.14	U	0.14	U
N-Nitrosodi-n-propylamine		R	0.056	U	0.063	U	0.07	U	0.055	U	0.059	U	0.057	U
N-Nitrosodiphenylamine	1.3	J	0.056	U	0.063	U	0.07	UJ	0.055	U	0.059	U	0.057	U
Phenanthrene		R	0.023	J	0.025	J	0.034	J	0.054	J	0.071	U	0.028	J
Phenol		R	0.024	J	0.063	U	0.07	U	0.055	U	0.059	U	0.057	U
Pyrene		R	0.056	U	0.063	U	0.024	J	0.046	J	0.059	U	0.034	J

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-528-0.0/1.0-XXX SB-528 12/5/2012 0-1 ft		OC-SB-529-0.0/1.0-XXX SB-529 12/5/2012 0-1 ft		OC-SS-438-0.0/1.0-XXX SS-438 6/3/2010 0-1 ft		OC-SS-439-0.0/1.0-XXX SS-439 6/3/2010 0-1 ft		OC-SS-441-0.0/1.0-XXX SS-441 6/3/2010 0-1 ft		OC-SS-443-0.0/1.0-XXX SS-443 6/3/2010 0-1 ft		OC-SS-444-0.0/1.0-XXX SS-444 6/3/2010 0-1 ft	
PAHs (mg/Kg)														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Fluoranthene														
Phenanthrene														
Pyrene														
Pesticides (mg/Kg)														
4,4'-DDT														
Hexachlorobenzene														
Inorganics (mg/Kg)														
Aluminum					2500		5700		3600		6700		5800	
Antimony					1	U	1.3	U	0.34	J	0.94	U	0.92	U
Arsenic					**4.6**		**25**		**4.5**		**29**		**8.2**	
Barium					5.5		16		11		9.8		14	
Beryllium					0.061	J	0.27	J	0.093	J	0.42		0.2	J
Cadmium					0.093	J	0.42	J	0.36	U	0.38	J	0.52	J
Calcium					260		530		320		350		190	
Chromium					15		20		46		14		9	
Chromium, Hexavalent	**19**	J	3.3	U	3.7	U	4.2	U	3.3	U	3.5	U	3.3	U
Cobalt					0.91	J	3.3		1.7		2.4		1.5	
Copper					5.5		11		12		3.8		21	
Iron					3700		27000		5900		20000		8400	
Lead					27		28		59		32		88	
Magnesium					82		880		390		540		140	
Manganese					10		83		21		53		9	
Mercury					0.11	J	0.16	U	0.064	J	0.047	J	0.11	J
Nickel					2.1		7.1	J	3.4	J	6.6	J	9.2	
Potassium					300	J	640	J	380	J	450	J	240	J
Silver					1	U	1.3	U	0.9	U	0.94	U	0.92	U

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SB-528-0.0/1.0-XXX SB-528 12/5/2012 0-1 ft		OC-SB-529-0.0/1.0-XXX SB-529 12/5/2012 0-1 ft		OC-SS-438-0.0/1.0-XXX SS-438 6/3/2010 0-1 ft		OC-SS-439-0.0/1.0-XXX SS-439 6/3/2010 0-1 ft		OC-SS-441-0.0/1.0-XXX SS-441 6/3/2010 0-1 ft		OC-SS-443-0.0/1.0-XXX SS-443 6/3/2010 0-1 ft		OC-SS-444-0.0/1.0-XXX SS-444 6/3/2010 0-1 ft	
Thallium					2	U	2.6	U	1.8	U	1.9	U	1.8	U
Tin	7.5	J			7.4	J	8.1	J	22		5.4	J	4.5	J
Vanadium					12		25		17		28		29	
Zinc					3.4	J	11		5.3		7.2		15	
Cyanide, Total														
Nitrogen, as Ammonia					220		220		150		310		240	
Oxidation Reduction Potential **(mV)**	0.01	U	49		540		570		540		480		470	
pH **(pH units)**	6.02		3.88		4.11		3.74		3.91		4.3		3.94	
Sulfate					76	U	120		67	U	72	U	68	U
Total Organic Carbon									55000					
Total Organic Carbon **(%)**														
EPH (mg/Kg)														
Benzo(ghi)perylene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Acetaldehyde									0.048	J	0.067	J		
Formaldehyde									0.47		0.5			

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-445-0.0/1.0-XXX SS-445 6/3/2010 0-1 ft		OC-SS-446-0.0/1.0-XXX SS-446 6/3/2010 0-1 ft		OC-SS-447-0.0/1.0-XXX SS-447 6/3/2010 0-1 ft		SOLSD-10-0-6 SOLSD10 9/21/2005 0-0.5 ft		SOLSD-1-0-6 SOLSD01 9/21/2005 0-0.5 ft		SOLSD-11-0-6 SOLSD11 9/21/2005 0-0.5 ft		SOLSD-11-6-12 SOLSD11 9/21/2005 0.5-1 ft	
Volatile Organics (mg/Kg)														
2,4,4-Trimethyl-2-pentene	0.0056	J	0.008	U		R								
Semivolatile Organics (mg/Kg)														
1,2-Dichlorobenzene		R	0.046	U		R								
1,4-Dichlorobenzene		R	0.046	U		R								
1-Methylnaphthalene	0.045	J	0.046	U	0.062	J								
2-Methylnaphthalene	0.051	J	0.046	U	0.075	J								
3-Nitroaniline		R	0.073	J		R								
Acenaphthylene	0.063	J	0.046	U	0.058	J								
Acetophenone	0.17	J	0.046	U		R								
Aniline	0.12	J	0.046	UJ		R								
Anthracene	0.044	J	0.046	U		R								
Benzaldehyde	0.33	J	0.16		0.32	J								
Benzo(a)anthracene		R	0.046	U	0.069	J								
Benzo(a)pyrene		R	0.014	J	0.062	J								
Benzo(b)fluoranthene		R	0.046	U	0.051	J								
Benzo(ghi)perylene		R	0.046	U	0.041	J								
Benzo(k)fluoranthene		R	0.046	U	0.15	J								
Biphenyl	0.86	J	0.046	U		R								
Bis(2-Ethylhexyl)phthalate	28	J	0.1	J	0.37	J								
Carbazole	0.086	J	0.046	U	0.039	J								
Chrysene		R	0.046	U	0.15	J								
Dibenzofuran		R	0.037	J	1.2	J								
Di-n-butylphthalate	0.98	J	0.046	UJ		R								
Diphenyl ether	1.6	J	0.046	U		R								
Fluoranthene	0.11	J	0.055		0.34	J								
Indeno(1,2,3-cd)pyrene		R	0.046	U		R								
Naphthalene	0.06	J	0.11	U	0.082	J								
N-Nitrosodi-n-propylamine	**0.26**	J	0.046	U		R								
N-Nitrosodiphenylamine	0.8	J	0.046	U		R								
Phenanthrene	0.084	J	0.026	J	0.19	J								
Phenol	0.24	J	0.046	U		R								
Pyrene	0.06	J	0.033	J	0.2	J								

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-445-0.0/1.0-XXX SS-445 6/3/2010 0-1 ft		OC-SS-446-0.0/1.0-XXX SS-446 6/3/2010 0-1 ft		OC-SS-447-0.0/1.0-XXX SS-447 6/3/2010 0-1 ft		SOLSD-10-0-6 SOLSD10 9/21/2005 0-0.5 ft		SOLSD-1-0-6 SOLSD01 9/21/2005 0-0.5 ft		SOLSD-11-0-6 SOLSD11 9/21/2005 0-0.5 ft		SOLSD-11-6-12 SOLSD11 9/21/2005 0.5-1 ft	
PAHs (mg/Kg)														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Fluoranthene														
Phenanthrene														
Pyrene														
Pesticides (mg/Kg)														
4,4'-DDT														
Hexachlorobenzene														
Inorganics (mg/Kg)														
Aluminum	13000	J	7000		9800	J								
Antimony		R	0.29	J		R								
Arsenic	**42**	J	**10**		**18**	J								
Barium	130	J	9.3		37	J								
Beryllium		R	0.15	J	0.74	J								
Cadmium		R	0.19	J	0.39	J								
Calcium	1100	J	260		710	J								
Chromium	52000	J	7.2		540	J	32		15		13000		3900	
Chromium, Hexavalent	**1100**		2.8	U	7.2	U								
Cobalt	3.7	J	1.2		4.5	J								
Copper	190	J	4.4		28	J								
Iron	10000	J	6600		14000	J								
Lead	150	J	48		100	J								
Magnesium	750	J	470		590	J								
Manganese	37	J	26		28	J								
Mercury	3.1	J	0.068	J	0.32	J								
Nickel	15	J	4.3	J	12	J								
Potassium	2200	J	300	J	810	J								
Silver	1100	J	0.75	U	10	J								

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	OC-SS-445-0.0/1.0-XXX SS-445 6/3/2010 0-1 ft		OC-SS-446-0.0/1.0-XXX SS-446 6/3/2010 0-1 ft		OC-SS-447-0.0/1.0-XXX SS-447 6/3/2010 0-1 ft		SOLSD-10-0-6 SOLSD10 9/21/2005 0-0.5 ft		SOLSD-1-0-6 SOLSD01 9/21/2005 0-0.5 ft		SOLSD-11-0-6 SOLSD11 9/21/2005 0-0.5 ft		SOLSD-11-6-12 SOLSD11 9/21/2005 0.5-1 ft	
Thallium	7.4	J	1.5	U		R								
Tin	26000	J	7.5	UJ	260	J								
Vanadium	150	J	15		43	J								
Zinc	39	J	7.9		17	J								
Cyanide, Total														
Nitrogen, as Ammonia	1100		200		870									
Oxidation Reduction Potential **(mV)**	540		530		540									
pH **(pH units)**	5.52		4.55		4.05									
Sulfate	230		56	U	150	U								
Total Organic Carbon														
Total Organic Carbon **(%)**														
EPH (mg/Kg)														
Benzo(ghi)perylene														
Fluoranthene														
Indeno(1,2,3-cd)pyrene														
C11-C22 Aromatics														
C11-C22 Aromatics (unadj.)														
C19-C36 Aliphatics														
C9-C18 Aliphatics														
Extractable Petroleum Hydrocarbons, Total														
Specialty Compounds (mg/Kg)														
Acetaldehyde					0.13	J								
Formaldehyde					1.1									

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SOLSD-12-0-6 SOLSD12 9/21/2005 0-0.5 ft		SOLSD-13-0-6 SOLSD13 9/21/2005 0-0.5 ft		SOLSD-13-6-12 SOLSD13 9/21/2005 0.5-1 ft		SOLSD-14-0-6 SOLSD14 9/21/2005 0-0.5 ft		SOLSD-14-6-12 SOLSD14 9/21/2005 0.5-1 ft		SOLSD-15-0-6 SOLSD15 9/21/2005 0-0.5 ft		SOLSD-16-0-6 SOLSD16 9/21/2005 0-0.5 ft	
PAHs (mg/Kg)														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Fluoranthene														
Phenanthrene														
Pyrene														
Pesticides (mg/Kg)														
4,4'-DDT														
Hexachlorobenzene														
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium	79		17000		2400		7200		11000		12		150	
Chromium, Hexavalent							110	U						
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Silver														

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SOLSD-17-0-6 SOLSD17 9/20/2005 0-0.5 ft	SOLSD-17-6-12 SOLSD17 9/20/2005 0.5-1 ft	SOLSD-18-0-6 SOLSD18 9/20/2005 0-0.5 ft	SOLSD-18-6-12 SOLSD18 9/20/2005 0.5-1 ft	SOLSD-19-0-6 SOLSD19 9/20/2005 0-0.5 ft	SOLSD-19-6-12 SOLSD19 9/20/2005 0.5-1 ft	SOLSD-20-0-6 SOLSD20 9/20/2005 0-0.5 ft
PAHs (mg/Kg)							
Benzo(a)anthracene							
Benzo(a)pyrene							
Benzo(b)fluoranthene							
Benzo(ghi)perylene							
Benzo(k)fluoranthene							
Chrysene							
Fluoranthene							
Phenanthrene							
Pyrene							
Pesticides (mg/Kg)							
4,4'-DDT							
Hexachlorobenzene							
Inorganics (mg/Kg)							
Aluminum							
Antimony							
Arsenic							
Barium							
Beryllium							
Cadmium							
Calcium							
Chromium	530	97	16000	14000	22000	9800	1500
Chromium, Hexavalent							
Cobalt							
Copper							
Iron							
Lead							
Magnesium							
Manganese							
Mercury							
Nickel							
Potassium							
Silver							

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SOLSD-2-0-6 SOLSD02 9/21/2005 0-0.5 ft		SOLSD-20-6-12 SOLSD20 9/20/2005 0.5-1 ft		SOLSD-21-0-6 SOLSD21 9/20/2005 0-0.5 ft		SOLSD-22-0-6 SOLSD22 9/20/2005 0-0.5 ft		SOLSD-23-0-6 SOLSD23 9/20/2005 0-0.5 ft		SOLSD-3-0-6 SOLSD03 9/21/2005 0-0.5 ft		SOLSD-4-0-6 SOLSD04 9/21/2005 0-0.5 ft	
PAHs (mg/Kg)														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														
Benzo(k)fluoranthene														
Chrysene														
Fluoranthene														
Phenanthrene														
Pyrene														
Pesticides (mg/Kg)														
4,4'-DDT														
Hexachlorobenzene														
Inorganics (mg/Kg)														
Aluminum														
Antimony														
Arsenic														
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium	180		140		10		20		26		15		10	U
Chromium, Hexavalent														
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Silver														

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	SOLSD-5-0-6 SOLSD05 9/21/2005 0-0.5 ft	SOLSD-6-0-6 SOLSD06 9/21/2005 0-0.5 ft	SOLSD-6-6-12 SOLSD06 9/21/2005 0.5-1 ft	SOLSD-7-0-6 SOLSD07 9/21/2005 0-0.5 ft	SOLSD-7-6-12 SOLSD07 9/21/2005 0.5-1 ft	SOLSD-8-0-6 SOLSD08 9/21/2005 0-0.5 ft	SOLSD-9-0-6 SOLSD09 9/21/2005 0-0.5 ft
PAHs (mg/Kg)							
Benzo(a)anthracene							
Benzo(a)pyrene							
Benzo(b)fluoranthene							
Benzo(ghi)perylene							
Benzo(k)fluoranthene							
Chrysene							
Fluoranthene							
Phenanthrene							
Pyrene							
Pesticides (mg/Kg)							
4,4'-DDT							
Hexachlorobenzene							
Inorganics (mg/Kg)							
Aluminum							
Antimony							
Arsenic							
Barium							
Beryllium							
Cadmium							
Calcium							
Chromium	47	11000	62000	2800	180	64	56
Chromium, Hexavalent							
Cobalt							
Copper							
Iron							
Lead							
Magnesium							
Manganese							
Mercury							
Nickel							
Potassium							
Silver							

Appendix F-4
Summary of Detected Chemicals for OU2 Surface Soil Samples
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)	Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1010-SED-SDF-1S SDF-1 9/17/2001 0-0.5 ft	1010-SED-SDF-2S SDF-2 9/17/2001 0-0.5 ft	BS040LSD BS040 8/22/2005 0-0.5 ft	OC-SB-526-0.0/1.0-XXX SB-526 12/5/2012 0-1 ft	OC-SB-527-0.0/1.0-XXX SB-527 12/5/2012 0-1 ft

Notes:
(1) Values are the Industrial Soil Regional Screening Levels (RSLs)
United States Environmental Protection Agency Regions 3, 6, and 9. November 2013. Regional Screening Levels for Chemical Contaminants at Superfund Sites.
http://www.epa.gov/reg3hwmd/risk/human/rb-concentrations_table/index.htm
RSL for 2,4,4-Trimethyl-2-pentene calculated consistent with RSL Guidance.
RSL for Chromium (III) used for chromium.
MCP Method 1 Soil category S-2 Standards were used for screening EPH/VPH.
c - RSL is based on an excess lifetime cancer risk of 1 in 1 million.
c* - where n RSL < 100X c RSL.
c** - where n RSL < 10X c RSL.
L - lead
n - RSL is based on a non-cancer hazard quotient.
nm - RSL is based on a non-cancer hazard quotient; concentration may exceed ceiling limit.
nms - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat and the ceiling limit.
ns - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat.
(2) Values are the Risk- and MCL-based Soil Screening Levels (SSLs) as presented in the RSLs

mg/Kg = milligram per kilogram
mV = millivolts

U = not detected, value is the reporting limit
J = value is estimated
R = value is rejected
T = value is estimated and may be biased high due to the oxidation of Cr+3 to Cr+6

BOLD outlined cells indicate a concentration greater than the Industrial RSL.
Shaded cells indicate a concentration greater than the risk-based or MCL-based SSL.

Prepared by / Date: KJC 03/04/14
Checked by / Date: CTM 03/10/14

Table F-5
Summary of Detected Chemicals for OU2 Shallow Subsurface Soil Samples (1-10 ft)
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	OC-SB-526-1.0/3.0-XXX SB-526 12/5/2012 1-3 ft		OC-SB-527-1.0/3.0-XXX SB-527 12/5/2012 1-3 ft		OC-SB-528-1.0/3.0-XXX SB-528 12/5/2012 1-3 ft		OC-SB-529-1.0/3.0-XXX SB-529 12/5/2012 1-3 ft		SOLSD-11-12-18 SOLSD11 9/21/2005 1-1.5 ft		SOLSD-13-12-18 SOLSD13 9/21/2005 1-1.5 ft		SOLSD-18-12-18 SOLSD18 9/20/2005 1-1.5 ft		SOLSD-6-12-18 SOLSD06 9/21/2005 1-1.5 ft	
Semivolatile Organics (mg/Kg)																				
Bis(2-Ethylhexyl)phthalate	120	c	1.1	1.4	0.22	U			11		0.21	U								
Diphenyl ether					0.044	U			0.82	J	0.042	U								
Inorganics (mg/Kg)																				
Chromium	1500000	nm		180000									2500		120		1400		2300	
Chromium, Hexavalent	5.6	c	0.00059		2.7	U	2.9	U	4	J	2.4	U								
Tin	610000	nm	2300						2.4	J										
Oxidation Reduction Potential **(mV)**					82		73		0.01	U	34									
pH **(pH units)**					4.33		3.85		6.15		4.24									

Notes:
SSL = soil screening levels
(1) Values are the Industrial Soil Regional Screening Levels (RSLs)
United States Environmental Protection Agency Regions 3, 6, and 9. November 2013. Regional Screening Levels for Chemical Contaminants at Superfund Sites.
http://www.epa.gov/reg3hwmd/risk/human/rb-concentrations_table/index.htm
RSL for Chromium (III) used for chromium.
c - RSL is based on an excess lifetime cancer risk of 1 in 1 million.
c* - where n RSL < 100X c RSL.
c** - where n RSL < 10X c RSL.
n - RSL is based on a non-cancer hazard quotient.
nm - RSL is based on a non-cancer hazard quotient; concentration may exceed ceiling limit.
nms - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat and the ceiling limit.
ns - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat.
(2) Values are the Risk- and MCL-based Soil Screening Levels as presented in the RSLs

Prepared by / Date: KJC 03/4/2014
Checked by / Date: CTM 03/4/2014

mg/Kg = milligram per kilogram
mV = millivolts

U = not detected, value is the reporting limit
J = value is estimated
R = value is rejected

BOLD outlined cells indicate a concentration greater than the Industrial RSL
Shaded cells indicate a concentration greater the risk-based or MCL-based SSL

Appendix F-6
Summary of Detected Chemicals for Inaccessible Soil Samples - Under Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1140-CP-C10 CP-C10 10/2/2000 1.4-1.4 ft		1140-CP-C11 CP-C11 10/2/2000 2.3-2.3 ft		1140-CP-C12 CP-C12 10/2/2000 3.7-3.7 ft		1140-CP-C13 CP-C13 10/2/2000 3.1-3.1 ft		1140-CP-C14 CP-C14 10/2/2000 2.3-2.3 ft	
Volatile Organics (mg/Kg)														
2,4,4-Trimethyl-1-pentene	39	n									0.59			
2,4,4-Trimethyl-2-pentene	39	n									0.17			
Methylene chloride	960	c**	0.0025	0.0013							0.51	B		
Trichlorofluoromethane	3400	ns	0.69								0.15	U		
Semivolatile Organics (mg/Kg)														
Bis(2-Ethylhexyl)phthalate	120	c	1.1	1.4	120		**128**		96		**208**		**148**	
Pesticides/PCBs (mg/Kg)														
4,4'-DDT	7	c*	0.067								0.054	F		
Inorganics (mg/Kg)														
Aluminum	990000	nm	23000								5300			
Arsenic	2.4	cR	0.0013	0.29							**2.8**			
Chromium	1500000	nm		180000	120	G	280	G	38	G	590	G	480	G
Iron	720000	nm	270								5700			
Lead	800	L		14							5.5			
Mercury	43	ns	0.033	0.1							0.31	G		

Appendix F-6
Summary of Detected Chemicals for Inaccessible Soil Samples - Under Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C15 CP-C15 10/2/2000 2.9-2.9 ft		1140-CP-C16 CP-C16 10/2/2000 3.7-3.7 ft		1140-CP-C17 CP-C17 10/2/2000 3.4-3.4 ft		1140-CP-C18 CP-C18 10/2/2000 2.4-2.4 ft		1140-CP-C19 CP-C19 10/2/2000 3.1-3.1 ft		1140-CP-C20 CP-C20 10/2/2000 2.8-2.8 ft		1140-CP-C21 CP-C21 10/2/2000 2.5-2.5 ft	
Volatile Organics (mg/Kg)														
2,4,4-Trimethyl-1-pentene			0.58										0.55	
2,4,4-Trimethyl-2-pentene			0.18										0.17	
Methylene chloride			0.72	B									0.51	B
Trichlorofluoromethane			0.13	J									0.14	U
Semivolatile Organics (mg/Kg)														
Bis(2-Ethylhexyl)phthalate	0.38	U	94		47		71		0.41	U	48		29	
Pesticides/PCBs (mg/Kg)														
4,4'-DDT			0.036	F									0.02	F
Inorganics (mg/Kg)														
Aluminum			3900										3900	
Arsenic			2.2										2	
Chromium	240	G	340	G	220	G	270	G	460	G	200	G	77	G
Iron			4100										3400	
Lead			3.8										3.9	
Mercury			0.06	UG									0.05	UG

Appendix F-6
Summary of Detected Chemicals for Inaccessible Soil Samples - Under Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C22 CP-C22 10/2/2000 2.2-2.2 ft		1140-CP-C24 CP-C24 10/2/2000 4.2-4.2 ft		1140-CP-C26 CP-C26 10/5/2000 1.9-1.9 ft		1140-CP-C27 CP-C27 10/5/2000 3.1-3.1 ft		1140-CP-C28 CP-C28 10/5/2000 3.5-3.5 ft		1140-CP-C71 CP-C71 11/2/2000 3.8-3.8 ft		1140-CP-C72 CP-C72 11/2/2000 3.2-3.2 ft	
Volatile Organics (mg/Kg)														
2,4,4-Trimethyl-1-pentene									0.12	U				
2,4,4-Trimethyl-2-pentene									0.12	U				
Methylene chloride									0.34	B				
Trichlorofluoromethane									0.12	U				
Semivolatile Organics (mg/Kg)														
Bis(2-Ethylhexyl)phthalate	0.37	U	2.1		0.42	U	**990**	C	26					
Pesticides/PCBs (mg/Kg)														
4,4'-DDT									0.023					
Inorganics (mg/Kg)														
Aluminum									4100					
Arsenic									**2.5**					
Chromium	280	G	220	G	140		7900		140		170		240	
Iron									5000					
Lead									3.8					
Mercury									0.05	U				

Appendix F-6
Summary of Detected Chemicals for Inaccessible Soil Samples - Under Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C73 CP-C73 11/2/2000 3.6-3.6 ft	1140-CP-C74 CP-C74 11/2/2000 2.4-2.4 ft	1140-CP-C81 CP-C81 5/9/2001 2.6-2.6 ft	1140-CP-C86 CP-C86 5/10/2001 3.3-3.3 ft	1140-CP-C9 CP-C9 10/2/2000 2-2 ft	CP 2 (Central Pond 2) CP-2 11/4/1999
Volatile Organics (mg/Kg)						
2,4,4-Trimethyl-1-pentene						
2,4,4-Trimethyl-2-pentene						
Methylene chloride						
Trichlorofluoromethane						
Semivolatile Organics (mg/Kg)						
Bis(2-Ethylhexyl)phthalate			0.4 U	0.38 U	**743**	
Pesticides/PCBs (mg/Kg)						
4,4'-DDT						
Inorganics (mg/Kg)						
Aluminum						
Arsenic						
Chromium	290	280	110	25	610 G	
Iron						
Lead						
Mercury						

Appendix F-6
Summary of Detected Chemicals for Inaccessible Soil Samples - Under Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)	Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1140-CP-C10 CP-C10 10/2/2000 1.4-1.4 ft	1140-CP-C11 CP-C11 10/2/2000 2.3-2.3 ft	1140-CP-C12 CP-C12 10/2/2000 3.7-3.7 ft	1140-CP-C13 CP-C13 10/2/2000 3.1-3.1 ft	1140-CP-C14 CP-C14 10/2/2000 2.3-2.3 ft

(1) Values are the Industrial Soil Regional Screening Levels (RSLs).
United States Environmental Protection Agency Regions 3, 6, and 9. November 2013. Regional Screening Levels for Chemical Contaminants at Superfund Sites.
http://www.epa.gov/reg3hwmd/risk/human/rb-concentrations_table/index.htm
RSL for 2,4,4-Trimethyl-1-pentene and 2,4,4-Trimethyl-2-pentene calculated consistent with RSL Guidance.
RSL for Chromium (III) used for chromium.
MCP Method 1 Soil category S-2 Standards were used for screening EPH/VPH.
c - RSL is based on an excess lifetime cancer risk of 1 in 1 million.
c* - where n RSL < 100X c RSL.
c** - where n RSL < 10X c RSL.
n - RSL is based on a non-cancer hazard quotient.
nm - RSL is based on a non-cancer hazard quotient; concentration may exceed ceiling limit.
ns - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat.
(2) Values are the Risk- and MCL-based Soil Screening Levels (SSLs) as presented in the RSLs.

mg/Kg = milligram per kilogram

U = not detected, value is the reporting limit
J = value is estimated
B = analyte was detected in both the sample and its associated laboratory blank
C = value is estimated due to surrogate recovery outside of control limits
F = value is estimated due to matrix spike recovery outside of control limits.
G = value is estimated due to duplicate precision outside of control limits

BOLD outlined cells indicate a concentration greater than the Industrial RSL.
Shaded cells indicate a concentration greater than the risk-based or MCL-based SSL.

Prepared by / Date: KJC 02/27/14
Checked by / Date: CTM 03/14/14

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1120-BD-C1 BD-C1 10/10/2000 4.6-4.6 ft		1120-BD-C10 BD-C10 10/12/2000 10.3-10.3 ft		1120-BD-C13 BD-C13 10/12/2000 10.1-10.1 ft		1120-BD-C4 BD-C4 10/10/2000 7.5-7.5 ft		1120-BD-C7 BD-C7 10/12/2000 7.9-7.9 ft	
Volatile Organics (mg/Kg)														
1,1,1-Trichloroethane	38000	ns	2.6	0.07	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
1,1-Dichloroethene	1100	n	0.093	0.0025	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
1,2,3-Trichlorobenzene	490	n	0.015		0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
1,2,4-Trichlorobenzene	99	c**	0.0029	0.2	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
1,2,4-Trimethylbenzene	260	ns	0.021		0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
1,3,5-Trimethylbenzene	10000	ns	0.12		0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
2,4,4-Trimethyl-1-pentene					0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
2,4,4-Trimethyl-2-pentene					0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
2-Butanone	200000	nms	1		2.5	U	3.1	U	3.1	U	3	U	3.2	U
2-Hexanone	1400	n	0.0079		0.5	U	0.61	U	0.62	U	0.59	U	0.63	U
4-iso-Propyltoluene					0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Acetone	630000	nms	2.4		2.5	U	3.1	U	3.1	U	3	U	3.2	U
Benzene	5.4	c*	0.0002	0.0026	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Chloroform	1.5	c	0.000053	0.022	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Ethyl benzene	27	c	0.0015	0.78	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Isopropylbenzene	11000	ns	0.64		0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Methylene chloride	960	c**	0.0025	0.0013	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Naphthalene	18	c*	0.00047		1.2	U	1.5	U	1.5	U	1.5	U	1.6	U
Propylbenzene	21000	ns	0.99		0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
sec-Butylbenzene			4.6		0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Styrene	36000	ns	1.2	0.11	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Tetrachloroethene	110	c**	0.0044	0.0023	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Toluene	45000	ns	0.59	0.69	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Trichloroethene	6.4	c**	0.00016	0.0018	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Xylene, o	3000	ns	0.19		0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Xylenes (m&p)					0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Xylenes, Total	2700	ns	0.19	9.8	0.12	U	0.15	U	0.15	U	0.15	U	0.16	U
Semivolatile Organics (mg/Kg)														
1,2,4-Trichlorobenzene	99	c**	0.0029	0.2	0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
2-Methylnaphthalene	2200	n	0.14		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
2-Methylphenol	31000	n	0.58		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
4-Methylphenol	62000	n	1.1											
Acenaphthylene					0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Anthracene	170000	nm	42		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Benzo(a)anthracene	2.1	c	0.01		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Benzo(a)pyrene	0.21	c	0.0035	0.24	0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Benzo(b)fluoranthene	2.1	c	0.035		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Benzo(ghi)perylene					0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Benzo(k)fluoranthene	21	c	0.35		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Benzoic Acid	2500000	nm	14		2	U	2	U	2.1	U	2	U	2	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1120-BD-C1 BD-C1 10/10/2000 4.6-4.6 ft		1120-BD-C10 BD-C10 10/12/2000 10.3-10.3 ft		1120-BD-C13 BD-C13 10/12/2000 10.1-10.1 ft		1120-BD-C4 BD-C4 10/10/2000 7.5-7.5 ft		1120-BD-C7 BD-C7 10/12/2000 7.9-7.9 ft	
Bis(2-Ethylhexyl)phthalate	120	c	1.1	1.4	0.4	U	0.41	U	0.42	U	3.9		0.4	U
Butylbenzylphthalate	910	c	0.2		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Chrysene	210	c	1.1		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Dibenz(a,h)anthracene	0.21	c	0.011		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Diethylphthalate	490000	nm	4.7		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Di-n-butylphthalate	62000	n	1.7		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Di-n-octylphthalate	6200	n	44		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Fluoranthene	22000	n	70		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Indeno(1,2,3-cd)pyrene	2.1	c	0.2		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Naphthalene	18	c*	0.00047		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
N-Nitrosodiphenylamine	350	c	0.057		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Phenanthrene					0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Phenol	180000	nm	2.6		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Pyrene	17000	n	9.5		0.4	U	0.41	U	0.42	U	0.41	U	0.4	U
Pesticides/PCBs (mg/Kg)														
4,4'-DDD	7.2	c	0.0064		0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
4,4'-DDE	5.1	c	0.046		0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
4,4'-DDT	7	c*	0.067		0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
Aldrin	0.1	c	0.00065		0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
Alpha-BHC	0.27	c	0.000036		0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
Alpha-Chlordane														
Beta-BHC	0.96	c	0.00013		0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
Chlordane (technical)	6.5	c*	0.013	0.14										
Dieldrin	0.11	c	0.000061		0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
Endosulfan I					0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
Endrin	180	n	0.068	0.081	0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
Endrin aldehyde					0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
Endrin ketone														
Gamma-BHC/Lindane	2.1	c	0.00021	0.0012	0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
Heptachlor	0.38	c	0.00014	0.033	0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
Heptachlor epoxide	0.19	c*	0.000068	0.0041	0.012	U	0.012	U	0.012	U	0.012	U	0.012	U
Inorganics (mg/Kg)														
Aluminum	990000	nm	23000		3400		2600		2600		3700		4200	
Arsenic	2.4	cR	0.0013	0.29	2	U	2	U	1	U	1	U	2	
Barium	190000	nm	120	82										
Beryllium	2000	n	13	3.2										
Cadmium	800	n	0.52	0.38	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
Calcium														
Chromium				180000	5.3		4.8		5		4.9		6.2	
Cobalt	300	n	0.21											

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)		Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1120-BD-C1 BD-C1 10/10/2000 4.6-4.6 ft		1120-BD-C10 BD-C10 10/12/2000 10.3-10.3 ft		1120-BD-C13 BD-C13 10/12/2000 10.1-10.1 ft		1120-BD-C4 BD-C4 10/10/2000 7.5-7.5 ft		1120-BD-C7 BD-C7 10/12/2000 7.9-7.9 ft	
Copper	41000	n	22	46										
Iron	720000	nm	270		2700		2300		2500		2100		2900	
Lead	800	L		14	1.8		2		1.8		2.1		1.9	
Magnesium														
Manganese	23000	n	21											
Mercury	43	ns	0.033	0.1	0.05	U	0.05	U	0.05	U	0.05	U	0.06	U
Nickel	20000	n	20											
Potassium														
Sodium														
Thallium	10	n	0.011	0.14										
Vanadium	5100	n	63											
Zinc	310000	nm	290											
Chloride														
Nitrogen, as Ammonia														
Percent Moisture **(%)**														
Percent Solids **(%)**					82.4		80.3		78.6		80.1		81.3	
pH **(pH units)**														
Sulfate														
Total Organic Carbon														
EPH (mg/Kg)														
C11-C22 Aromatics	3000													
C11-C22 Aromatics (unadj.)	3000													
C19-C36 Aliphatics	5000													
Extractable Petroleum Hydrocarbons, Total														

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C10 DA-C10 9/18/2000 -0.2-1.8 ft		1120-DA-C11 DA-C11 9/18/2000 0-3 ft		1120-DA-C12 DA-C12 9/18/2000 7-7 ft		1120-DA-C13 DA-C13 9/18/2000 7-7 ft		1120-DA-C14 DA-C14 9/18/2000 5.9-5.9 ft		1120-DA-C15 DA-C15 9/18/2000 1.2-4.2 ft		1120-DA-C16 DA-C16 9/18/2000 0.2-3.2 ft		1120-DA-C17 DA-C17 9/18/2000 6.2-6.2 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
1,1-Dichloroethene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
1,2,3-Trichlorobenzene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
1,2,4-Trichlorobenzene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
1,2,4-Trimethylbenzene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
1,3,5-Trimethylbenzene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
2,4,4-Trimethyl-1-pentene	0.13	U	0.12	U	0.15	U	68		7.1		0.13	U	0.12	U	0.44	
2,4,4-Trimethyl-2-pentene	0.13	U	0.12	U	0.15	U	27		2.6		0.13	U	0.12	U	0.14	U
2-Butanone	2.6	U	2.4	U	3	U	15	U	2.5	U	2.6	U	2.3	U	2.7	U
2-Hexanone	0.53	U	0.49	U	0.59	U	3	U	0.51	U	0.52	U	0.46	U	0.55	U
4-iso-Propyltoluene	0.13	U	0.12	U	0.15	U	3.2		1.7		0.13	U	0.12	U	9.2	
Acetone	2.6	U	2.4	U	3	U	15	U	2.5	U	2.6	U	2.3	U	2.7	U
Benzene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
Chloroform	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
Ethyl benzene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
Isopropylbenzene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.22	
Methylene chloride	0.21	B	0.17	B	0.15	JB	0.74	U	0.13	U	0.18	B	0.16	B	0.14	U
Naphthalene	1.3	U	1.2	U	1.5	U	7.4	U	1.3	U	1.3	U	1.2	U	1.4	U
Propylbenzene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
sec-Butylbenzene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
Styrene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
Tetrachloroethene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
Toluene	0.13	U	0.12	U	0.14	J	7.5		0.13	U	0.13	U	0.12	U	0.14	U
Trichloroethene	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
Xylene, o	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
Xylenes (m&p)	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
Xylenes, Total	0.13	U	0.12	U	0.15	U	0.74	U	0.13	U	0.13	U	0.12	U	0.14	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
2-Methylnaphthalene	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
2-Methylphenol	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
4-Methylphenol																
Acenaphthylene	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Anthracene	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Benzo(a)anthracene	0.35	U	0.35	U	0.42	U					0.35	U	0.34	U	19	U
Benzo(a)pyrene	0.35	U	0.35	U	0.42	U					0.35	U	0.34	U		
Benzo(b)fluoranthene	0.35	U	0.35	U	0.42	U					0.35	U	0.34	U	19	U
Benzo(ghi)perylene	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Benzo(k)fluoranthene	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Benzoic Acid	1.8	U	1.8	U	2.1	U	200	UC	190	U	1.7	U	1.7	U	97	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C10 DA-C10 9/18/2000 -0.2-1.8 ft		1120-DA-C11 DA-C11 9/18/2000 0-3 ft		1120-DA-C12 DA-C12 9/18/2000 7-7 ft		1120-DA-C13 DA-C13 9/18/2000 7-7 ft		1120-DA-C14 DA-C14 9/18/2000 5.9-5.9 ft		1120-DA-C15 DA-C15 9/18/2000 1.2-4.2 ft		1120-DA-C16 DA-C16 9/18/2000 0.2-3.2 ft		1120-DA-C17 DA-C17 9/18/2000 6.2-6.2 ft	
Bis(2-Ethylhexyl)phthalate	3.8		5.8		8.2		**448**	C	**1582**		1.2		0.42		**381**	
Butylbenzylphthalate	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Chrysene	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Dibenz(a,h)anthracene	0.35	U	0.35	U	0.42	U					0.35	U	0.34	U		
Diethylphthalate	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Di-n-butylphthalate	0.35	U	0.35	U	0.42	U	98	C	109		0.35	U	0.34	U	19	U
Di-n-octylphthalate	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Fluoranthene	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Indeno(1,2,3-cd)pyrene	0.35	U	0.35	U	0.42	U					0.35	U	0.34	U	19	U
Naphthalene	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
N-Nitrosodiphenylamine	0.24	J	0.32	J	6		40	UC	49		0.35	U	0.34	U	19	U
Phenanthrene	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Phenol	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Pyrene	0.35	U	0.35	U	0.42	U	40	UC	38	U	0.35	U	0.34	U	19	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	UC	0.012	U
4,4'-DDE	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	UC	0.012	U
4,4'-DDT	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	UC	0.012	U
Aldrin	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	UC	0.012	U
Alpha-BHC	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	UC	0.012	U
Alpha-Chlordane																
Beta-BHC	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	UC	0.012	U
Chlordane (technical)																
Dieldrin	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	UC	0.012	U
Endosulfan I	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	UC	0.012	U
Endrin	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	U	0.012	U
Endrin aldehyde	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	UC	0.012	U
Endrin ketone																
Gamma-BHC/Lindane	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	UC	0.012	U
Heptachlor	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	U	0.012	U
Heptachlor epoxide	0.011	U	0.011	U	0.012	U	0.012	U	0.011	U	0.01	U	0.01	UC	0.012	U
Inorganics (mg/Kg)																
Aluminum																
Arsenic																
Barium																
Beryllium																
Cadmium	0.3	U	0.3	U	0.3	U	0.56		0.3	U	0.3	U	0.3	U	1.4	
Calcium																
Chromium	27		10		30		10		18		7.8		23		20	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C10 DA-C10 9/18/2000 -0.2-1.8 ft	1120-DA-C11 DA-C11 9/18/2000 0-3 ft	1120-DA-C12 DA-C12 9/18/2000 7-7 ft	1120-DA-C13 DA-C13 9/18/2000 7-7 ft	1120-DA-C14 DA-C14 9/18/2000 5.9-5.9 ft	1120-DA-C15 DA-C15 9/18/2000 1.2-4.2 ft	1120-DA-C16 DA-C16 9/18/2000 0.2-3.2 ft	1120-DA-C17 DA-C17 9/18/2000 6.2-6.2 ft
Copper								
Iron								
Lead	2	3	4.2	2.4	3	2	6.1	3.4
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Sodium								
Thallium								
Vanadium								
Zinc								
Chloride								
Nitrogen, as Ammonia								
Percent Moisture **(%)**								
Percent Solids **(%)**	94.1	94.1	80.1	84	88.3	95.3	97.5	85.5
pH **(pH units)**								
Sulfate								
Total Organic Carbon								
EPH (mg/Kg)								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C18 DA-C18 9/18/2000 6.3-6.3 ft		1120-DA-C19 DA-C19 9/18/2000 1.3-4.3 ft		1120-DA-C2 DA-C2 9/18/2000 1.4-4.4 ft		1120-DA-C20 DA-C20 9/18/2000 0.3-3.3 ft		1120-DA-C21 DA-C21 9/18/2000 6.4-6.4 ft		1120-DA-C22 DA-C22 9/18/2000 6-6 ft		1120-DA-C23 DA-C23 9/18/2000 6.1-6.1 ft		1120-DA-C24 DA-C24 9/18/2000 5.7-5.7 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
1,1-Dichloroethene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
1,2,3-Trichlorobenzene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
1,2,4-Trichlorobenzene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
1,2,4-Trimethylbenzene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
1,3,5-Trimethylbenzene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
2,4,4-Trimethyl-1-pentene	0.14	U	0.13	U	0.13	U	0.13	U	0.42		1		0.16	U	0.15	U
2,4,4-Trimethyl-2-pentene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.35		0.16	U	0.15	U
2-Butanone	2.9	U	2.6	U	2.7	U	2.6	U	3	U	2.7	U	3.1	U	3	U
2-Hexanone	0.58	U	0.52	U	0.54	U	0.52	U	0.59	U	0.53	U	0.62	U	0.59	U
4-iso-Propyltoluene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Acetone	2.9	U	2.6	U	2.7	U	2.6	U	3	U	2.7	U	3.1	U	3	U
Benzene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Chloroform	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Ethyl benzene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Isopropylbenzene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Methylene chloride	0.19		0.18		0.16	B	0.17		0.23		0.18		0.21		0.19	
Naphthalene	1.4	U	1.3	U	1.3	U	1.3	U	1.5	U	1.3	U	1.6	U	1.5	U
Propylbenzene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
sec-Butylbenzene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Styrene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Tetrachloroethene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Toluene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.51		0.15	U
Trichloroethene	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Xylene, o	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Xylenes (m&p)	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Xylenes, Total	0.14	U	0.13	U	0.13	U	0.13	U	0.15	U	0.13	U	0.16	U	0.15	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
2-Methylnaphthalene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
2-Methylphenol	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
4-Methylphenol																
Acenaphthylene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Anthracene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Benzo(a)anthracene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U			1.9	U
Benzo(a)pyrene			0.34	U	0.73	U	0.34	U							1.9	U
Benzo(b)fluoranthene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U			1.9	U
Benzo(ghi)perylene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Benzo(k)fluoranthene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U			1.9	U
Benzoic Acid	98	U	1.7	U	3.6	U	1.7	U	21	U	19	U	2000	U	9.7	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C18 DA-C18 9/18/2000 6.3-6.3 ft		1120-DA-C19 DA-C19 9/18/2000 1.3-4.3 ft		1120-DA-C2 DA-C2 9/18/2000 1.4-4.4 ft		1120-DA-C20 DA-C20 9/18/2000 0.3-3.3 ft		1120-DA-C21 DA-C21 9/18/2000 6.4-6.4 ft		1120-DA-C22 DA-C22 9/18/2000 6-6 ft		1120-DA-C23 DA-C23 9/18/2000 6.1-6.1 ft		1120-DA-C24 DA-C24 9/18/2000 5.7-5.7 ft	
Bis(2-Ethylhexyl)phthalate	**370**		1.1		8.5		0.34	U	73		94		**1590**		16	
Butylbenzylphthalate	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Chrysene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Dibenz(a,h)anthracene			0.34	U	0.73	U	0.34	U							1.9	U
Diethylphthalate	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Di-n-butylphthalate	20	U	0.34	U	0.39	J	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Di-n-octylphthalate	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Fluoranthene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Indeno(1,2,3-cd)pyrene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U			1.9	U
Naphthalene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U			1.9	U
N-Nitrosodiphenylamine	20	U	0.34	U	1.2		0.34	U	4.1	U	2.8	J	400	U	1.9	U
Phenanthrene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Phenol	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Pyrene	20	U	0.34	U	0.73	U	0.34	U	4.1	U	3.8	U	400	U	1.9	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
4,4'-DDE	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
4,4'-DDT	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
Aldrin	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
Alpha-BHC	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
Alpha-Chlordane																
Beta-BHC	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
Chlordane (technical)																
Dieldrin	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
Endosulfan I	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
Endrin	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
Endrin aldehyde	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
Endrin ketone																
Gamma-BHC/Lindane	0.012	U	0.01	U	0.69	F	0.01	U	0.2		0.012	U	0.012	U	0.012	U
Heptachlor	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
Heptachlor epoxide	0.012	U	0.01	U	0.11	U	0.01	U	0.012	U	0.012	U	0.012	U	0.012	U
Inorganics (mg/Kg)																
Aluminum																
Arsenic																
Barium																
Beryllium																
Cadmium	1.4		0.3	U	1.4		0.3	U	0.3	U	0.3	U	2.3		0.3	U
Calcium																
Chromium	15		41		94		23		6.8		5.7		8.4		5.8	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C18 DA-C18 9/18/2000 6.3-6.3 ft	1120-DA-C19 DA-C19 9/18/2000 1.3-4.3 ft	1120-DA-C2 DA-C2 9/18/2000 1.4-4.4 ft	1120-DA-C20 DA-C20 9/18/2000 0.3-3.3 ft	1120-DA-C21 DA-C21 9/18/2000 6.4-6.4 ft	1120-DA-C22 DA-C22 9/18/2000 6-6 ft	1120-DA-C23 DA-C23 9/18/2000 6.1-6.1 ft	1120-DA-C24 DA-C24 9/18/2000 5.7-5.7 ft
Copper								
Iron								
Lead	2.6	2.8	3.9	6.1	2	2.5	2.8	2
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Sodium								
Thallium								
Vanadium								
Zinc								
Chloride								
Nitrogen, as Ammonia								
Percent Moisture **(%)**								
Percent Solids **(%)**	84.7	97	91.6	97.2	80.7	86.3	83.4	85.8
pH **(pH units)**								
Sulfate								
Total Organic Carbon								
EPH (mg/Kg)								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C27 DA-C27 9/29/2000 1.6-4.6 ft		1120-DA-C28 DA-C28 9/29/2000 2.7-5.7 ft		1120-DA-C29-RISK DA-C29 9/29/2000 6.2-6.2 ft		1120-DA-C3 DA-C3 9/18/2000 1.6-4.6 ft		1120-DA-C30 DA-C30 9/29/2000 6.5-9.5 ft		1120-DA-C31 DA-C31 9/29/2000 4.9-7.9 ft		1120-DA-C32 DA-C32 9/29/2000 5-8 ft		1120-DA-C35 DA-C35 10/7/2000 7.9-7.9 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
1,1-Dichloroethene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
1,2,3-Trichlorobenzene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
1,2,4-Trichlorobenzene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
1,2,4-Trimethylbenzene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
1,3,5-Trimethylbenzene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
2,4,4-Trimethyl-1-pentene	0.13	U	0.14	U	4.65		0.13	U	0.37		0.12	U	0.13	U	2.6	
2,4,4-Trimethyl-2-pentene	0.13	U	0.14	U	1.8		0.13	U	0.13	U	0.12	U	0.13	U	7.3	
2-Butanone	2.6	U	2.8	U	3	U	2.6	U	2.6	U	2.5	U	2.6	U	3	U
2-Hexanone	0.51	U	0.56	U	0.61	U	0.52	U	0.52	U	0.5	U	0.51	U	0.6	U
4-iso-Propyltoluene	0.13	U	0.14	U	0.75		0.13	U	0.13	U	0.12	U	0.13	U	18	
Acetone	2.6	U	2.8	U	3	U	2.6	U	2.6	U	2.5	U	2.6	U	3	U
Benzene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
Chloroform	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
Ethyl benzene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.62	
Isopropylbenzene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.37	
Methylene chloride	0.13	U	0.14	U	0.15	U	0.16	B	0.13	U	0.12	U	0.13	U	0.15	U
Naphthalene	1.3	U	1.4	U	1.5	U	1.3	U	1.3	U	1.2	U	1.3	U	1.5	U
Propylbenzene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
sec-Butylbenzene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
Styrene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
Tetrachloroethene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
Toluene	0.13	U	0.14	U	0.15	U	0.13	U	0.45		0.12	U	0.13	U	13	
Trichloroethene	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
Xylene, o	0.13	U	0.14	U	0.15	U	0.13	U	0.13	U	0.12	U	0.13	U	0.15	U
Xylenes (m&p)	0.13	U	0.14	U	0.15	U	0.13	U	0.096	JB	0.12	U	0.13	U	0.15	U
Xylenes, Total	0.13	U	0.14	U	0.15	U	0.13	U	0.096	JB	0.12	U	0.13	U	0.15	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
2-Methylnaphthalene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
2-Methylphenol	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
4-Methylphenol																
Acenaphthylene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Anthracene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Benzo(a)anthracene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Benzo(a)pyrene	0.71	U	0.37	U			0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Benzo(b)fluoranthene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Benzo(ghi)perylene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Benzo(k)fluoranthene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Benzoic Acid	3.5	U	1.8	U	42	UC	3.8	U	1.8	U	9	U	1.8	U	2	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C27 DA-C27 9/29/2000 1.6-4.6 ft		1120-DA-C28 DA-C28 9/29/2000 2.7-5.7 ft		1120-DA-C29-RISK DA-C29 9/29/2000 6.2-6.2 ft		1120-DA-C3 DA-C3 9/18/2000 1.6-4.6 ft		1120-DA-C30 DA-C30 9/29/2000 6.5-9.5 ft		1120-DA-C31 DA-C31 9/29/2000 4.9-7.9 ft		1120-DA-C32 DA-C32 9/29/2000 5-8 ft		1120-DA-C35 DA-C35 10/7/2000 7.9-7.9 ft	
Bis(2-Ethylhexyl)phthalate	7.2		6.2		119	C	9.6		3.4		12		0.86		7.9	
Butylbenzylphthalate	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Chrysene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Dibenz(a,h)anthracene	0.71	U	0.37	U			0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Diethylphthalate	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Di-n-butylphthalate	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Di-n-octylphthalate	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Fluoranthene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Indeno(1,2,3-cd)pyrene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Naphthalene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
N-Nitrosodiphenylamine	0.71	U	0.8		6.5	JC	0.48	J	0.48		1.8	U	0.37	U	0.41	U
Phenanthrene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Phenol	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Pyrene	0.71	U	0.37	U	8.3	UC	0.77	U	0.37	U	1.8	U	0.37	U	0.41	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.01	U	0.011	U	0.012	U	0.011	U	0.011	U	0.01	U	0.01	U	0.012	U
4,4'-DDE	0.01	U	0.011	U	0.012	U	0.011	U	0.011	U	0.01	U	0.01	U	0.012	U
4,4'-DDT	0.01	U	0.011	U	0.012	U	0.011	U	0.011	U	0.01	U	0.01	U	0.012	U
Aldrin	0.01	U	0.011	U	0.014		0.011	U	0.015		0.01	U	0.01	U	0.012	U
Alpha-BHC	0.01	U	0.011	U	0.012	U	0.011	U	0.011	U	0.01	U	0.01	U	0.012	U
Alpha-Chlordane																
Beta-BHC	0.01	U	0.011	U	0.012	U	0.011	U	0.011	U	0.01	U	0.01	U	0.012	U
Chlordane (technical)																
Dieldrin	0.01	U	0.011	U	0.012	U	0.011	U	0.011	U	0.01	U	0.01	U	0.012	U
Endosulfan I	0.01	U	0.011	U	0.012	U	0.011	U	0.011	U	0.01	U	0.01	U	0.012	U
Endrin	0.01	U	0.011	U	0.012	U	0.011	U	0.022		0.01	U	0.01	U	0.012	U
Endrin aldehyde	0.01	U	0.011	U	0.012	U	0.011	U	0.011	U	0.01	U	0.01	U	0.012	U
Endrin ketone																
Gamma-BHC/Lindane	0.17		0.047		0.012	U	0.027		0.028		0.01	U	0.01	U	0.012	U
Heptachlor	0.01	U	0.011	U	0.012	U	0.011	U	0.011	U	0.01	U	0.01	U	0.012	U
Heptachlor epoxide	0.01	U	0.011	U	0.012	U	0.011	U	0.011	U	0.01	U	0.01	U	0.012	U
Inorganics (mg/Kg)																
Aluminum																
Arsenic																
Barium																
Beryllium																
Cadmium	0.3	U	0.82		0.3	U	7.3		0.3	U	0.3	U	0.3	U	0.4	U
Calcium																
Chromium	13		22		50		42		27		34		5.8		7.7	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C27 DA-C27 9/29/2000 1.6-4.6 ft	1120-DA-C28 DA-C28 9/29/2000 2.7-5.7 ft	1120-DA-C29-RISK DA-C29 9/29/2000 6.2-6.2 ft	1120-DA-C3 DA-C3 9/18/2000 1.6-4.6 ft	1120-DA-C30 DA-C30 9/29/2000 6.5-9.5 ft	1120-DA-C31 DA-C31 9/29/2000 4.9-7.9 ft	1120-DA-C32 DA-C32 9/29/2000 5-8 ft	1120-DA-C35 DA-C35 10/7/2000 7.9-7.9 ft
Copper								
Iron								
Lead	1.7	3.6	2.6	4.3	3	1.8	2.4	2.5
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Sodium								
Thallium								
Vanadium								
Zinc								
Chloride								
Nitrogen, as Ammonia								
Percent Moisture **(%)**								
Percent Solids **(%)**	93.3	89	80.35	86.9	90.8	92.1	90.4	79.5
pH **(pH units)**	6.36	6.7	7.34		6.85	7.06	4.75	7.66
Sulfate								
Total Organic Carbon								
EPH (mg/Kg)								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C4 DA-C4 9/18/2000 1.7-4.7 ft		1120-DA-C5 DA-C5 9/18/2000 0.3-2.3 ft		1120-DA-C6 DA-C6 9/18/2000 0.5-3.5 ft		1120-DA-C7 DA-C7 9/18/2000 7.2-7.2 ft		1120-DA-C8 DA-C8 9/18/2000 6.9-6.9 ft		1120-DA-C9 DA-C9 9/18/2000 0.3-0.3 ft		1120-DA-SP-3A STOCKPILE 8/26/2000		1120-DA-SP-3B STOCKPILE 8/26/2000	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
1,1-Dichloroethene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
1,2,3-Trichlorobenzene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
1,2,4-Trichlorobenzene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
1,2,4-Trimethylbenzene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
1,3,5-Trimethylbenzene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
2,4,4-Trimethyl-1-pentene	0.14	U	0.12	U	0.12	U	0.14	U	0.67		0.12	U		U		U
2,4,4-Trimethyl-2-pentene	0.14	U	0.12	U	0.12	U	0.14	U	0.18		0.12	U		U		U
2-Butanone	2.8	U	2.5	U	2.3	U	2.8	U	2.8	U	2.4	U	0.45	U	0.34	U
2-Hexanone	0.56	U	0.5	U	0.46	U	0.56	U	0.57	U	0.47	U	0.45	U	0.34	U
4-iso-Propyltoluene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
Acetone	2.8	U	2.5	U	2.3	U	2.8	U	2.8	U	2.4	U	0.45	U	0.34	U
Benzene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
Chloroform	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
Ethyl benzene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
Isopropylbenzene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
Methylene chloride	0.17	B	0.2	B	0.17	B	0.18	B	0.24	B	0.17	B	0.089	UB	0.068	UB
Naphthalene	1.4	U	1.2	U	1.2	U	1.4	U	1.4	U	1.2	U	0.089	U	0.068	U
Propylbenzene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
sec-Butylbenzene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
Styrene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
Tetrachloroethene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
Toluene	0.14	U	0.12	U	0.12	U	0.14	U	1.5		0.12	U	0.045	U	0.11	
Trichloroethene	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
Xylene, o	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
Xylenes (m&p)	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U	0.045	U	0.034	U
Xylenes, Total	0.14	U	0.12	U	0.12	U	0.14	U	0.14	U	0.12	U				
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
2-Methylnaphthalene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
2-Methylphenol	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
4-Methylphenol													0.32	U	0.27	U
Acenaphthylene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Anthracene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Benzo(a)anthracene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Benzo(a)pyrene	0.38	U	0.36	U			0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Benzo(b)fluoranthene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Benzo(ghi)perylene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Benzo(k)fluoranthene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Benzoic Acid	1.9	U	1.8	U	18	U	2.2	U	4.2	U	1.8	U	0.64	U	0.54	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C4 DA-C4 9/18/2000 1.7-4.7 ft		1120-DA-C5 DA-C5 9/18/2000 0.3-2.3 ft		1120-DA-C6 DA-C6 9/18/2000 0.5-3.5 ft		1120-DA-C7 DA-C7 9/18/2000 7.2-7.2 ft		1120-DA-C8 DA-C8 9/18/2000 6.9-6.9 ft		1120-DA-C9 DA-C9 9/18/2000 0.3-0.3 ft		1120-DA-SP-3A STOCKPILE 8/26/2000		1120-DA-SP-3B STOCKPILE 8/26/2000	
Bis(2-Ethylhexyl)phthalate	3.9		1.7		19		7.6		0.98		2.3		1.8		3.9	
Butylbenzylphthalate	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Chrysene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Dibenz(a,h)anthracene	0.38	U	0.36	U			0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Diethylphthalate	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Di-n-butylphthalate	1.6		0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Di-n-octylphthalate	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Fluoranthene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Indeno(1,2,3-cd)pyrene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Naphthalene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
N-Nitrosodiphenylamine	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Phenanthrene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Phenol	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Pyrene	0.38	U	0.36	U	3.5	U	0.43	U	0.84	U	0.35	U	0.32	U	0.27	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.02	U	0.017	U
4,4'-DDE	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.02	U	0.017	U
4,4'-DDT	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.02	U	0.017	U
Aldrin	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.01	U	0.0085	U
Alpha-BHC	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.24		**0.43**	
Alpha-Chlordane													0.01	U	0.0085	U
Beta-BHC	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.13		0.15	
Chlordane (technical)													0.01	U	0.0085	U
Dieldrin	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.02	U	0.017	U
Endosulfan I	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.01	U	0.0085	U
Endrin	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.02	U	0.017	U
Endrin aldehyde	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.02	U	0.017	U
Endrin ketone													0.02	U	0.017	U
Gamma-BHC/Lindane	0.011	U	0.011	U	0.074		0.02		0.013	U	0.011	U	0.01	U	0.011	
Heptachlor	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.01	U	0.0085	U
Heptachlor epoxide	0.011	U	0.011	U	0.01	U	0.013	U	0.013	U	0.011	U	0.01	U	0.0085	U
Inorganics (mg/Kg)																
Aluminum																
Arsenic																
Barium																
Beryllium																
Cadmium	0.32		0.3	U	0.3	U	0.35		0.3	U	0.71		0.77	U	0.67	U
Calcium																
Chromium	43		52		60		73		5.1		4.5		37		21	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-C4 DA-C4 9/18/2000 1.7-4.7 ft	1120-DA-C5 DA-C5 9/18/2000 0.3-2.3 ft	1120-DA-C6 DA-C6 9/18/2000 0.5-3.5 ft	1120-DA-C7 DA-C7 9/18/2000 7.2-7.2 ft	1120-DA-C8 DA-C8 9/18/2000 6.9-6.9 ft	1120-DA-C9 DA-C9 9/18/2000 0.3-0.3 ft	1120-DA-SP-3A STOCKPILE 8/26/2000	1120-DA-SP-3B STOCKPILE 8/26/2000
Copper								
Iron								
Lead	10	7.1	4.4	2.5	2.1	1.5	14	7.1
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Sodium								
Thallium								
Vanadium								
Zinc								
Chloride								
Nitrogen, as Ammonia								
Percent Moisture **(%)**							23.8	8.6
Percent Solids **(%)**	88.1	91.5	94.5	77.4	79.3	93.8		
pH **(pH units)**								
Sulfate								
Total Organic Carbon								
EPH (mg/Kg)								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-SP-3C STOCKPILE 8/26/2000		1120-DA-SP3D STOCKPILE 9/14/2000		1120-DA-SP3E STOCKPILE 9/5/2000		1120-DA-SP4 STOCKPILE 9/5/2000		1120-DA-SP5A STOCKPILE 9/14/2000		1120-DA-SP5B STOCKPILE 9/14/2000		1120-DA-SP5C STOCKPILE 9/14/2000		1120-DA-SP6A STOCKPILE 9/22/2000	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.13	U
1,1-Dichloroethene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	U	1.3	U	0.13	U
1,2,3-Trichlorobenzene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.13	U
1,2,4-Trichlorobenzene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.13	U
1,2,4-Trimethylbenzene	0.031	U	0.14	U	0.13	U	0.12	U	0.16		0.15	UC	1.3	U	0.13	U
1,3,5-Trimethylbenzene	0.031	U	0.14	U	0.13	U	0.12	U	0.16		0.15	UC	1.3	U	0.13	U
2,4,4-Trimethyl-1-pentene		U	0.14	U	14		0.64		0.14	U	1.2	C	43		0.13	U
2,4,4-Trimethyl-2-pentene		U	0.14	U	5.7		0.12	U	0.14	U	0.52	C	16		0.13	U
2-Butanone	0.31	U	2.9	U	2.5	U	2.5	U	2.8	U	3	UC	26	U	2.7	U
2-Hexanone	0.31	U	0.58	U	0.5	U	0.49	U	0.56	U	0.6	UC	5.2	U	0.53	U
4-iso-Propyltoluene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	3.3		0.13	U
Acetone	0.31	U	2.9	U	2.5	U	2.5	U	2.8	U	3	UC	26	U	2.7	U
Benzene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	U	1.3	U	0.13	U
Chloroform	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	U	1.3	U	0.13	U
Ethyl benzene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.13	U
Isopropylbenzene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.13	U
Methylene chloride	0.063	UB	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.15	B
Naphthalene	0.063	U	1.4	U	1.3	U	1.2	U	1.4	U	1.5	UC	13	U	1.3	U
Propylbenzene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.13	U
sec-Butylbenzene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.13	U
Styrene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.13	U
Tetrachloroethene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	U	1.3	U	0.13	U
Toluene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	J	1.1	C	14		0.13	U
Trichloroethene	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.13	U
Xylene, o	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.13	U
Xylenes (m&p)	0.031	U	0.14	U	0.13	U	0.12	U	0.14	U	0.15	UC	1.3	U	0.13	U
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
2-Methylnaphthalene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
2-Methylphenol	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
4-Methylphenol	0.25	U														
Acenaphthylene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Anthracene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Benzo(a)anthracene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U				
Benzo(a)pyrene	0.25	U			1.8	U	0.74	U	2.1	U						
Benzo(b)fluoranthene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U				
Benzo(ghi)perylene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Benzo(k)fluoranthene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Benzoic Acid	0.5	U	11	U	8.8	U	3.7	U	11	U	100	U	220	UC	180	UC

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-SP-3C STOCKPILE 8/26/2000		1120-DA-SP3D STOCKPILE 9/14/2000		1120-DA-SP3E STOCKPILE 9/5/2000		1120-DA-SP4 STOCKPILE 9/5/2000		1120-DA-SP5A STOCKPILE 9/14/2000		1120-DA-SP5B STOCKPILE 9/14/2000		1120-DA-SP5C STOCKPILE 9/14/2000		1120-DA-SP6A STOCKPILE 9/22/2000	
Bis(2-Ethylhexyl)phthalate	2		17		23		5.8		31		**287**		**856**	C	**622**	C
Butylbenzylphthalate	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Chrysene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Dibenz(a,h)anthracene	0.25	U			1.8	U	0.74	U	2.1	U						
Diethylphthalate	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Di-n-butylphthalate	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	103	C	36	UC
Di-n-octylphthalate	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Fluoranthene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Indeno(1,2,3-cd)pyrene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U				
Naphthalene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
N-Nitrosodiphenylamine	0.25	U	2.2	U	1.8	U	1.1		3.2		19	J	44	UC	37	C
Phenanthrene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Phenol	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Pyrene	0.25	U	2.2	U	1.8	U	0.74	U	2.1	U	21	U	44	UC	36	UC
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.017	U	0.013	U	0.0099	U	0.011	UC	0.013	U	0.012	U	0.013	U	0.01	U
4,4'-DDE	0.017	U	0.013	U	0.0099	U	0.011	UC	0.013	U	0.012	U	0.013	U	0.01	U
4,4'-DDT	0.017	U	0.013	U	0.0099	U	0.011	UC	0.013	U	0.012	U	0.013	U	0.01	U
Aldrin	0.0083	U	0.013	U	0.0099	U	0.0099	UC	0.013	U	0.012	U	0.013	U	0.01	U
Alpha-BHC	0.015		0.013	U	0.0099	U	0.014	C	0.013	U	0.024		0.013	U	0.01	U
Alpha-Chlordane	0.0083	U														
Beta-BHC	0.0083		0.013	U	0.0099	U	0.011	UC	0.013	U	0.012	U	0.013	U	0.01	U
Chlordane (technical)	0.0083	U														
Dieldrin	0.017	U	0.013	U	0.0099	U	0.011	UC	0.013	U	0.012	U	0.013	U	0.01	U
Endosulfan I	0.0083	U	0.013	U	0.0099	U	0.011	UC	0.013	U	0.012	U	0.013	U	0.01	U
Endrin	0.017	U	0.013	U	0.0099	U	0.011	U	0.013	U	0.012	U	0.013	U	0.01	U
Endrin aldehyde	0.017	U	0.013	U	0.0099	U	0.011	UC	0.013	U	0.012	U	0.013	U	0.01	U
Endrin ketone	0.017	U														
Gamma-BHC/Lindane	0.0083	U	0.013	U	0.0099	U	0.011	UC	0.024		0.021		0.013	U	0.01	U
Heptachlor	0.0083	U	0.013	U	0.0099	U	0.011	U	0.013	U	0.012	U	0.013	U	0.01	U
Heptachlor epoxide	0.0083	U	0.013	U	0.0099	U	0.011	UC	0.013	U	0.012	U	0.013	U	0.01	U
Inorganics (mg/Kg)																
Aluminum																
Arsenic																
Barium																
Beryllium																
Cadmium	0.65	U	0.35		0.3	U	0.3	U	0.74		3		3.2		0.79	
Calcium																
Chromium	11		39		24		11		38		37		25		68	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-SP-3C STOCKPILE 8/26/2000	1120-DA-SP3D STOCKPILE 9/14/2000	1120-DA-SP3E STOCKPILE 9/5/2000	1120-DA-SP4 STOCKPILE 9/5/2000	1120-DA-SP5A STOCKPILE 9/14/2000	1120-DA-SP5B STOCKPILE 9/14/2000	1120-DA-SP5C STOCKPILE 9/14/2000	1120-DA-SP6A STOCKPILE 9/22/2000
Copper								
Iron								
Lead	5.8	6.3	6	3.6	6.2	5.4	3.7	5.6
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Sodium								
Thallium								
Vanadium								
Zinc								
Chloride								
Nitrogen, as Ammonia								
Percent Moisture **(%)**	4.5							
Percent Solids **(%)**		77.3	94.1	89.2	78.4	79.3	75.4	92.1
pH **(pH units)**								
Sulfate								
Total Organic Carbon								
EPH (mg/Kg)								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-SP6B STOCKPILE 9/22/2000		1120-DA-SP6C STOCKPILE 9/22/2000		1120-DA-SP8A STOCKPILE 9/26/2000		1120-DA-SP8B STOCKPILE 9/26/2000		1120-DA-SP8C STOCKPILE 9/26/2000		1120-DA-SP8D STOCKPILE 9/26/2000		1120-DA-SP8E STOCKPILE 9/26/2000		1120-DA-SP8F STOCKPILE 9/26/2000	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
1,1-Dichloroethene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
1,2,3-Trichlorobenzene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
1,2,4-Trichlorobenzene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
1,2,4-Trimethylbenzene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
1,3,5-Trimethylbenzene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
2,4,4-Trimethyl-1-pentene	0.13	U	0.57		0.13	U	140		1.8		14		21		27	
2,4,4-Trimethyl-2-pentene	0.13	U	0.13	U	0.13	U	106		0.67		5.1		8.3		12	
2-Butanone	2.7	U	2.7	U	2.5	U	24	U	2.7	U	2.7	U	2.6	U	13	U
2-Hexanone	0.54	U	0.53	U	0.51	U	4.9	U	0.54	U	0.54	U	0.52	U	2.6	U
4-iso-Propyltoluene	0.13	U	0.13	U	0.13	U	27		1.5		0.13	U	0.22		2.3	
Acetone	2.7	U	2.7	U	2.5	U	24	U	2.7	U	2.7	U	2.6	U	13	U
Benzene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
Chloroform	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
Ethyl benzene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.39		0.11	J	0.65	U
Isopropylbenzene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
Methylene chloride	0.13	UB	0.15	B	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
Naphthalene	1.3	U	1.3	U	1.3	U	12	U	1.3	U	1.3	U	1.3	U	6.5	U
Propylbenzene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
sec-Butylbenzene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
Styrene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.81		0.65	U
Tetrachloroethene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
Toluene	0.13	U	0.13	U	0.13	U	1.2	U	0.29		7.1		5.3		0.65	U
Trichloroethene	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.13	U	0.13	U	0.65	U
Xylene, o	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	0.4		0.13	U	0.65	U
Xylenes (m&p)	0.13	U	0.13	U	0.13	U	1.2	U	0.13	U	1.4		0.12	J	0.65	U
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
2-Methylnaphthalene	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
2-Methylphenol	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
4-Methylphenol																
Acenaphthylene	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
Anthracene	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
Benzo(a)anthracene			0.37	U							3.6	U				
Benzo(a)pyrene			0.37	U												
Benzo(b)fluoranthene			0.37	U							3.6	U				
Benzo(ghi)perylene	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
Benzo(k)fluoranthene	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
Benzoic Acid	180	UC	1.8	U	180	U	360	U	910	U	18	U	170	U	180	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-SP6B STOCKPILE 9/22/2000		1120-DA-SP6C STOCKPILE 9/22/2000		1120-DA-SP8A STOCKPILE 9/26/2000		1120-DA-SP8B STOCKPILE 9/26/2000		1120-DA-SP8C STOCKPILE 9/26/2000		1120-DA-SP8D STOCKPILE 9/26/2000		1120-DA-SP8E STOCKPILE 9/26/2000		1120-DA-SP8F STOCKPILE 9/26/2000	
Bis(2-Ethylhexyl)phthalate	**511**	C	1.3		**244**		**1087**		**2356**		26		**365**		**501**	
Butylbenzylphthalate	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
Chrysene	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
Dibenz(a,h)anthracene			0.37	U												
Diethylphthalate	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
Di-n-butylphthalate	32	JC	0.37	U	36	U	87		180	U	3.6	U	35	U	36	U
Di-n-octylphthalate	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
Fluoranthene	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
Indeno(1,2,3-cd)pyrene			0.37	U							3.6	U				
Naphthalene	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
N-Nitrosodiphenylamine	61	C	0.37	U	36	U	86		180	U	3.6	U	24	J	36	U
Phenanthrene	36	UC	0.28	J	36	U	72	U	180	U	3.6	U	35	U	36	U
Phenol	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
Pyrene	36	UC	0.37	U	36	U	72	U	180	U	3.6	U	35	U	36	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.011	U	0.011	U	0.011	U	0.011	U	0.01	U	0.011	U	0.011	U	0.054	U
4,4'-DDE	0.011	U	0.011	U	0.011	U	0.011	U	0.01	U	0.011	U	0.011	U	0.054	U
4,4'-DDT	0.011	U	0.011	U	0.011	U	0.011	U	0.01	U	0.011	U	0.011	U	0.054	U
Aldrin	0.011	U	0.011	U	0.014		0.011	U	0.01	U	0.011	U	0.011	U	0.054	U
Alpha-BHC	0.011	U	0.011	U	0.025		0.011	U	0.048		0.011	U	0.011	U	0.054	U
Alpha-Chlordane																
Beta-BHC	0.011	U	0.011	U	0.011	U	0.011	U	0.01	U	0.011	U	0.011	U	0.054	U
Chlordane (technical)																
Dieldrin	0.011	U	0.011	U	0.011	U	0.011	U	0.01	U	0.011	U	0.011	U	0.054	U
Endosulfan I	0.011	U	0.011	U	0.011	U	0.011	U	0.01	U	0.011	U	0.011	U	0.054	U
Endrin	0.011	U	0.011	U	0.011	U	0.011	U	0.01	U	0.011	U	0.011	U	0.054	U
Endrin aldehyde	0.011	U	0.011	U	0.011	U	0.011	U	0.01	U	0.011	U	0.011	U	0.054	U
Endrin ketone																
Gamma-BHC/Lindane	0.011	U	0.011	U	0.011	U	0.18		0.02		0.011	U	0.011	U	0.18	
Heptachlor	0.011	U	0.011	U	0.011	U	0.011	U	0.01	U	0.011	U	0.011	U	0.054	U
Heptachlor epoxide	0.011	U	0.011	U	0.011	U	0.011	U	0.01	U	0.011	U	0.011	U	0.054	U
Inorganics (mg/Kg)																
Aluminum																
Arsenic																
Barium																
Beryllium																
Cadmium	0.46		0.3	U	1		0.85		54		0.34		3.3		1.8	
Calcium																
Chromium	20		10		36		20		27		24		84		650	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-SP6B STOCKPILE 9/22/2000		1120-DA-SP6C STOCKPILE 9/22/2000		1120-DA-SP8A STOCKPILE 9/26/2000		1120-DA-SP8B STOCKPILE 9/26/2000		1120-DA-SP8C STOCKPILE 9/26/2000		1120-DA-SP8D STOCKPILE 9/26/2000		1120-DA-SP8E STOCKPILE 9/26/2000		1120-DA-SP8F STOCKPILE 9/26/2000	
Copper																
Iron																
Lead	4.2		6.6		4.7		4.3		4.6		6.3		3.5		4.1	
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Sodium																
Thallium																
Vanadium																
Zinc																
Chloride																
Nitrogen, as Ammonia																
Percent Moisture **(%)**																
Percent Solids **(%)**	91.7		90.7		91.8		91.8		90.5		89.7		92.9		91.5	
pH **(pH units)**																
Sulfate																
Total Organic Carbon																
EPH (mg/Kg)																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-SP8G STOCKPILE 9/26/2000		1120-DA-SP8H STOCKPILE 9/26/2000		1130-OSFILL-450 OSFILL-450 10/13/2000 0.5-0.5 ft		1140-CP-C36 CP-C36 10/5/2000 5.4-5.4 ft		1140-CP-C38 CP-C38 10/5/2000 6.2-6.2 ft		1140-CP-C39 CP-C39 10/5/2000 6.7-6.7 ft		1140-CP-C41 CP-C41 10/5/2000 6.5-6.5 ft		1140-CP-C42 CP-C42 10/5/2000 6.3-6.3 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.12	U	0.13	U	0.13	U					0.12	U				
1,1-Dichloroethene	0.12	U	0.13	U	0.13	U					0.12	U				
1,2,3-Trichlorobenzene	0.12	U	0.13	U	0.13	U					0.12	U				
1,2,4-Trichlorobenzene	0.12	U	0.13	U	0.13	U					0.12	U				
1,2,4-Trimethylbenzene	0.12	U	0.13	U	0.13	U					0.12	U				
1,3,5-Trimethylbenzene	0.12	U	0.13	U	0.13	U					0.12	U				
2,4,4-Trimethyl-1-pentene	0.12	U	0.65		0.13	U					0.12	U				
2,4,4-Trimethyl-2-pentene	0.12	U	0.19		0.13	U					0.12	U				
2-Butanone	2.4	U	2.5	U	2.6	U					2.5	U				
2-Hexanone	0.47	U	0.5	U	0.51	U					0.49	U				
4-iso-Propyltoluene	0.12	U	0.13	U	0.13	U					0.12	U				
Acetone	2.4	U	2.5	U	2.6	U					2.5	U				
Benzene	0.12	U	0.13	U	0.13	U					0.12	U				
Chloroform	0.12	U	0.13	U	0.13	U					0.12	U				
Ethyl benzene	0.12	U	0.13	U	0.13	U					0.12	U				
Isopropylbenzene	0.12	U	0.13	U	0.13	U					0.12	U				
Methylene chloride	0.12	U	0.13	U	0.13	U					0.3	B				
Naphthalene	1.2	U	1.3	U	1.3	U					1.2	U				
Propylbenzene	0.12	U	0.13	U	0.13	U					0.12	U				
sec-Butylbenzene	0.12	U	0.13	U	0.13	U					0.12	U				
Styrene	0.12	U	0.13	U	0.13	U					0.12	U				
Tetrachloroethene	0.12	U	0.13	U	0.13	U					0.12	U				
Toluene	0.12	U	0.68		0.13	U					0.12	U				
Trichloroethene	0.12	U	0.13	U	0.13	U					0.12	U				
Xylene, o	0.12	U	0.13	U	0.13	U					0.12	U				
Xylenes (m&p)	0.12	U	0.13	U	0.13	U					0.12	U				
Xylenes, Total					0.13	U					0.12	U				
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
2-Methylnaphthalene	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
2-Methylphenol	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
4-Methylphenol																
Acenaphthylene	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Anthracene	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Benzo(a)anthracene					0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Benzo(a)pyrene					0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Benzo(b)fluoranthene					0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Benzo(ghi)perylene	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Benzo(k)fluoranthene	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Benzoic Acid	180	U	180	U	1.7	U	4.1	U	2	U	2	U	2	U	2	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-SP8G STOCKPILE 9/26/2000		1120-DA-SP8H STOCKPILE 9/26/2000		1130-OSFILL-450 OSFILL-450 10/13/2000 0.5-0.5 ft		1140-CP-C36 CP-C36 10/5/2000 5.4-5.4 ft		1140-CP-C38 CP-C38 10/5/2000 6.2-6.2 ft		1140-CP-C39 CP-C39 10/5/2000 6.7-6.7 ft		1140-CP-C41 CP-C41 10/5/2000 6.5-6.5 ft		1140-CP-C42 CP-C42 10/5/2000 6.3-6.3 ft	
Bis(2-Ethylhexyl)phthalate	**679**		**676**		0.35	U	6.2		2		0.4	U	0.54		0.39	U
Butylbenzylphthalate	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Chrysene	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Dibenz(a,h)anthracene					0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Diethylphthalate	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Di-n-butylphthalate	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Di-n-octylphthalate	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Fluoranthene	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Indeno(1,2,3-cd)pyrene					0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Naphthalene	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
N-Nitrosodiphenylamine	**473**		36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Phenanthrene	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Phenol	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Pyrene	36	U	36	U	0.35	U	0.82	U	0.4	U	0.4	U	0.39	U	0.39	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.011	U	0.011	U							0.011	U				
4,4'-DDE	0.011	U	0.011	U							0.011	U				
4,4'-DDT	0.011	U	0.011	U							0.011	U				
Aldrin	0.011	U	0.059								0.011	U				
Alpha-BHC	0.011	U	0.1								0.011	U				
Alpha-Chlordane																
Beta-BHC	0.011	U	0.033								0.011	U				
Chlordane (technical)																
Dieldrin	0.011	U	0.011	U							0.011	U				
Endosulfan I	0.011	U	0.011	U							0.011	U				
Endrin	0.011	U	0.011	U							0.011	U				
Endrin aldehyde	0.011	U	0.011	U							0.011	U				
Endrin ketone																
Gamma-BHC/Lindane	0.063		0.031								0.011	U				
Heptachlor	0.011	U	0.011	U							0.011	U				
Heptachlor epoxide	0.011	U	0.011	U							0.011	U				
Inorganics (mg/Kg)																
Aluminum											5000					
Arsenic					**10**						**4.8**					
Barium					9.8											
Beryllium																
Cadmium	14		7.3		0.2	U					0.3	U				
Calcium																
Chromium	200		41		9.4		500		490		1600		230		710	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1120-DA-SP8G STOCKPILE 9/26/2000		1120-DA-SP8H STOCKPILE 9/26/2000		1130-OSFILL-450 OSFILL-450 10/13/2000 0.5-0.5 ft		1140-CP-C36 CP-C36 10/5/2000 5.4-5.4 ft		1140-CP-C38 CP-C38 10/5/2000 6.2-6.2 ft		1140-CP-C39 CP-C39 10/5/2000 6.7-6.7 ft		1140-CP-C41 CP-C41 10/5/2000 6.5-6.5 ft		1140-CP-C42 CP-C42 10/5/2000 6.3-6.3 ft	
Copper																
Iron											3800					
Lead	3		4		3.3						4					
Magnesium																
Manganese																
Mercury					0.04	U					0.05	U				
Nickel																
Potassium																
Sodium																
Thallium																
Vanadium																
Zinc																
Chloride																
Nitrogen, as Ammonia																
Percent Moisture **(%)**																
Percent Solids **(%)**	92.2		90.5		95.7		79.9		82.1		81.4		84.5		84.2	
pH **(pH units)**																
Sulfate																
Total Organic Carbon																
EPH (mg/Kg)																
C11-C22 Aromatics					29											
C11-C22 Aromatics (unadj.)					29											
C19-C36 Aliphatics					9.9											
Extractable Petroleum Hydrocarbons, Total					39											

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C43 CP-C43 10/5/2000 5-5 ft		1140-CP-C45 CP-C45 10/5/2000 6.6-6.6 ft		1140-CP-C46 CP-C46 10/5/2000 6.1-6.1 ft		1140-CP-C47 CP-C47 10/5/2000 5.4-5.4 ft		1140-CP-C49 CP-C49 10/5/2000 6.8-6.8 ft		1140-CP-C50 CP-C50 10/5/2000 4.8-4.8 ft		1140-CP-C52 CP-C52 10/9/2000 8.7-8.7 ft		1140-CP-C53 CP-C53 10/9/2000 8.5-8.5 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane							0.15	U	0.14	U						
1,1-Dichloroethene							0.15	U	0.14	U						
1,2,3-Trichlorobenzene							0.15	U	0.14	U						
1,2,4-Trichlorobenzene							0.15	U	0.14	U						
1,2,4-Trimethylbenzene							0.15	U	0.14	U						
1,3,5-Trimethylbenzene							0.15	U	0.14	U						
2,4,4-Trimethyl-1-pentene							0.15	U	0.14	U						
2,4,4-Trimethyl-2-pentene							0.15	U	0.14	U						
2-Butanone							3	U	2.9	U						
2-Hexanone							0.6	U	0.58	U						
4-iso-Propyltoluene							0.15	U	0.14	U						
Acetone							3	U	2.9	U						
Benzene							0.15	U	0.14	U						
Chloroform							0.15	U	0.14	U						
Ethyl benzene							0.15	U	0.14	U						
Isopropylbenzene							0.15	U	0.14	U						
Methylene chloride							0.21	B	0.44	B						
Naphthalene							1.5	U	1.4	U						
Propylbenzene							0.15	U	0.14	U						
sec-Butylbenzene							0.15	U	0.14	U						
Styrene							0.15	U	0.14	U						
Tetrachloroethene							0.15	U	0.14	U						
Toluene							0.15	U	0.14	U						
Trichloroethene							0.15	U	0.14	U						
Xylene, o							0.15	U	0.14	U						
Xylenes (m&p)							0.15	U	0.14	U						
Xylenes, Total							0.15	U	0.14	U						
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
2-Methylnaphthalene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
2-Methylphenol	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
4-Methylphenol																
Acenaphthylene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Anthracene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Benzo(a)anthracene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Benzo(a)pyrene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Benzo(b)fluoranthene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Benzo(ghi)perylene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Benzo(k)fluoranthene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Benzoic Acid	2	U	2.1	U	1.9	U	2	U	2.1	U	1.8	U	1.9	U	2	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C43 CP-C43 10/5/2000 5-5 ft		1140-CP-C45 CP-C45 10/5/2000 6.6-6.6 ft		1140-CP-C46 CP-C46 10/5/2000 6.1-6.1 ft		1140-CP-C47 CP-C47 10/5/2000 5.4-5.4 ft		1140-CP-C49 CP-C49 10/5/2000 6.8-6.8 ft		1140-CP-C50 CP-C50 10/5/2000 4.8-4.8 ft		1140-CP-C52 CP-C52 10/9/2000 8.7-8.7 ft		1140-CP-C53 CP-C53 10/9/2000 8.5-8.5 ft	
Bis(2-Ethylhexyl)phthalate	0.39	U	0.41	U	0.38	U	0.25	J	0.42	U	0.37	U	0.39	U	0.4	U
Butylbenzylphthalate	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Chrysene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Dibenz(a,h)anthracene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Diethylphthalate	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Di-n-butylphthalate	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Di-n-octylphthalate	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Fluoranthene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Indeno(1,2,3-cd)pyrene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Naphthalene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
N-Nitrosodiphenylamine	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Phenanthrene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Phenol	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Pyrene	0.39	U	0.41	U	0.38	U	0.4	U	0.42	U	0.37	U	0.39	U	0.4	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD							0.012	U	0.013	U						
4,4'-DDE							0.012	U	0.013	U						
4,4'-DDT							0.012	U	0.013	U						
Aldrin							0.012	U	0.013	U						
Alpha-BHC							0.012	U	0.013	U						
Alpha-Chlordane																
Beta-BHC							0.012	U	0.013	U						
Chlordane (technical)																
Dieldrin							0.012	U	0.013	U						
Endosulfan I							0.012	U	0.013	U						
Endrin							0.012	U	0.013	U						
Endrin aldehyde							0.012	U	0.013	U						
Endrin ketone																
Gamma-BHC/Lindane							0.012	U	0.013	U						
Heptachlor							0.012	U	0.013	U						
Heptachlor epoxide							0.012	U	0.013	U						
Inorganics (mg/Kg)																
Aluminum							4400		3700							
Arsenic							**2.8**		**3.2**							
Barium																
Beryllium																
Cadmium							0.3	U	0.3	U						
Calcium																
Chromium	490		560		420		260		660		630		970		29	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C43 CP-C43 10/5/2000 5-5 ft	1140-CP-C45 CP-C45 10/5/2000 6.6-6.6 ft	1140-CP-C46 CP-C46 10/5/2000 6.1-6.1 ft	1140-CP-C47 CP-C47 10/5/2000 5.4-5.4 ft	1140-CP-C49 CP-C49 10/5/2000 6.8-6.8 ft	1140-CP-C50 CP-C50 10/5/2000 4.8-4.8 ft	1140-CP-C52 CP-C52 10/9/2000 8.7-8.7 ft	1140-CP-C53 CP-C53 10/9/2000 8.5-8.5 ft
Copper								
Iron				5400	4000			
Lead				2.6	2.2			
Magnesium								
Manganese								
Mercury				0.05 U	0.05 U			
Nickel								
Potassium								
Sodium								
Thallium								
Vanadium								
Zinc								
Chloride								
Nitrogen, as Ammonia								
Percent Moisture **(%)**								
Percent Solids **(%)**	84.6	80.7	87.1	81.3	78.5	90.4	83.8	83.1
pH **(pH units)**								
Sulfate								
Total Organic Carbon								
EPH (mg/Kg)								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C54 CP-C54 10/10/2000 3.3-3.3 ft		1140-CP-C55 CP-C55 10/10/2000 4.1-4.1 ft		1140-CP-C56 CP-C56 10/10/2000 4.1-4.1 ft		1140-CP-C57 CP-C57 10/10/2000 4.4-4.4 ft		1140-CP-C58 CP-C58 10/10/2000 4.5-4.5 ft		1140-CP-C59 CP-C59 10/20/2000 4.9-4.9 ft		1140-CP-C60 CP-C60 10/20/2000 5.5-5.5 ft		1140-CP-C61 CP-C61 10/20/2000 5.4-5.4 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane					0.15	U							0.2	U		
1,1-Dichloroethene					0.15	U							0.2	U		
1,2,3-Trichlorobenzene					0.15	U							0.2	U		
1,2,4-Trichlorobenzene					0.15	U							0.2	U		
1,2,4-Trimethylbenzene					0.15	U							0.2	U		
1,3,5-Trimethylbenzene					0.15	U							0.2	U		
2,4,4-Trimethyl-1-pentene					0.15	U							0.2	U		
2,4,4-Trimethyl-2-pentene					0.15	U							0.2	U		
2-Butanone					3	U							3.9	U		
2-Hexanone					0.59	U							0.79	U		
4-iso-Propyltoluene					0.15	U							0.2	U		
Acetone					3	U							3.9	U		
Benzene					0.15	U							0.2	U		
Chloroform					0.15	U							0.2	U		
Ethyl benzene					0.15	U							0.2	U		
Isopropylbenzene					0.15	U							0.2	U		
Methylene chloride					0.15	U							0.2	U		
Naphthalene					1.5	U							2	U		
Propylbenzene					0.15	U							0.2	U		
sec-Butylbenzene					0.15	U							0.2	U		
Styrene					0.15	U							0.2	U		
Tetrachloroethene					0.15	U							0.2	U		
Toluene					0.15	U							0.2	U		
Trichloroethene					0.15	U							0.2	U		
Xylene, o					0.15	U							0.2	U		
Xylenes (m&p)					0.15	U							0.2	U		
Xylenes, Total					0.15	U							0.2	U		
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
2-Methylnaphthalene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
2-Methylphenol	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
4-Methylphenol																
Acenaphthylene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Anthracene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Benzo(a)anthracene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Benzo(a)pyrene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U					1.6	U
Benzo(b)fluoranthene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Benzo(ghi)perylene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Benzo(k)fluoranthene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Benzoic Acid	2.1	U	1.9	U	2	U	1.9	U	1.9	U	18	UC	27	U	8	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C54 CP-C54 10/10/2000 3.3-3.3 ft		1140-CP-C55 CP-C55 10/10/2000 4.1-4.1 ft		1140-CP-C56 CP-C56 10/10/2000 4.1-4.1 ft		1140-CP-C57 CP-C57 10/10/2000 4.4-4.4 ft		1140-CP-C58 CP-C58 10/10/2000 4.5-4.5 ft		1140-CP-C59 CP-C59 10/20/2000 4.9-4.9 ft		1140-CP-C60 CP-C60 10/20/2000 5.5-5.5 ft		1140-CP-C61 CP-C61 10/20/2000 5.4-5.4 ft	
Bis(2-Ethylhexyl)phthalate	0.46		0.37	U	1.1		1		0.67		26	C	5	J	5.5	
Butylbenzylphthalate	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Chrysene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Dibenz(a,h)anthracene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U					1.6	U
Diethylphthalate	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Di-n-butylphthalate	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Di-n-octylphthalate	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Fluoranthene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Indeno(1,2,3-cd)pyrene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Naphthalene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
N-Nitrosodiphenylamine	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	11	C	3.1	J	1.6	U
Phenanthrene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Phenol	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC	5.5	U	1.6	U
Pyrene	0.42	U	0.37	U	0.4	U	0.37	U	0.39	U	3.7	UC K	5.5	UK	1.6	UK
Pesticides/PCBs (mg/Kg)																
4,4'-DDD					0.012	U							0.16	U		
4,4'-DDE					0.012	U							0.16	U		
4,4'-DDT					0.012	U							0.16	U		
Aldrin					0.012	U							0.16	U		
Alpha-BHC					0.012	U							0.16	U		
Alpha-Chlordane																
Beta-BHC					0.012	U							0.16	U		
Chlordane (technical)																
Dieldrin					0.012	U							0.16	U		
Endosulfan I					0.012	U							0.16	U		
Endrin					0.012	U							0.16	U		
Endrin aldehyde					0.012	U							0.16	U		
Endrin ketone																
Gamma-BHC/Lindane					0.012	U							0.16	U		
Heptachlor					0.012	U							0.16	U		
Heptachlor epoxide					0.012	U							0.16	U		
Inorganics (mg/Kg)																
Aluminum					5700								6600			
Arsenic					**4.9**								**8.8**			
Barium																
Beryllium																
Cadmium					0.3	U							0.4	U		
Calcium																
Chromium	510		410		680		240		530		27		100		350	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C54 CP-C54 10/10/2000 3.3-3.3 ft	1140-CP-C55 CP-C55 10/10/2000 4.1-4.1 ft	1140-CP-C56 CP-C56 10/10/2000 4.1-4.1 ft	1140-CP-C57 CP-C57 10/10/2000 4.4-4.4 ft	1140-CP-C58 CP-C58 10/10/2000 4.5-4.5 ft	1140-CP-C59 CP-C59 10/20/2000 4.9-4.9 ft	1140-CP-C60 CP-C60 10/20/2000 5.5-5.5 ft	1140-CP-C61 CP-C61 10/20/2000 5.4-5.4 ft
Copper								
Iron			5000				9000	
Lead			3.1				17	
Magnesium								
Manganese								
Mercury			0.05 U				0.12	
Nickel								
Potassium								
Sodium								
Thallium								
Vanadium								
Zinc								
Chloride								
Nitrogen, as Ammonia								
Percent Moisture **(%)**								
Percent Solids **(%)**	78.7	87	82.4	87.9	85.2	89	60.2	82.7
pH **(pH units)**								
Sulfate								
Total Organic Carbon								
EPH (mg/Kg)								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C62 CP-C62 10/20/2000 3.7-3.7 ft		1140-CP-C64 CP-C64 10/20/2000 5.2-5.2 ft		1140-CP-C65 CP-C65 10/20/2000 5.3-5.3 ft		1140-CP-C66 CP-C66 10/20/2000 5.1-5.1 ft		1140-CP-C67 CP-C67 10/20/2000 4.7-4.7 ft		1140-CP-C68 CP-C68 10/20/2000 4.1-4.1 ft		1140-CP-C69 CP-C69 10/20/2000 4.3-4.3 ft		1140-CP-C70 CP-C70 10/20/2000 4.2-4.2 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane					0.14	U							0.14	U		
1,1-Dichloroethene					0.14	U							0.14	U		
1,2,3-Trichlorobenzene					0.14	U							0.14	U		
1,2,4-Trichlorobenzene					0.14	U							0.14	U		
1,2,4-Trimethylbenzene					0.14	U							0.14	U		
1,3,5-Trimethylbenzene					0.14	U							0.14	U		
2,4,4-Trimethyl-1-pentene					0.41								0.14	U		
2,4,4-Trimethyl-2-pentene					0.14	U							0.14	U		
2-Butanone					2.9	U							2.7	U		
2-Hexanone					0.57	U							0.54	U		
4-iso-Propyltoluene					0.14	U							0.14	U		
Acetone					2.9	U							2.7	U		
Benzene					0.14	U							0.14	U		
Chloroform					0.14	U							0.14	U		
Ethyl benzene					0.14	U							0.14	U		
Isopropylbenzene					0.14	U							0.14	U		
Methylene chloride					0.14	U							0.15			
Naphthalene					1.4	U							1.4	U		
Propylbenzene					0.14	U							0.14	U		
sec-Butylbenzene					0.14	U							0.14	U		
Styrene					0.14	U							0.14	U		
Tetrachloroethene					0.14	U							0.14	U		
Toluene					0.23								0.14	U		
Trichloroethene					0.14	U							0.14	U		
Xylene, o					0.14	U							0.14	U		
Xylenes (m&p)					0.14	U							0.14	U		
Xylenes, Total					0.14	U							0.14	U		
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
2-Methylnaphthalene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
2-Methylphenol	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
4-Methylphenol																
Acenaphthylene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Anthracene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Benzo(a)anthracene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Benzo(a)pyrene							0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Benzo(b)fluoranthene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Benzo(ghi)perylene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Benzo(k)fluoranthene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Benzoic Acid	11	U	19	UC	38	UC	2	U	2	U	2	U	2	U	2	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C62 CP-C62 10/20/2000 3.7-3.7 ft		1140-CP-C64 CP-C64 10/20/2000 5.2-5.2 ft		1140-CP-C65 CP-C65 10/20/2000 5.3-5.3 ft		1140-CP-C66 CP-C66 10/20/2000 5.1-5.1 ft		1140-CP-C67 CP-C67 10/20/2000 4.7-4.7 ft		1140-CP-C68 CP-C68 10/20/2000 4.1-4.1 ft		1140-CP-C69 CP-C69 10/20/2000 4.3-4.3 ft		1140-CP-C70 CP-C70 10/20/2000 4.2-4.2 ft	
Bis(2-Ethylhexyl)phthalate	7.9		22	C	46	C	0.22	J	0.54		0.54		0.4	U	0.4	U
Butylbenzylphthalate	2.3	U	3.8	U	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Chrysene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Dibenz(a,h)anthracene							0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Diethylphthalate	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Di-n-butylphthalate	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Di-n-octylphthalate	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Fluoranthene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Indeno(1,2,3-cd)pyrene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Naphthalene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
N-Nitrosodiphenylamine	9.9		54	C	15	C	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Phenanthrene	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Phenol	2.3	U	3.8	UC	7.6	UC	0.4	U	0.4	U	0.39	U	0.4	U	0.4	U
Pyrene	2.3	UK	3.8	UC	7.6	UCK	0.4	UK	0.4	UK	0.39	U	0.4	U	0.4	UK
Pesticides/PCBs (mg/Kg)																
4,4'-DDD					0.11	U							0.012	U		
4,4'-DDE					0.11	U							0.012	U		
4,4'-DDT					0.11	U							0.012	U		
Aldrin					0.11	U							0.012	U		
Alpha-BHC					0.11	U							0.012	U		
Alpha-Chlordane																
Beta-BHC					0.11	U							0.012	U		
Chlordane (technical)																
Dieldrin					0.11	U							0.012	U		
Endosulfan I					0.11	U							0.012	U		
Endrin					0.11	U							0.012	U		
Endrin aldehyde					0.11	U							0.012	U		
Endrin ketone																
Gamma-BHC/Lindane					0.11	U							0.012	U		
Heptachlor					0.11	U							0.012	U		
Heptachlor epoxide					0.11	U							0.012	U		
Inorganics (mg/Kg)																
Aluminum					5500								5500			
Arsenic					**6**								**89**			
Barium																
Beryllium																
Cadmium					0.36								0.37			
Calcium																
Chromium	88		20		52		470		250		280		540		37	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-CP-C62 CP-C62 10/20/2000 3.7-3.7 ft	1140-CP-C64 CP-C64 10/20/2000 5.2-5.2 ft	1140-CP-C65 CP-C65 10/20/2000 5.3-5.3 ft	1140-CP-C66 CP-C66 10/20/2000 5.1-5.1 ft	1140-CP-C67 CP-C67 10/20/2000 4.7-4.7 ft	1140-CP-C68 CP-C68 10/20/2000 4.1-4.1 ft	1140-CP-C69 CP-C69 10/20/2000 4.3-4.3 ft	1140-CP-C70 CP-C70 10/20/2000 4.2-4.2 ft
Copper								
Iron			6900				25000	
Lead			6.6				4.2	
Magnesium								
Manganese								
Mercury			0.05 U				0.05 U	
Nickel								
Potassium								
Sodium								
Thallium								
Vanadium								
Zinc								
Chloride								
Nitrogen, as Ammonia								
Percent Moisture **(%)**								
Percent Solids **(%)**	72.7	87.5	87.6	81.9	82.8	84.4	81.9	83.4
pH **(pH units)**								
Sulfate								
Total Organic Carbon								
EPH (mg/Kg)								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C24 SD-C24 10/18/2000 3-3 ft		1140-SD-C24B-RISK SD-C24B 10/18/2000 2-2 ft		1140-WD-C1 WD-C1 9/19/2000 8.3-8.3 ft		1140-WD-C10 WD-C10 9/19/2000 6.6-6.6 ft		1140-WD-C10B WD-C10B 9/21/2000 5.6-5.6 ft		1140-WD-C11 WD-C11 9/19/2000 5.6-5.6 ft		1140-WD-C11 (156878) WD-C11 9/19/2000 5.6-5.6 ft		1140-WD-C11B WD-C11B 9/21/2000 5.6-5.6 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane											0.14	U			0.14	U
1,1-Dichloroethene											0.14	U			0.14	U
1,2,3-Trichlorobenzene											0.14	U			0.14	U
1,2,4-Trichlorobenzene											0.14	U			0.14	U
1,2,4-Trimethylbenzene											0.14	U			0.14	U
1,3,5-Trimethylbenzene											0.14	U			0.14	U
2,4,4-Trimethyl-1-pentene											0.14	U			0.14	U
2,4,4-Trimethyl-2-pentene											0.14	U			0.14	U
2-Butanone											2.8	U			2.9	U
2-Hexanone											0.57	U			0.58	U
4-iso-Propyltoluene											0.14	U			0.14	U
Acetone											2.8	U			2.9	U
Benzene											0.14	U			0.14	U
Chloroform											0.14	U			0.14	U
Ethyl benzene											0.14	U			0.14	U
Isopropylbenzene											0.14	U			0.14	U
Methylene chloride											0.18	B			0.14	UB
Naphthalene											1.4	U			1.4	U
Propylbenzene											0.14	U			0.14	U
sec-Butylbenzene											0.14	U			0.14	U
Styrene											0.14	U			0.14	U
Tetrachloroethene											0.14	U			0.14	U
Toluene											0.14	U			0.14	U
Trichloroethene											0.14	U			0.14	U
Xylene, o											0.14	U			0.14	U
Xylenes (m&p)											0.14	U			0.14	U
Xylenes, Total											0.14	U			0.14	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
2-Methylnaphthalene	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
2-Methylphenol	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
4-Methylphenol																
Acenaphthylene	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Anthracene	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Benzo(a)anthracene					1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Benzo(a)pyrene					1.9	U	0.41	U			0.43	U			0.39	U
Benzo(b)fluoranthene					1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Benzo(ghi)perylene	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Benzo(k)fluoranthene	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Benzoic Acid	450	UC	530	UC	9.5	U	2.1	U	92	UC	2.1	U			2	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C24 SD-C24 10/18/2000 3-3 ft		1140-SD-C24B-RISK SD-C24B 10/18/2000 2-2 ft		1140-WD-C1 WD-C1 9/19/2000 8.3-8.3 ft		1140-WD-C10 WD-C10 9/19/2000 6.6-6.6 ft		1140-WD-C10B WD-C10B 9/21/2000 5.6-5.6 ft		1140-WD-C11 WD-C11 9/19/2000 5.6-5.6 ft		1140-WD-C11 (156878) WD-C11 9/19/2000 5.6-5.6 ft		1140-WD-C11B WD-C11B 9/21/2000 5.6-5.6 ft	
Bis(2-Ethylhexyl)phthalate	**753**	C	**243.5**	C	29		1.1		**366**	C	0.43	U			1.2	
Butylbenzylphthalate	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Chrysene	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Dibenz(a,h)anthracene					1.9	U	0.41	U			0.43	U			0.39	U
Diethylphthalate	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Di-n-butylphthalate	90	UC	70	JC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Di-n-octylphthalate	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Fluoranthene	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Indeno(1,2,3-cd)pyrene					1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Naphthalene	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
N-Nitrosodiphenylamine	90	UC	110	UC	1.4	J	0.41	U	19	C	0.43	U			0.52	
Phenanthrene	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Phenol	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Pyrene	90	UC	110	UC	1.9	U	0.41	U	18	UC	0.43	U			0.39	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD													0.013	U		
4,4'-DDE													0.013	U		
4,4'-DDT													0.013	U		
Aldrin													0.013	U		
Alpha-BHC													0.013	U		
Alpha-Chlordane																
Beta-BHC													0.013	U		
Chlordane (technical)																
Dieldrin													0.013	U		
Endosulfan I													0.013	U		
Endrin													0.013	U		
Endrin aldehyde													0.013	U		
Endrin ketone																
Gamma-BHC/Lindane													0.013	U		
Heptachlor													0.013	U		
Heptachlor epoxide													0.013	U		
Inorganics (mg/Kg)																
Aluminum											2700	F			4200	
Arsenic											2	U			1.9	
Barium																
Beryllium																
Cadmium											0.4	U			0.3	U
Calcium																
Chromium	1600		390		520		50		77		660				170	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-SD-C24 SD-C24 10/18/2000 3-3 ft		1140-SD-C24B-RISK SD-C24B 10/18/2000 2-2 ft		1140-WD-C1 WD-C1 9/19/2000 8.3-8.3 ft		1140-WD-C10 WD-C10 9/19/2000 6.6-6.6 ft		1140-WD-C10B WD-C10B 9/21/2000 5.6-5.6 ft		1140-WD-C11 WD-C11 9/19/2000 5.6-5.6 ft		1140-WD-C11 (156878) WD-C11 9/19/2000 5.6-5.6 ft		1140-WD-C11B WD-C11B 9/21/2000 5.6-5.6 ft	
Copper																
Iron											3100	F			3000	
Lead											2	U			2.9	
Magnesium																
Manganese																
Mercury											0.05	U			0.05	U
Nickel																
Potassium																
Sodium																
Thallium																
Vanadium																
Zinc																
Chloride																
Nitrogen, as Ammonia																
Percent Moisture **(%)**																
Percent Solids **(%)**	73.6		61.3		87		80.4		89		78.1				84.7	
pH **(pH units)**																
Sulfate																
Total Organic Carbon																
EPH (mg/Kg)																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C11B (157182) WD-C11B 9/21/2000 5.6-5.6 ft		1140-WD-C12 WD-C12 10/4/2000 6.1-6.1 ft		1140-WD-C12B WD-C12B 10/4/2000 5.2-5.2 ft		1140-WD-C13 WD-C13 10/4/2000 6.1-6.1 ft		1140-WD-C13B WD-C13B 10/4/2000 5.2-5.2 ft		1140-WD-C14 WD-C14 10/4/2000 7.6-7.6 ft		1140-WD-C14B WD-C14B 10/4/2000 6.9-6.9 ft		1140-WD-C15 WD-C15 10/4/2000 10-10 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane																
1,1-Dichloroethene																
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,3,5-Trimethylbenzene																
2,4,4-Trimethyl-1-pentene																
2,4,4-Trimethyl-2-pentene																
2-Butanone																
2-Hexanone																
4-iso-Propyltoluene																
Acetone																
Benzene																
Chloroform																
Ethyl benzene																
Isopropylbenzene																
Methylene chloride																
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene																
Tetrachloroethene																
Toluene																
Trichloroethene																
Xylene, o																
Xylenes (m&p)																
Xylenes, Total																
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
2-Methylnaphthalene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
2-Methylphenol			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
4-Methylphenol																
Acenaphthylene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Anthracene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Benzo(a)anthracene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Benzo(a)pyrene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Benzo(b)fluoranthene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Benzo(ghi)perylene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Benzo(k)fluoranthene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Benzoic Acid			4.1	U	1.8	U	2	U	1.9	U	2.1	U	2	U	2.1	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C11B (157182) WD-C11B 9/21/2000 5.6-5.6 ft		1140-WD-C12 WD-C12 10/4/2000 6.1-6.1 ft		1140-WD-C12B WD-C12B 10/4/2000 5.2-5.2 ft		1140-WD-C13 WD-C13 10/4/2000 6.1-6.1 ft		1140-WD-C13B WD-C13B 10/4/2000 5.2-5.2 ft		1140-WD-C14 WD-C14 10/4/2000 7.6-7.6 ft		1140-WD-C14B WD-C14B 10/4/2000 6.9-6.9 ft		1140-WD-C15 WD-C15 10/4/2000 10-10 ft	
Bis(2-Ethylhexyl)phthalate			12		0.37	U	0.41	U	0.73		1.6		3.3		0.42	U
Butylbenzylphthalate			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Chrysene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Dibenz(a,h)anthracene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Diethylphthalate			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Di-n-butylphthalate			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Di-n-octylphthalate			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Fluoranthene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Indeno(1,2,3-cd)pyrene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Naphthalene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
N-Nitrosodiphenylamine			0.76	J	0.37	U	0.97		0.39	U	1.9		0.41	U	0.42	U
Phenanthrene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Phenol			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Pyrene			0.82	U	0.37	U	0.41	U	0.39	U	0.42	U	0.41	U	0.42	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.012	U													0.012	U
4,4'-DDE	0.012	U													0.012	U
4,4'-DDT	0.012	U													0.012	U
Aldrin	0.012	U													0.012	U
Alpha-BHC	0.012	U													0.012	U
Alpha-Chlordane																
Beta-BHC	0.012	U													0.012	U
Chlordane (technical)																
Dieldrin	0.012	U													0.012	U
Endosulfan I	0.012	U													0.012	U
Endrin	0.012	U													0.012	U
Endrin aldehyde	0.012	U													0.012	U
Endrin ketone																
Gamma-BHC/Lindane	0.012	U													0.012	U
Heptachlor	0.012	U													0.012	U
Heptachlor epoxide	0.012	U													0.012	U
Inorganics (mg/Kg)																
Aluminum															3300	
Arsenic															2	U
Barium																
Beryllium																
Cadmium															0.3	U
Calcium																
Chromium			10		6.3		11		6.7		18		6.4		19	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C11B (157182) WD-C11B 9/21/2000 5.6-5.6 ft		1140-WD-C12 WD-C12 10/4/2000 6.1-6.1 ft		1140-WD-C12B WD-C12B 10/4/2000 5.2-5.2 ft		1140-WD-C13 WD-C13 10/4/2000 6.1-6.1 ft		1140-WD-C13B WD-C13B 10/4/2000 5.2-5.2 ft		1140-WD-C14 WD-C14 10/4/2000 7.6-7.6 ft		1140-WD-C14B WD-C14B 10/4/2000 6.9-6.9 ft		1140-WD-C15 WD-C15 10/4/2000 10-10 ft	
Copper																
Iron															1200	
Lead															1.6	
Magnesium																
Manganese																
Mercury															0.06	U
Nickel																
Potassium																
Sodium																
Thallium																
Vanadium																
Zinc																
Chloride																
Nitrogen, as Ammonia																
Percent Moisture **(%)**																
Percent Solids **(%)**			79.9		89.1		80.6		85.2		78.5		81.9		78.4	
pH **(pH units)**																
Sulfate																
Total Organic Carbon																
EPH (mg/Kg)																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C15B WD-C15B 10/4/2000 9.3-9.3 ft		1140-WD-C16 WD-C16 10/13/2000 10.1-10.1 ft		1140-WD-C1B WD-C1B 9/21/2000 7.3-7.3 ft		1140-WD-C2 WD-C2 9/19/2000 8-8 ft		1140-WD-C2B WD-C2B 9/21/2000 7-7 ft		1140-WD-C3 WD-C3 9/19/2000 7.7-7.7 ft		1140-WD-C3B WD-C3B 9/21/2000 6.7-6.7 ft		1140-WD-C4 WD-C4 9/19/2000 7.6-7.6 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.16	U	0.15	U											0.15	U
1,1-Dichloroethene	0.16	U	0.15	U											0.15	U
1,2,3-Trichlorobenzene	0.16	U	0.15	U											0.15	U
1,2,4-Trichlorobenzene	0.16	U	0.15	U											0.15	U
1,2,4-Trimethylbenzene	0.16	U	0.15	U											0.15	U
1,3,5-Trimethylbenzene	0.16	U	0.15	U											0.15	U
2,4,4-Trimethyl-1-pentene	0.16	U	0.15	U											0.15	U
2,4,4-Trimethyl-2-pentene	0.16	U	0.15	U											0.15	U
2-Butanone	3.1	U	3.1	U											3	U
2-Hexanone	0.63	U	0.61	U											0.61	U
4-iso-Propyltoluene	0.16	U	0.15	U											0.15	U
Acetone	3.1	U	3.1	U											3	U
Benzene	0.16	U	0.15	U											0.15	U
Chloroform	0.16	U	0.15	U											0.15	U
Ethyl benzene	0.16	U	0.15	U											0.15	U
Isopropylbenzene	0.16	U	0.15	U											0.15	U
Methylene chloride	0.59	B	0.15	U											0.22	B
Naphthalene	1.6	U	1.5	U											1.5	U
Propylbenzene	0.16	U	0.15	U											0.15	U
sec-Butylbenzene	0.16	U	0.15	U											0.15	U
Styrene	0.16	U	0.15	U											0.15	U
Tetrachloroethene	0.16	U	0.15	U											0.15	U
Toluene	0.16	U	0.15	U											0.15	U
Trichloroethene	0.16	U	0.15	U											0.15	U
Xylene, o	0.16	U	0.15	U											0.15	U
Xylenes (m&p)	0.16	U	0.15	U											0.15	U
Xylenes, Total	0.16	U	0.15	U											0.15	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
2-Methylnaphthalene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
2-Methylphenol	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
4-Methylphenol																
Acenaphthylene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Anthracene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Benzo(a)anthracene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Benzo(a)pyrene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Benzo(b)fluoranthene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Benzo(ghi)perylene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Benzo(k)fluoranthene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Benzoic Acid	2.2	U	2.1	U	2	U	4.1	U	2	U	2	U	2	U	2	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C15B WD-C15B 10/4/2000 9.3-9.3 ft		1140-WD-C16 WD-C16 10/13/2000 10.1-10.1 ft		1140-WD-C1B WD-C1B 9/21/2000 7.3-7.3 ft		1140-WD-C2 WD-C2 9/19/2000 8-8 ft		1140-WD-C2B WD-C2B 9/21/2000 7-7 ft		1140-WD-C3 WD-C3 9/19/2000 7.7-7.7 ft		1140-WD-C3B WD-C3B 9/21/2000 6.7-6.7 ft		1140-WD-C4 WD-C4 9/19/2000 7.6-7.6 ft	
Bis(2-Ethylhexyl)phthalate	0.79		0.64		1.4		15		5		5.6		1.2		2.9	
Butylbenzylphthalate	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Chrysene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Dibenz(a,h)anthracene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Diethylphthalate	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Di-n-butylphthalate	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Di-n-octylphthalate	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Fluoranthene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Indeno(1,2,3-cd)pyrene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Naphthalene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
N-Nitrosodiphenylamine	0.44	U	0.6		0.39	U	1.3		0.4	U	0.31	J	0.39	U	0.24	J
Phenanthrene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Phenol	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Pyrene	0.44	U	0.42	U	0.39	U	0.81	U	0.4	U	0.39	U	0.39	U	0.4	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.013	U	0.013	U											0.012	U
4,4'-DDE	0.013	U	0.013	U											0.012	U
4,4'-DDT	0.013	U	0.013	U											0.012	U
Aldrin	0.013	U	0.013	U											0.012	U
Alpha-BHC	0.013	U	0.013	U											0.012	U
Alpha-Chlordane																
Beta-BHC	0.013	U	0.013	U											0.012	U
Chlordane (technical)																
Dieldrin	0.013	U	0.013	U											0.012	U
Endosulfan I	0.013	U	0.013	U											0.012	U
Endrin	0.013	U	0.013	U											0.012	U
Endrin aldehyde	0.013	U	0.013	U											0.012	U
Endrin ketone																
Gamma-BHC/Lindane	0.013	U	0.013	U											0.012	U
Heptachlor	0.013	U	0.013	U											0.012	U
Heptachlor epoxide	0.013	U	0.013	U											0.012	U
Inorganics (mg/Kg)																
Aluminum	3300		3600												7400	
Arsenic	2	U	2	U											**6.8**	
Barium																
Beryllium																
Cadmium	0.3	U	0.4	U											0.3	U
Calcium																
Chromium	15		6		68		350		36		110		210		160	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C15B WD-C15B 10/4/2000 9.3-9.3 ft		1140-WD-C16 WD-C16 10/13/2000 10.1-10.1 ft		1140-WD-C1B WD-C1B 9/21/2000 7.3-7.3 ft		1140-WD-C2 WD-C2 9/19/2000 8-8 ft		1140-WD-C2B WD-C2B 9/21/2000 7-7 ft		1140-WD-C3 WD-C3 9/19/2000 7.7-7.7 ft		1140-WD-C3B WD-C3B 9/21/2000 6.7-6.7 ft		1140-WD-C4 WD-C4 9/19/2000 7.6-7.6 ft	
Copper																
Iron	1100		2900												11000	
Lead	1.7		2.1												4.7	
Magnesium																
Manganese																
Mercury	0.05	U	0.05	U											0.05	U
Nickel																
Potassium																
Sodium																
Thallium																
Vanadium																
Zinc																
Chloride																
Nitrogen, as Ammonia																
Percent Moisture **(%)**																
Percent Solids **(%)**	75.7		78.7		84.2		80.8		82		84.5		84.6		82.4	
pH **(pH units)**																
Sulfate																
Total Organic Carbon																
EPH (mg/Kg)																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C4B WD-C4B 9/21/2000 6.6-6.6 ft		1140-WD-C5 WD-C5 9/19/2000 7.4-7.4 ft		1140-WD-C5B WD-C5B 9/21/2000 6.5-6.5 ft		1140-WD-C6 WD-C6 9/19/2000 7.1-7.1 ft		1140-WD-C6B WD-C6B 9/21/2000 6.2-6.2 ft		1140-WD-C7 WD-C7 9/19/2000 6.6-6.6 ft		1140-WD-C7B WD-C7B 9/21/2000 5.6-5.6 ft		1140-WD-C8 WD-C8 9/19/2000 6.8-6.8 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.15	U													0.16	U
1,1-Dichloroethene	0.15	U													0.16	U
1,2,3-Trichlorobenzene	0.15	U													0.16	U
1,2,4-Trichlorobenzene	0.15	U													0.16	U
1,2,4-Trimethylbenzene	0.15	U													0.16	U
1,3,5-Trimethylbenzene	0.15	U													0.16	U
2,4,4-Trimethyl-1-pentene	0.15	U													0.16	U
2,4,4-Trimethyl-2-pentene	0.15	U													0.16	U
2-Butanone	3	U													3.2	U
2-Hexanone	0.6	U													0.64	U
4-iso-Propyltoluene	0.15	U													0.16	U
Acetone	3	U													3.2	U
Benzene	0.15	U													0.16	U
Chloroform	0.15	U													0.16	U
Ethyl benzene	0.15	U													0.16	U
Isopropylbenzene	0.15	U													0.16	U
Methylene chloride	0.15	UB													0.22	B
Naphthalene	1.5	U													1.6	U
Propylbenzene	0.15	U													0.16	U
sec-Butylbenzene	0.15	U													0.16	U
Styrene	0.15	U													0.16	U
Tetrachloroethene	0.15	U													0.16	U
Toluene	0.15	U													0.16	U
Trichloroethene	0.15	U													0.16	U
Xylene, o	0.15	U													0.16	U
Xylenes (m&p)	0.15	U													0.16	U
Xylenes, Total	0.15	U													0.16	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
2-Methylnaphthalene	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
2-Methylphenol	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
4-Methylphenol																
Acenaphthylene	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Anthracene	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Benzo(a)anthracene			0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Benzo(a)pyrene			0.39	U	0.37	U	2	U								
Benzo(b)fluoranthene			0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Benzo(ghi)perylene	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Benzo(k)fluoranthene	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Benzoic Acid	110	UC	2	U	1.8	U	10	U	96	UC	22	U	94	UC	22	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C4B WD-C4B 9/21/2000 6.6-6.6 ft		1140-WD-C5 WD-C5 9/19/2000 7.4-7.4 ft		1140-WD-C5B WD-C5B 9/21/2000 6.5-6.5 ft		1140-WD-C6 WD-C6 9/19/2000 7.1-7.1 ft		1140-WD-C6B WD-C6B 9/21/2000 6.2-6.2 ft		1140-WD-C7 WD-C7 9/19/2000 6.6-6.6 ft		1140-WD-C7B WD-C7B 9/21/2000 5.6-5.6 ft		1140-WD-C8 WD-C8 9/19/2000 6.8-6.8 ft	
Bis(2-Ethylhexyl)phthalate	**166**	C	3.9		0.6		33		**210**	C	71		79	C	54	
Butylbenzylphthalate	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Chrysene	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Dibenz(a,h)anthracene			0.39	U	0.37	U	2	U								
Diethylphthalate	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Di-n-butylphthalate	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Di-n-octylphthalate	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Fluoranthene	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Indeno(1,2,3-cd)pyrene			0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Naphthalene	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
N-Nitrosodiphenylamine	22	UC	0.21	J	0.37	U	2	U	19	UC	4.9		19	UC	4.3	U
Phenanthrene	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Phenol	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Pyrene	22	UC	0.39	U	0.37	U	2	U	19	UC	4.4	U	19	UC	4.3	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.012	U													0.013	U
4,4'-DDE	0.012	U													0.013	U
4,4'-DDT	0.012	U													0.013	U
Aldrin	0.012	U													0.013	U
Alpha-BHC	0.012	U													0.013	U
Alpha-Chlordane																
Beta-BHC	0.012	U													0.013	U
Chlordane (technical)																
Dieldrin	0.012	U													0.013	U
Endosulfan I	0.012	U													0.013	U
Endrin	0.012	U													0.013	U
Endrin aldehyde	0.012	U													0.013	U
Endrin ketone																
Gamma-BHC/Lindane	0.012	U													0.013	U
Heptachlor	0.012	U													0.013	U
Heptachlor epoxide	0.012	U													0.013	U
Inorganics (mg/Kg)																
Aluminum	4600														3400	
Arsenic	2	U													2.2	
Barium																
Beryllium																
Cadmium	0.4	U													0.3	U
Calcium																
Chromium	51		160		240		58		500		810		580		160	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C4B WD-C4B 9/21/2000 6.6-6.6 ft		1140-WD-C5 WD-C5 9/19/2000 7.4-7.4 ft		1140-WD-C5B WD-C5B 9/21/2000 6.5-6.5 ft		1140-WD-C6 WD-C6 9/19/2000 7.1-7.1 ft		1140-WD-C6B WD-C6B 9/21/2000 6.2-6.2 ft		1140-WD-C7 WD-C7 9/19/2000 6.6-6.6 ft		1140-WD-C7B WD-C7B 9/21/2000 5.6-5.6 ft		1140-WD-C8 WD-C8 9/19/2000 6.8-6.8 ft	
Copper																
Iron	3300														3400	
Lead	5.4														2.2	
Magnesium																
Manganese																
Mercury	0.06	U													0.06	U
Nickel																
Potassium																
Sodium																
Thallium																
Vanadium																
Zinc																
Chloride																
Nitrogen, as Ammonia																
Percent Moisture **(%)**																
Percent Solids **(%)**	75.8		84.4		89.6		83		85.2		75.2		88.4		76.8	
pH **(pH units)**																
Sulfate																
Total Organic Carbon																
EPH (mg/Kg)																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C8B WD-C8B 9/21/2000 5.8-5.8 ft		1140-WD-C9 WD-C9 9/19/2000 7-7 ft		1140-WD-C9B WD-C9B 9/21/2000 6-6 ft		97598-BAY1-8/7 STOCKPILE 8/8/2000		97598-BAY4-8/7 STOCKPILE 8/8/2000		97598-DB-C10 DB-C10 8/10/2000 0.8-3.8 ft		97598-DB-C11 DB-C11 8/10/2000 6.2-6.2 ft		97598-DB-C12 DB-C12 8/10/2000 5.9-5.9 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
1,1-Dichloroethene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
1,2,3-Trichlorobenzene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
1,2,4-Trichlorobenzene	0.12	U					0.13		0.045		0.087	U	0.058	U	0.052	U
1,2,4-Trimethylbenzene	0.12	U					0.17		0.061		0.087	U	0.058	U	0.052	U
1,3,5-Trimethylbenzene	0.12	U					0.13		0.051		0.087	U	0.058	U	0.052	U
2,4,4-Trimethyl-1-pentene	0.12	U						U		U		U		U		U
2,4,4-Trimethyl-2-pentene	0.12	U						U		U		U		U		U
2-Butanone	2.5	U					0.45	U	0.34	U	0.87	U	0.58	U	0.52	U
2-Hexanone	0.5	U					0.45	U	0.34	U	0.87	U	0.58	U	0.52	U
4-iso-Propyltoluene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Acetone	2.5	U					0.45	U	0.34	U	0.87	U	0.58	U	0.52	U
Benzene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Chloroform	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Ethyl benzene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Isopropylbenzene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Methylene chloride	0.12	UB					0.089	U	0.067	U	0.58	B	0.64	B	0.31	B
Naphthalene	1.2	U					0.22	U	0.17	U	0.17	U	0.12	U	0.1	U
Propylbenzene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
sec-Butylbenzene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Styrene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Tetrachloroethene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Toluene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Trichloroethene	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Xylene, o	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Xylenes (m&p)	0.12	U					0.045	U	0.034	U	0.087	U	0.058	U	0.052	U
Xylenes, Total	0.12	U									0.087	U	0.058	U	0.052	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	18	UC	0.85	U	0.39	U	0.063	J	0.099	J	0.4	U	0.3	U	0.29	U
2-Methylnaphthalene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
2-Methylphenol	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
4-Methylphenol							0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Acenaphthylene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Anthracene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Benzo(a)anthracene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Benzo(a)pyrene			0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Benzo(b)fluoranthene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Benzo(ghi)perylene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Benzo(k)fluoranthene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Benzoic Acid	92	UC	4.3	U	1.9	U	0.57	U	0.63		0.81	U	0.59	U	0.57	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C8B WD-C8B 9/21/2000 5.8-5.8 ft		1140-WD-C9 WD-C9 9/19/2000 7-7 ft		1140-WD-C9B WD-C9B 9/21/2000 6-6 ft		97598-BAY1-8/7 STOCKPILE 8/8/2000		97598-BAY4-8/7 STOCKPILE 8/8/2000		97598-DB-C10 DB-C10 8/10/2000 0.8-3.8 ft		97598-DB-C11 DB-C11 8/10/2000 6.2-6.2 ft		97598-DB-C12 DB-C12 8/10/2000 5.9-5.9 ft	
Bis(2-Ethylhexyl)phthalate	**426**	C	16		0.58		6.7		6.9		1.1	B	0.3	UB	0.29	UB
Butylbenzylphthalate	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Chrysene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Dibenz(a,h)anthracene			0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Diethylphthalate	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Di-n-butylphthalate	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Di-n-octylphthalate	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Fluoranthene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Indeno(1,2,3-cd)pyrene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Naphthalene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
N-Nitrosodiphenylamine	18	UC	1.2		0.81		3.5	#	1.7	#	0.4	U	0.3	U	0.29	U
Phenanthrene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Phenol	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Pyrene	18	UC	0.85	U	0.39	U	0.28	U	0.28	U	0.4	U	0.3	U	0.29	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.011	U					0.0018	U	0.0018	U	0.026	U	0.018	U	0.019	U
4,4'-DDE	0.011	U					0.0069		0.0049		0.026	U	0.018	U	0.019	U
4,4'-DDT	0.011	U					0.0018	U	0.0018	U	0.026	U	0.018	U	0.019	U
Aldrin	0.011	U					0.00089	U	0.00089	U	0.013	U	0.0091	U	0.0093	U
Alpha-BHC	0.011	U					0.00089	U	0.00089	U	0.013	U	0.0091	U	0.0093	U
Alpha-Chlordane							0.00089	U	0.003		0.013	U	0.0091	U	0.0093	U
Beta-BHC	0.011	U					0.00089	U	0.00089	U	0.063		0.0091	U	0.0093	U
Chlordane (technical)							0.00089	U	0.00089	U	0.02		0.0091	U	0.0093	U
Dieldrin	0.011	U					0.0018	U	0.0031		0.026	U	0.018	U	0.019	U
Endosulfan I	0.011	U					0.00089	U	0.00089	U	0.013	U	0.0091	U	0.0093	U
Endrin	0.011	U					0.0018	U	0.0018	U	0.026	U	0.018	U	0.019	U
Endrin aldehyde	0.011	U					0.013		0.0066		0.026	U	0.018	U	0.019	U
Endrin ketone							0.0018	U	0.0018	U	0.026	U	0.018	U	0.019	U
Gamma-BHC/Lindane	0.011	U					0.18		0.25		0.013	U	0.0091	U	0.0093	U
Heptachlor	0.011	U					0.00089	U	0.00089	U	0.013	U	0.0091	U	0.0093	U
Heptachlor epoxide	0.011	U					0.00089	U	0.00089	U	0.013	U	0.0091	U	0.0093	U
Inorganics (mg/Kg)																
Aluminum	2300															
Arsenic	2	U														
Barium																
Beryllium																
Cadmium	0.3	U					0.68	U	0.64	U	4.8	U	0.73	U	0.71	U
Calcium																
Chromium	340		110		20		47		70		25		8.7		7.1	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	1140-WD-C8B WD-C8B 9/21/2000 5.8-5.8 ft		1140-WD-C9 WD-C9 9/19/2000 7-7 ft		1140-WD-C9B WD-C9B 9/21/2000 6-6 ft		97598-BAY1-8/7 STOCKPILE 8/8/2000		97598-BAY4-8/7 STOCKPILE 8/8/2000		97598-DB-C10 DB-C10 8/10/2000 0.8-3.8 ft		97598-DB-C11 DB-C11 8/10/2000 6.2-6.2 ft		97598-DB-C12 DB-C12 8/10/2000 5.9-5.9 ft	
Copper																
Iron	2600															
Lead	2						7.2		8.2		24	U	3.6	U	2.1	J
Magnesium																
Manganese																
Mercury	0.05	U														
Nickel																
Potassium																
Sodium																
Thallium																
Vanadium																
Zinc																
Chloride																
Nitrogen, as Ammonia																
Percent Moisture **(%)**							13.5		11.5		39		16.2		14.8	
Percent Solids **(%)**	90		78.1		83.8											
pH **(pH units)**																
Sulfate																
Total Organic Carbon																
EPH (mg/Kg)																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	97598-DB-C13 DB-C13 8/10/2000 1.9-4.9 ft		97598-DB-C14 DB-C14 8/10/2000 -1.3-1.7 ft		97598-DB-C15 DB-C15 8/10/2000 1.9-4.9 ft		97598-DB-C16 DB-C16 8/10/2000 5.3-5.3 ft		97598-DB-C3 DB-C3 8/10/2000 1.2-4.2 ft		97598-DB-C4 DB-C4 8/10/2000 6.8-6.8 ft		97598-DB-C5 DB-C5 8/10/2000 1.4-4.4 ft		97598-DB-C6 DB-C6 8/10/2000 1.4-4.4 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.087		0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.068	U
1,1-Dichloroethene	0.062	U	0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.068	U
1,2,3-Trichlorobenzene	0.16		0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.15	
1,2,4-Trichlorobenzene	0.79		0.055	U	0.071	J	0.039	U	0.074	U	0.042	U	0.049	U	0.69	
1,2,4-Trimethylbenzene	3.9		0.13		0.37		0.039	U	0.074	U	0.042	U	0.13		4.6	
1,3,5-Trimethylbenzene	2.6		0.06		0.25		0.039	U	0.074	U	0.042	U	0.085		2.9	
2,4,4-Trimethyl-1-pentene	0.55			U		U		U		U		U		U	0.37	
2,4,4-Trimethyl-2-pentene		U		U		U		U		U		U		U		U
2-Butanone	0.62	U	0.55	U	0.73	U	0.39	U	0.74	U	0.42	U	0.49	U	0.68	U
2-Hexanone	0.62	U	0.55	U	0.73	U	0.39	U	0.74	U	0.42	U	0.49	U	0.68	U
4-iso-Propyltoluene	0.16		0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.37	
Acetone	0.62	U	0.55	U	0.73	U	0.39	U	0.74	U	0.42	U	0.49	U	0.68	U
Benzene	0.062	U	0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.068	U
Chloroform	0.062	U	0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.068	U
Ethyl benzene	0.12		0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.16	
Isopropylbenzene	0.47		0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.65	
Methylene chloride	0.88	B	0.12	B	0.37	B	0.2	B	0.32	B	0.4	B	0.5	B	0.3	B
Naphthalene	0.62		0.11	U	0.15	U	0.077	U	0.15	U	0.085	U	0.099	U	0.14	U
Propylbenzene	0.56		0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.59	
sec-Butylbenzene	0.15		0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.21	
Styrene	0.29		0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.43	
Tetrachloroethene	0.062	U	0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.068	U
Toluene	0.062	U	0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.094	
Trichloroethene	0.062	U	0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.068	U
Xylene, o	0.45		0.055	U	0.042	J	0.039	U	0.074	U	0.042	U	0.049	U	0.53	
Xylenes (m&p)	0.29		0.055	U	0.073	U	0.039	U	0.074	U	0.042	U	0.049	U	0.35	
Xylenes, Total	0.74				0.042	J	0.039	U	0.074	U	0.042	U	0.049	U	0.88	
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	JF	0.28	U
2-Methylnaphthalene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
2-Methylphenol	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
4-Methylphenol	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Acenaphthylene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Anthracene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Benzo(a)anthracene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Benzo(a)pyrene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Benzo(b)fluoranthene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Benzo(ghi)perylene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Benzo(k)fluoranthene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Benzoic Acid	0.55	U	0.53	U	0.38	J	0.59	U	0.62	U	0.6	U	0.77	F	1.1	

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	97598-DB-C13 DB-C13 8/10/2000 1.9-4.9 ft		97598-DB-C14 DB-C14 8/10/2000 -1.3-1.7 ft		97598-DB-C15 DB-C15 8/10/2000 1.9-4.9 ft		97598-DB-C16 DB-C16 8/10/2000 5.3-5.3 ft		97598-DB-C3 DB-C3 8/10/2000 1.2-4.2 ft		97598-DB-C4 DB-C4 8/10/2000 6.8-6.8 ft		97598-DB-C5 DB-C5 8/10/2000 1.4-4.4 ft		97598-DB-C6 DB-C6 8/10/2000 1.4-4.4 ft	
Bis(2-Ethylhexyl)phthalate	16		1.4	B	3.5	B	0.09	JB	0.86	B	0.81	B	10	F	8.6	
Butylbenzylphthalate	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Chrysene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Dibenz(a,h)anthracene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Diethylphthalate	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Di-n-butylphthalate	0.22	J	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.48	F	0.99	
Di-n-octylphthalate	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Fluoranthene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Indeno(1,2,3-cd)pyrene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Naphthalene	0.26	J	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	UF	0.28	U
N-Nitrosodiphenylamine	1.6		0.27	U	0.33		0.29	U	0.31	U	0.12	J	1.4	F	0.7	
Phenanthrene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Phenol	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	UF	0.28	U
Pyrene	0.27	U	0.27	U	0.3	U	0.29	U	0.31	U	0.3	U	0.27	U	0.28	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.017	U	0.017	U	0.019	U	0.019	U	0.02	U	0.019	U	0.017	U	0.018	U
4,4'-DDE	0.017	U	0.017	U	0.019	U	0.019	U	0.02	U	0.019	U	0.017	U	0.018	U
4,4'-DDT	0.017	U	0.017	U	0.019	U	0.019	U	0.02	U	0.019	U	0.017	U	0.018	U
Aldrin	0.0086	U	0.0084	U	0.0095	U	0.0093	U	0.0099	U	0.0094	U	0.0086	U	0.0089	U
Alpha-BHC	0.0086	U	0.0084	U	0.0095	U	0.0093	U	0.0099	U	0.0094	U	0.0086	U	0.0089	U
Alpha-Chlordane	0.0086	U	0.0084	U	0.0095	U	0.0093	U	0.0099	U	0.0094	U	0.0086	U	0.0089	U
Beta-BHC	0.0086	U	0.0084	U	0.0095	U	0.0093	U	0.0099	U	0.0094	U	0.0086	U	0.0089	U
Chlordane (technical)	0.0086	U	0.0084	U	0.0095	U	0.0093	U	0.0099	U	0.0094	U	0.0086	U	0.042	
Dieldrin	0.017	U	0.017	U	0.019	U	0.019	U	0.02	U	0.019	U	0.017	U	0.018	U
Endosulfan I	0.0086	U	0.0084	U	0.0095	U	0.0093	U	0.0099	U	0.0094	U	0.0086	U	0.0089	U
Endrin	0.017	U	0.017	U	0.019	U	0.019	U	0.02	U	0.019	U	0.017	U	0.018	U
Endrin aldehyde	0.017	U	0.017	U	0.019	U	0.019	U	0.02	U	0.019	U	0.017	U	0.018	U
Endrin ketone	0.017	U	0.017	U	0.019	U	0.019	U	0.02	U	0.019	U	0.017	U	0.018	U
Gamma-BHC/Lindane	0.12		0.02		0.13		0.0093	U	0.0099	U	0.028		0.23		0.66	
Heptachlor	0.0086	U	0.0084	U	0.0095	U	0.0093	U	0.0099	U	0.0094	U	0.0086	U	0.0089	U
Heptachlor epoxide	0.0086	U	0.0084	U	0.0095	U	0.0093	U	0.0099	U	0.0094	U	0.0086	U	0.0089	U
Inorganics (mg/Kg)																
Aluminum																
Arsenic																
Barium																
Beryllium																
Cadmium	0.63	U	0.68	U	0.71	U	0.71	U	0.73	U	0.76	U	0.67	U	0.7	U
Calcium																
Chromium	39		21		79		9.8		4		27		88		240	
Cobalt																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	97598-DB-C13 DB-C13 8/10/2000 1.9-4.9 ft		97598-DB-C14 DB-C14 8/10/2000 -1.3-1.7 ft		97598-DB-C15 DB-C15 8/10/2000 1.9-4.9 ft		97598-DB-C16 DB-C16 8/10/2000 5.3-5.3 ft		97598-DB-C3 DB-C3 8/10/2000 1.2-4.2 ft		97598-DB-C4 DB-C4 8/10/2000 6.8-6.8 ft		97598-DB-C5 DB-C5 8/10/2000 1.4-4.4 ft		97598-DB-C6 DB-C6 8/10/2000 1.4-4.4 ft	
Copper																
Iron																
Lead	4.2		4		5.5		3.6		3.9		3.8	U	3.6		4.2	
Magnesium																
Manganese																
Mercury																
Nickel																
Potassium																
Sodium																
Thallium																
Vanadium																
Zinc																
Chloride																
Nitrogen, as Ammonia																
Percent Moisture **(%)**	9.7		7.8		16.4		15.7		19.2		18.1		8.1		13.6	
Percent Solids **(%)**																
pH **(pH units)**																
Sulfate																
Total Organic Carbon																
EPH (mg/Kg)																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	97598-DB-C7 DB-C7 8/10/2000 6-6 ft		97598-DB-C8 DB-C8 8/10/2000 5.7-5.7 ft		97598-DB-C9 DB-C9 8/10/2000 1.6-4.6 ft		97598-DB-SP-1 STOCKPILE 8/11/2000		97598-DB-SP-2E STOCKPILE 8/11/2000		97598-DB-SP-2W STOCKPILE 8/11/2000		AREA 01 AREA-1 7/8/1991 0-1 ft		AREA 02 AREA-2 7/9/1991 0-1 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.059	U	0.05	U	0.059	U	0.069	U	0.043	U	0.042	U	0.008	UJ	0.0055	UJ
1,1-Dichloroethene	0.059	U	0.05	U	0.059	U	0.069	U	0.043	U	0.042	U	0.008	UJ	0.0055	UJ
1,2,3-Trichlorobenzene	0.059	U	0.05	U	0.059	U	0.13		0.09		0.042	U				
1,2,4-Trichlorobenzene	0.059	U	0.05	U	0.059	U	0.72		0.49		0.079					
1,2,4-Trimethylbenzene	0.059	U	0.05	U	0.059	U	1.3		0.85		0.11					
1,3,5-Trimethylbenzene	0.059	U	0.05	U	0.059	U	0.91		0.61		0.069					
2,4,4-Trimethyl-1-pentene		U		U		U		U	1			U	0.016	U	0.011	U
2,4,4-Trimethyl-2-pentene		U		U		U		U	0.45			U	0.016	U	0.011	U
2-Butanone	0.59	U	0.5	U	0.59	U	0.69	U	0.43	U	0.42	U	0.024	UJ	0.016	UJ
2-Hexanone	0.59	U	0.5	U	0.59	U	0.69	U	0.43	U	0.42	U	0.024	UJ	0.016	UJ
4-iso-Propyltoluene	0.059	U	0.05	U	0.059	U	0.051	J	0.043	U	0.042	U				
Acetone	0.59	U	0.5	U	0.59	U	0.69	U	0.43	U	0.42	U	0.024	UJ	0.016	U
Benzene	0.059	U	0.05	U	0.059	U	0.069	U	0.043	U	0.042	U	0.008	UJ	0.0055	UJ
Chloroform	0.059	U	0.05	U	0.059	U	0.069	U	0.043	U	0.042	U	0.008	UJ	0.0055	UJ
Ethyl benzene	0.059	U	0.05	U	0.059	U	0.069	U	0.043	U	0.042	U	0.008	UJ	0.0055	UJ
Isopropylbenzene	0.059	U	0.05	U	0.059	U	0.17		0.1		0.042	U				
Methylene chloride	0.15	B	0.29	B	0.42	B	0.14	U	0.085	U	0.084	U	0.016	U	0.018	UJ
Naphthalene	0.12	U	0.1	U	0.12	U	0.14	U	0.085	U	0.084	U				
Propylbenzene	0.059	U	0.05	U	0.059	U	0.15		0.099		0.042	U				
sec-Butylbenzene	0.059	U	0.05	U	0.059	U	0.069	U	0.043	U	0.042	U				
Styrene	0.059	U	0.05	U	0.059	U	0.13		0.096		0.042	U	0.008	UJ	0.0055	UJ
Tetrachloroethene	0.059	U	0.05	U	0.059	U	0.069	U	0.043	U	0.042	U	0.008	UJ	0.0055	UJ
Toluene	0.059	U	0.05	U	0.059	U	0.083		0.028	J	0.042	U	0.008	UJ	0.0055	UJ
Trichloroethene	0.059	U	0.05	U	0.059	U	0.069	U	0.043	U	0.042	U	0.008	UJ	0.0055	UJ
Xylene, o	0.059	U	0.05	U	0.059	U	0.14		0.1		0.042	U				
Xylenes (m&p)	0.059	U	0.05	U	0.059	U	0.1		0.069		0.042	U				
Xylenes, Total	0.059	U	0.05	U	0.059	U							0.008	UJ	0.0055	UJ
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.29	U	0.29	U	0.2651	U	0.61	F	0.45		0.39		1.1	U	0.76	U
2-Methylnaphthalene	0.29	U	0.29	U	0.2651	U	0.29	U	0.29	U	0.29	U	1.1	U	0.067	J
2-Methylphenol	0.29	U	0.29	U	0.2651	U	0.29	U	0.29	U	0.29	U	1.1	U	0.76	U
4-Methylphenol	0.29	U	0.29	U	0.2651	U	0.29	U	0.29	U	0.29	U	1.1	U	0.76	U
Acenaphthylene	0.29	U	0.29	U	0.27	U	0.29	U	0.29	U	0.29	U	1.1	U	0.76	U
Anthracene	0.29	U	0.29	U	0.27	U	0.29	U	0.29	U	0.29	U	1.1	U	0.76	U
Benzo(a)anthracene	0.29	U	0.29	U	0.27	U	0.29	U	0.29	U	0.29	U	0.099	J	0.075	J
Benzo(a)pyrene	0.29	U	0.29	U	0.27	U	0.29	U	0.29	U	0.29	U	0.059	J	0.057	J
Benzo(b)fluoranthene	0.29	U	0.29	U	0.27	U	0.29	U	0.29	U	0.29	U	0.18	J	0.13	J
Benzo(ghi)perylene	0.29	U	0.29	U	0.27	U	0.29	UF	0.097	J	0.29	U	1.1	U	0.76	U
Benzo(k)fluoranthene	0.29	U	0.29	U	0.27	U	0.29	U	0.29	U	0.29	U	0.065	J	0.042	J
Benzoic Acid	0.57	U	0.58	U	0.53	U	1.4	F	0.94		1.1		5.3	U	3.7	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	97598-DB-C7 DB-C7 8/10/2000 6-6 ft		97598-DB-C8 DB-C8 8/10/2000 5.7-5.7 ft		97598-DB-C9 DB-C9 8/10/2000 1.6-4.6 ft		97598-DB-SP-1 STOCKPILE 8/11/2000		97598-DB-SP-2E STOCKPILE 8/11/2000		97598-DB-SP-2W STOCKPILE 8/11/2000		AREA 01 AREA-1 7/8/1991 0-1 ft		AREA 02 AREA-2 7/9/1991 0-1 ft	
Bis(2-Ethylhexyl)phthalate	0.29	UB	0.29	UB	0.27	UB	9.1	BF	43	F	29	F	2.9		0.13	J
Butylbenzylphthalate	0.29	U	0.29	U	0.27	U	0.29	U	0.29	U	0.29	U	1.1	U	0.76	U
Chrysene	0.29	U	0.29	U	0.27	U	0.29	U	0.29	U	0.29	U	0.17	J	0.15	J
Dibenz(a,h)anthracene	0.29	U	0.29	U	0.27	U	0.29	UF	0.096	J	0.29	U	1.1	U	0.76	U
Diethylphthalate	0.29	U	0.29	U	0.2651	U	0.29	U	0.29	U	0.29	U	1.1	U	0.76	U
Di-n-butylphthalate	0.29	U	0.29	U	0.2651	U	1.8	F	0.91		0.58		1.1	U	0.014	J
Di-n-octylphthalate	0.29	U	0.29	U	0.2651	U	0.29	U	0.29	U	0.29	U	1.1	U	0.76	U
Fluoranthene	0.29	U	0.29	U	0.2651	U	0.29	U	0.29	U	0.29	U	0.25	J	0.19	J
Indeno(1,2,3-cd)pyrene	0.29	U	0.29	U	0.2651	U	0.29	U	0.29	U	0.29	U	0.064	J	0.051	J
Naphthalene	0.29	U	0.29	U	0.2651	U	0.29	U	0.29	U	0.29	U	1.1	U	0.049	J
N-Nitrosodiphenylamine	0.29	U	0.29	U	0.2651	U	0.99	#F	4.5	#	3.4	#	1.1	U	0.76	U
Phenanthrene	0.29	U	0.29	U	0.2651	U	0.29	U	0.29	U	0.29	U	0.16	J	0.17	J
Phenol	0.29	U	0.29	U	0.2651	U	0.29	UF	0.098	J	0.36		1.1	U	0.76	U
Pyrene	0.29	U	0.29	U	0.2651	U	0.29	U	0.29	U	0.29	U	0.16	J	0.14	J
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.018	U	0.018	U	0.017	U	0.0018	U	0.0018	U	0.0019	U	0.053	UJ	0.037	UJ
4,4'-DDE	0.018	U	0.018	U	0.017	U	0.0018	U	0.0018	U	0.0019	U	0.053	UJ	0.037	UJ
4,4'-DDT	0.018	U	0.018	U	0.017	U	0.0018	U	0.0018	U	0.0019	U	0.053	UJ	0.037	UJ
Aldrin	0.0092	U	0.0091	U	0.0083	U	0.0009	U	0.00091	U	0.00096	U	0.026	UJ	0.018	UJ
Alpha-BHC	0.0092	U	0.0091	U	0.0083	U	0.0009	U	0.00091	U	0.00096	U	0.026	UJ	0.018	UJ
Alpha-Chlordane	0.0092	U	0.0091	U	0.0083	U	0.0009	U	0.00091	U	0.00096	U	0.26	UJ	0.18	UJ
Beta-BHC	0.0092	U	0.0091	U	0.0083	U	0.0009	U	0.00091	U	0.00096	U	0.026	UJ	0.018	UJ
Chlordane (technical)	0.0092	U	0.0091	U	0.0083	U	0.0009	U	0.00091	U	0.00096	U	0.26	UJ	0.18	UJ
Dieldrin	0.018	U	0.018	U	0.017	U	0.0033		0.0053		0.0045		0.053	UJ	0.037	UJ
Endosulfan I	0.0092	U	0.0091	U	0.0083	U	0.0009	U	0.00091	U	0.00096	U	0.026	UJ	0.018	UJ
Endrin	0.018	U	0.018	U	0.017	U	0.0018	U	0.0018	U	0.0019	U	0.053	UJ	0.037	UJ
Endrin aldehyde	0.018	U	0.018	U	0.017	U	0.0018	U	0.0018	U	0.0019	U	0.026	UJ	0.018	UJ
Endrin ketone	0.018	U	0.018	U	0.017	U	0.0018	U	0.014		0.0019	U	0.053	UJ	0.037	UJ
Gamma-BHC/Lindane	0.0092	U	0.0091	U	0.0083	U	1.2	F	0.37		0.42		0.026	UJ	0.018	UJ
Heptachlor	0.0092	U	0.0091	U	0.0083	U	0.0009	U	0.00091	U	0.00096	U	0.026	UJ	0.018	UJ
Heptachlor epoxide	0.0092	U	0.0091	U	0.0083	U	0.0009	U	0.00091	U	0.00096	U	0.026	UJ	0.018	UJ
Inorganics (mg/Kg)																
Aluminum													8000		5900	
Arsenic													**24**		**7**	
Barium													25		38	
Beryllium													1.5	U	1.5	U
Cadmium	0.69	U	0.67	U	0.62	U	0.7	U	0.68	U	0.69	U	1.1	U	1	U
Calcium													1200		720	
Chromium	6.8		5		15		54		75		46		320		8.8	
Cobalt													9.9		1.5	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	97598-DB-C7 DB-C7 8/10/2000 6-6 ft		97598-DB-C8 DB-C8 8/10/2000 5.7-5.7 ft		97598-DB-C9 DB-C9 8/10/2000 1.6-4.6 ft		97598-DB-SP-1 STOCKPILE 8/11/2000		97598-DB-SP-2E STOCKPILE 8/11/2000		97598-DB-SP-2W STOCKPILE 8/11/2000		AREA 01 AREA-1 7/8/1991 0-1 ft		AREA 02 AREA-2 7/9/1991 0-1 ft	
Copper													14		12	
Iron													16000		6900	
Lead	3.5	U	1.8	J	3.5		6.8		7.9		5.6		58		36	
Magnesium													1200		610	
Manganese													530		40	
Mercury													0.14	U	0.15	
Nickel													5.8		4.7	
Potassium													520		240	
Sodium													44		42	
Thallium													0.52	U	0.5	U
Vanadium													18		18	
Zinc													24		31	
Chloride													49	J	68	J
Nitrogen, as Ammonia													43		25	
Percent Moisture **(%)**	15		14.8		6.4		13.7		15.8		17.2					
Percent Solids **(%)**													61	J	87	J
pH **(pH units)**																
Sulfate													190	J	4.2	J
Total Organic Carbon																
EPH (mg/Kg)																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AREA 1(COMP) AREA-1 12/15/1996 0-1 ft		AREA 1-1 AREA-1-1 12/15/1996 0-1 ft		AREA 1-2 AREA-1-2 12/15/1996 0-1 ft		AREA 1-4 AREA-1-4 12/15/1996 0-1 ft		AREA 1-5 AREA-1-5 12/15/1996 0-1 ft		BH01 BH1 6/5/1991 4.3-6.3 ft		BH02 BH2 6/5/1991 3.5-5.5 ft		BH03 BH3 6/5/1991 4.2-6.2 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane			0.011		0.005	U	0.23		0.006	U	0.7	U	0.028	U	0.0055	U
1,1-Dichloroethene			0.006	U	0.005	U	0.018		0.006	U	0.7	U	0.028	U	0.0055	U
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,3,5-Trimethylbenzene																
2,4,4-Trimethyl-1-pentene			0.006	U	0.005	U	0.008	U	0.006	U	0.0000013	U	0.011	U	0.002	J
2,4,4-Trimethyl-2-pentene			0.006	U	0.005	U	0.008	U	0.006	U	0.0000013	U	0.011	U	0.001	J
2-Butanone			0.012	U	0.011	U	0.016	U	0.012	U	0.49	J	0.082	U	0.001	J
2-Hexanone			0.012	U	0.011	U	0.016	U	0.012	U	2	U	0.082	U	0.016	U
4-iso-Propyltoluene																
Acetone			0.029	B	0.01	J	0.036		0.005	J	17		0.5		0.13	
Benzene			0.006	U	0.005	U	0.008	U	0.006	U	0.1	J	0.028	U	0.0055	U
Chloroform			0.006	U	0.005	U	0.008	U	0.006	U	0.7	U	0.028	U	0.0055	U
Ethyl benzene			0.006	U	0.005	U	0.008	U	0.006	U	0.7	U	0.028	U	0.0055	U
Isopropylbenzene																
Methylene chloride			0.007		0.005	U	0.008	U	0.006	U	2		0.055	U	0.011	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene			0.006	U	0.005	U	0.008	U	0.006	U	0.7	U	0.028	U	0.0055	U
Tetrachloroethene			0.006	U	0.005	U	0.008	U	0.006	U	0.7	U	0.028	U	0.0055	U
Toluene			0.006	U	0.005	U	0.003	J	0.006	U	0.15	J	0.028	U	0.0055	U
Trichloroethene			0.006	U	0.005	U	0.009		0.006	U	0.08	J	0.028	U	0.0055	U
Xylene, o																
Xylenes (m&p)																
Xylenes, Total			0.006	U	0.005	U	0.008	U	0.006	U	0.7	U	0.028	U	0.0055	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.39	U									0.73	U	0.73	U	0.76	U
2-Methylnaphthalene	0.39	U									0.73	U	0.73	U	0.76	U
2-Methylphenol	0.39	U									0.73	U	0.73	U	0.76	U
4-Methylphenol	0.39	U									0.73	U	0.73	U	0.76	U
Acenaphthylene	0.39	U									0.73	U	0.73	U	0.76	U
Anthracene	0.39	U									0.73	U	0.73	U	0.76	U
Benzo(a)anthracene	0.39	U									0.73	U	0.73	U	0.76	U
Benzo(a)pyrene	0.39	U									0.73	U	0.73	U	0.76	U
Benzo(b)fluoranthene	0.39	U									0.73	U	0.73	U	0.76	U
Benzo(ghi)perylene	0.39	U									0.73	U	0.73	U	0.76	U
Benzo(k)fluoranthene	0.39	U									0.73	U	0.73	U	0.76	U
Benzoic Acid	1.9	U									3.5	U	3.5	U	3.7	U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AREA 1(COMP) AREA-1 12/15/1996 0-1 ft		AREA 1-1 AREA-1-1 12/15/1996 0-1 ft		AREA 1-2 AREA-1-2 12/15/1996 0-1 ft		AREA 1-4 AREA-1-4 12/15/1996 0-1 ft		AREA 1-5 AREA-1-5 12/15/1996 0-1 ft		BH01 BH1 6/5/1991 4.3-6.3 ft		BH02 BH2 6/5/1991 3.5-5.5 ft		BH03 BH3 6/5/1991 4.2-6.2 ft	
Bis(2-Ethylhexyl)phthalate	0.13	JB									1.4	U	3.5		1.7	
Butylbenzylphthalate	0.39	U									0.73	U	0.73	U	0.76	U
Chrysene	0.39	U									0.73	U	0.73	U	0.76	U
Dibenz(a,h)anthracene	0.39	U									0.73	U	0.73	U	0.76	U
Diethylphthalate	0.044	JB									0.73	U	0.73	U	0.76	U
Di-n-butylphthalate	0.027	JB									0.73	U	0.73	U	0.76	U
Di-n-octylphthalate	0.39	U									0.73	U	0.73	U	0.76	U
Fluoranthene	0.39	U									0.73	U	0.73	U	0.76	U
Indeno(1,2,3-cd)pyrene	0.39	U									0.73	U	0.73	U	0.76	U
Naphthalene	0.39	U									0.73	U	0.73	U	0.76	U
N-Nitrosodiphenylamine	0.39	U									0.73	U	0.16	J	0.76	U
Phenanthrene	0.39	U									0.73	U	0.73	U	0.76	U
Phenol	0.39	U									0.73	U	0.73	U	0.76	U
Pyrene	0.39	U									0.73	U	0.73	U	0.76	U
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.0038	U									0.035	U	0.035	U	0.035	U
4,4'-DDE	0.0038	U									0.035	U	0.035	U	0.035	U
4,4'-DDT	0.0038	U									0.035	U	0.035	U	0.035	U
Aldrin	0.002	U									0.018	U	0.018	U	0.018	U
Alpha-BHC	0.002	U									0.018	U	0.018	U	0.018	U
Alpha-Chlordane	0.002	U									0.18	U	0.18	U	0.18	U
Beta-BHC	0.002	U									0.018	U	0.018	U	0.018	U
Chlordane (technical)	0.002	U									0.18	U	0.18	U	0.18	U
Dieldrin	0.0038	U									0.035	U	0.035	U	0.035	U
Endosulfan I	0.002	U									0.018	U	0.018	U	0.018	U
Endrin	0.0038	U									0.035	U	0.035	U	0.035	U
Endrin aldehyde	0.0038	U														
Endrin ketone	0.0038	U									0.035	U	0.035	U	0.045	
Gamma-BHC/Lindane	0.002	U									0.018	U	0.018	U	0.048	
Heptachlor	0.002	U									0.018	U	0.018	U	0.018	U
Heptachlor epoxide	0.002	U									0.018	U	0.018	U	0.018	U
Inorganics (mg/Kg)																
Aluminum	2250	E									7600		8300		9000	
Arsenic	1.2	B									**8**		**12**		**21**	
Barium	5.8	B									16		30		29	
Beryllium	0.18	U									1.5	U	1.5	U	1.5	U
Cadmium	0.18	U									1	U	1	U	1.8	
Calcium	1000										16000		3700		8700	
Chromium	9.1	E									100		21		36	
Cobalt	1.3	B									2.9		3.8		5	

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	AREA 1(COMP) AREA-1 12/15/1996 0-1 ft		AREA 1-1 AREA-1-1 12/15/1996 0-1 ft		AREA 1-2 AREA-1-2 12/15/1996 0-1 ft		AREA 1-4 AREA-1-4 12/15/1996 0-1 ft		AREA 1-5 AREA-1-5 12/15/1996 0-1 ft		BH01 BH1 6/5/1991 4.3-6.3 ft		BH02 BH2 6/5/1991 3.5-5.5 ft		BH03 BH3 6/5/1991 4.2-6.2 ft	
Copper	2.9	B									8.2		9.8		10	
Iron	2090	E									7800		9500		11000	
Lead	2										10	U	11		10	U
Magnesium	706	BE									1900		2600		4000	
Manganese	27.7	E									72		140		130	
Mercury	0.11	N									0.1	U	0.1	U	0.1	U
Nickel	4	B									6.7		11		18	
Potassium	222	B									670		1100		1800	
Sodium	50.8	B									67		79		100	
Thallium	1.4	UN									0.5	U	0.5	U	0.5	U
Vanadium	4.3	B									12		12		17	
Zinc	13.1										21		24		30	
Chloride											100	J	57	J	40	UJ
Nitrogen, as Ammonia	143										210	J	91	J	28	J
Percent Moisture **(%)**																
Percent Solids **(%)**	63						56		88		90		93		88	
pH **(pH units)**																
Sulfate	270										1400	J	13000	J	2700	J
Total Organic Carbon											16000	J	7700	J	6600	J
EPH (mg/Kg)																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH04 BH4 6/5/1991 6.3-8.3 ft		BH06 BH6 6/6/1991 4.4-6.4 ft		BH07 BH7 6/6/1991 3-5 ft		BH08 BH8 6/7/1991 3-5 ft		BH09 BH9 6/7/1991 2.6-4.6 ft		BH10 BH10 6/7/1991 3.8-5.8 ft		BS017PND BS017 1/21/1997 0-0 ft		CPD-1-A (0-3 FT) CPDA-1-A 1/24/2000 2.90-5.09 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.028	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U				
1,1-Dichloroethene	0.028	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U				
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,3,5-Trimethylbenzene																
2,4,4-Trimethyl-1-pentene	0.011	U	0.011	U	0.011	U	0.035		3.3	J	0.018					
2,4,4-Trimethyl-2-pentene	0.011	U	0.011	U	0.011	U	0.016		0.91	J	0.01	J				
2-Butanone	0.003	J	0.001	J	0.016	U	0.016	U	0.016	U	0.018	U				
2-Hexanone	0.082	U	0.016	U	0.016	U	0.016	U	0.061		0.018	U				
4-iso-Propyltoluene																
Acetone	0.46		0.016	U	0.016	U	0.016	U	0.019	U	0.018	U				
Benzene	0.028	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U				
Chloroform	0.028	U	0.0055	U	0.0055	U	0.0055	U	0.002	J	0.006	U				
Ethyl benzene	0.028	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U				
Isopropylbenzene																
Methylene chloride	0.055	U	0.011	U	0.011	U	0.011	U	0.011	U	0.012	U				
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene	0.028	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U				
Tetrachloroethene	0.028	U	0.0055	U	0.0055	U	0.0055	U	0.001	J	0.006	U				
Toluene	0.028	U	0.0055	U	0.0055	U	0.001	J	0.001	J	0.001	J				
Trichloroethene	0.028	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U				
Xylene, o																
Xylenes (m&p)																
Xylenes, Total	0.028	U	0.0055	U	0.0055	U	0.0055	U	0.0055	U	0.006	U				
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.76	U	0.73	U	0.73	U	0.086	J	0.69	U	0.075	J	1.8	U		
2-Methylnaphthalene	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.79	U	1.8	U		
2-Methylphenol	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.79	U	1.8	U		
4-Methylphenol	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.79	U	1.8	U		
Acenaphthylene	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.79	U	1.8	U		
Anthracene	0.76	U	0.73	U	0.73	U	0.73	U	0.028	J	0.79	U	0.01	J		
Benzo(a)anthracene	0.76	U	0.73	U	0.73	U	0.73	U	0.08	J	0.79	U	1.8	U		
Benzo(a)pyrene	0.76	U	0.73	U	0.73	U	0.73	U	0.055	J	0.79	U	1.8	U		
Benzo(b)fluoranthene	0.76	U	0.73	U	0.73	U	0.73	U	0.084	J	0.79	U	1.8	U		
Benzo(ghi)perylene	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.79	U	1.8	U		
Benzo(k)fluoranthene	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.79	U	1.8	U		
Benzoic Acid	3.7	U	3.5	U	3.5	U	3.5	U	3.4	U	3.8	U	8.8	U		

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH04 BH4 6/5/1991 6.3-8.3 ft		BH06 BH6 6/6/1991 4.4-6.4 ft		BH07 BH7 6/6/1991 3-5 ft		BH08 BH8 6/7/1991 3-5 ft		BH09 BH9 6/7/1991 2.6-4.6 ft		BH10 BH10 6/7/1991 3.8-5.8 ft		BS017PND BS017 1/21/1997 0-0 ft		CPD-1-A (0-3 FT) CPDA-1-A 1/24/2000 2.90-5.09 ft	
Bis(2-Ethylhexyl)phthalate	27	J	0.82	U	2.5		3.9		0.69	U	8.2		8.6	B		
Butylbenzylphthalate	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.035	J	1.8	U		
Chrysene	0.76	U	0.73	U	0.73	U	0.73	U	0.086	J	0.79	U	1.8	U		
Dibenz(a,h)anthracene	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.79	U	1.8	U		
Diethylphthalate	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.79	U	0.053	JB		
Di-n-butylphthalate	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.79	U	0.046	JB		
Di-n-octylphthalate	0.073	J	0.06	J	0.014	J	0.73	U	0.69	U	0.79	U	1.8	U		
Fluoranthene	0.76	U	0.73	U	0.73	U	0.73	U	0.16	J	0.79	U	0.037	J		
Indeno(1,2,3-cd)pyrene	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.79	U	1.8	U		
Naphthalene	0.76	U	0.73	U	0.73	U	0.73	U	0.69	U	0.63	J	1.8	U		
N-Nitrosodiphenylamine	0.29	J	0.73	U	0.15	J	0.57	J	0.69	U	0.98		0.26	J		
Phenanthrene	0.76	U	0.73	U	0.73	U	0.73	U	0.12	J	0.79	U	0.044	J		
Phenol	0.76	U	0.73	U	0.73	U	0.1	J	0.69	U	0.075	J	1.8	U		
Pyrene	0.76	U	0.73	U	0.73	U	0.73	U	0.13	J	0.79	U	0.039	J		
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.035	U	0.035	U	0.035	U	0.035	U	0.034	U	0.038	U	0.00019	J		
4,4'-DDE	0.035	U	0.035	U	0.035	U	0.035	U	0.034	U	0.038	U	0.0016	J		
4,4'-DDT	0.035	U	0.035	U	0.035	U	0.035	U	0.034	U	0.038	U	0.0032	J		
Aldrin	0.018	U	0.018	U	0.018	U	0.018	U	0.017	U	0.019	U	0.0023	U		
Alpha-BHC	0.018	U	0.018	U	0.018	U	0.018	U	0.017	U	0.019	U	0.00056	J		
Alpha-Chlordane	0.18	U	0.18	U	0.18	UJ	0.18	U	0.17	U	0.19	U	0.0023	U		
Beta-BHC	0.018	U	0.018	U	0.018	U	0.018	U	0.017	U	0.019	U	0.0023	U		
Chlordane (technical)	0.18	U	0.18	U	0.18	UJ	0.18	U	0.17	U	0.19	U	0.0023	U		
Dieldrin	0.035	U	0.035	U	0.035	U	0.035	U	0.034	U	0.038	U	0.0004	J		
Endosulfan I	0.018	U	0.018	U	0.018	U	0.018	U	0.017	U	0.019	U	0.0023	U		
Endrin	0.035	U	0.035	U	0.035	U	0.035	U	0.034	U	0.038	U	0.0045	U		
Endrin aldehyde													0.0045	U		
Endrin ketone	0.035	U	0.035	U	0.035	UJ	0.035	U	0.034	U	0.038	U	0.0045	U		
Gamma-BHC/Lindane	0.018	U	0.018	U	0.018	U	0.018	U	0.017	U	0.019	U	0.0014	J		
Heptachlor	0.018	U	0.018	U	0.018	U	0.018	U	0.017	U	0.019	U	0.0023	U		
Heptachlor epoxide	0.018	U	0.018	U	0.018	U	0.018	U	0.017	U	0.019	U	0.0023	U		
Inorganics (mg/Kg)																
Aluminum	9200		10000		7900		4100		9800		460		4810		4800	
Arsenic	**13**		**16**		**4.3**		**4.6**		**13**		1.1		**24.5**			
Barium	36		39		28		14		23		6.6		9.2	B	9.1	
Beryllium	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	0.24	U	0.12	
Cadmium	1.4		1.2		1	U	1.4		1.2		1	U	0.24	U	0.2	U
Calcium	4900		2500		4300		4500		1600		2600		371	B	560	
Chromium	41		25		160		22		27		7.3		305		24	
Cobalt	6.2		7.2		2.3		1.8		5.2		1.5	U	1.9	B	1.7	

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	BH04 BH4 6/5/1991 6.3-8.3 ft		BH06 BH6 6/6/1991 4.4-6.4 ft		BH07 BH7 6/6/1991 3-5 ft		BH08 BH8 6/7/1991 3-5 ft		BH09 BH9 6/7/1991 2.6-4.6 ft		BH10 BH10 6/7/1991 3.8-5.8 ft		BS017PND BS017 1/21/1997 0-0 ft		CPD-1-A (0-3 FT) CPDA-1-A 1/24/2000 2.90-5.09 ft	
Copper	47		14		12		4		10		2.5	U	4.3	B	23	U
Iron	14000		13000		9400		5100		15000		840		20000	*	3500	
Lead	52		10	U	10	U	10	U	10	U	10	U	14.1		3.4	
Magnesium	3800		4000		2300		1800		4700		150		325	B	950	
Manganese	230		250		140		76		320		7.6		99.9		34	
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.12	U	0.05	U
Nickel	14		18		8.9		4.8		12		4	U	1.8	B	4.4	
Potassium	1400		2100		1100		1000		1300		160		119	BE	230	
Sodium	240		160		140		95		140		70		85.4	BE	80	
Thallium	0.5	U	0.64	U	0.5	U	0.5	U	0.5	U	0.5	U	1.7	U	0.8	U
Vanadium	21		18		16		5.9		18		1.5	U	18.4		6.7	
Zinc	84		31		17		14		27		2.5	U	7	E	11	
Chloride	40	UJ	88	J	71	J	40	UJ	40	UJ	62	J				
Nitrogen, as Ammonia	100	J	30	J	48	J	33	J	8.4	J	72	J				
Percent Moisture **(%)**																
Percent Solids **(%)**	88		93		90		92		95		84				81.9	
pH **(pH units)**																
Sulfate	33000	J	1300	J	680	J	2000	J	210	J	6100	J				
Total Organic Carbon	28000	J			8700											
EPH (mg/Kg)																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	CPDA-1 CPDA-1 12/16/1996 0-1 ft		CPDA-2 CPDA-2 12/16/1996 0-1 ft		CPDA-3 CPDA-3 12/16/1996 0-1 ft		CPDA-4 CPDA-4 12/16/1996 0-1 ft		DRMA(COMP A) DRMA-COMP-A 12/15/1996 0-1 ft		DRMA(COMP B) DRMA-COMP-B 12/15/1996 0-1 ft		DRMB-(COMP) DRMB-COMP 12/15/1996 0-1 ft		G1-DRMB G1-DRMB 12/15/1996 0-1 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.007	U	0.011	U	0.007	U	0.014	U							0.013	
1,1-Dichloroethene	0.007	U	0.011	U	0.007	U	0.014	U							0.006	U
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,3,5-Trimethylbenzene																
2,4,4-Trimethyl-1-pentene	0.007	U	0.011	U	0.007	UJ	0.014	J							0.006	U
2,4,4-Trimethyl-2-pentene	0.007	U	0.011	U	0.007	U	0.014	U							0.006	U
2-Butanone	0.014	U	0.022	U	0.013	U	0.028	U							0.001	J
2-Hexanone	0.014	U	0.022	U	0.013	UJ	0.028	UJ							0.011	U
4-iso-Propyltoluene																
Acetone	0.013	J	0.056		0.031	U	0.06	U							0.008	JB
Benzene	0.007	U	0.011	U	0.007	U	0.014	U							0.006	U
Chloroform	0.007	U	0.011	U	0.007	U	0.014	U							0.006	U
Ethyl benzene	0.007	U	0.011	U	0.007	U	0.014	U							0.006	U
Isopropylbenzene																
Methylene chloride	0.007	U	0.004	J	0.007	U	0.014	U							0.006	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene	0.007	U	0.011	U	0.007	U	0.014	U							0.006	U
Tetrachloroethene	0.007	U	0.011	U	0.007	U	0.014	U							0.006	U
Toluene	0.007	U	0.011	U	0.007	U	0.005	J							0.006	U
Trichloroethene	0.007	U	0.011	U	0.007	U	0.014	U							0.006	U
Xylene, o																
Xylenes (m&p)																
Xylenes, Total	0.007	U	0.011	U	0.007	U	0.014	U							0.006	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene	0.66	U	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.1	J		
2-Methylnaphthalene	0.66	U	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.38	U		
2-Methylphenol	0.66	U	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.049	J		
4-Methylphenol	0.66	U	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.34	J		
Acenaphthylene	0.66	U	0.63	U	0.96	U	0.066	J	9.1	U	1.6	U	0.38	U		
Anthracene	0.66	U	0.63	U	0.96	U	0.057	J	9.1	U	1.6	U	0.02	J		
Benzo(a)anthracene	0.035	J	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.047	J		
Benzo(a)pyrene	0.042	J	0.63	U	0.96	U	0.66	U			1.6	U	0.38	U		
Benzo(b)fluoranthene	0.051	J	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.38	U		
Benzo(ghi)perylene	0.66	U	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.38	U		
Benzo(k)fluoranthene	0.055	J	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.38	U		
Benzoic Acid	3.2	U	0.2	J	4.6	U	0.26	J	44	U	7.8	U	0.64	J		

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	CPDA-1 CPDA-1 12/16/1996 0-1 ft		CPDA-2 CPDA-2 12/16/1996 0-1 ft		CPDA-3 CPDA-3 12/16/1996 0-1 ft		CPDA-4 CPDA-4 12/16/1996 0-1 ft		DRMA(COMP A) DRMA-COMP-A 12/15/1996 0-1 ft		DRMA(COMP B) DRMA-COMP-B 12/15/1996 0-1 ft		DRMB-(COMP) DRMB-COMP 12/15/1996 0-1 ft		G1-DRMB G1-DRMB 12/15/1996 0-1 ft	
Bis(2-Ethylhexyl)phthalate	0.85	B	0.54	JB	5.3		1.1		1.3	JB	5.3	B	2.9	B		
Butylbenzylphthalate	0.66	U	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.38	U		
Chrysene	0.052	J	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.052	J		
Dibenz(a,h)anthracene	0.66	U	0.63	U	0.96	U	0.66	U			1.6	U	0.38	U		
Diethylphthalate	0.036	J	0.024	J	0.96	U	0.66	U	9.1	U	1.6	U	0.38	U		
Di-n-butylphthalate	0.067	JB	0.023	JB	0.96	U	0.66	U	0.2	JB	0.13	JB	0.33	JB		
Di-n-octylphthalate	0.66	U	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.38	U		
Fluoranthene	0.1	J	0.63	U	0.96	U	0.098	J	9.1	U	0.045	J	0.11	J		
Indeno(1,2,3-cd)pyrene	0.66	U	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.38	U		
Naphthalene	0.66	U	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	0.099	J		
N-Nitrosodiphenylamine	0.66	U	0.63	U	0.96	U	0.66	U	2.8	J	2.7		1			
Phenanthrene	0.052	J	0.63	U	0.96	U	0.12	J	9.1	U	1.6	U	0.074	J		
Phenol	0.66	U	0.63	U	0.96	U	0.66	U	9.1	U	1.6	U	2.4			
Pyrene	0.076	J	0.63	U	0.96	U	0.068	J	9.1	U	1.6	U	0.12	J		
Pesticides/PCBs (mg/Kg)																
4,4'-DDD	0.0016	J	0.0063	U	0.0013	J	0.0066	U	0.0034	J	0.0017	J	0.017	J		
4,4'-DDE	0.002	J	0.0063	U	0.0026	J	0.0066	U	0.0037	U	0.0019	J	0.019	U		
4,4'-DDT	0.006	U	0.0063	U	0.012	J	0.0066	UJ	0.0031	J	0.0064		0.03			
Aldrin	0.0031	U	0.00096	J	0.0035	U	0.00011	J	0.00046	J	0.0012	J	0.0098	U		
Alpha-BHC	0.0031	U	0.0033	U	0.0035	U	0.0034	U	0.005		0.0016	J	0.0098	U		
Alpha-Chlordane	0.0049		0.0033	U	0.0035	U	0.0034	U	0.0036		0.0045		0.052			
Beta-BHC	0.0031	U	0.0033	U	0.0035	U	0.0034	U	0.0019	U	0.002	U	0.0098	U		
Chlordane (technical)	0.0031	U	0.0033	U	0.0035	UJ	0.0034	UJ	0.0019	U	0.0088		0.0098	U		
Dieldrin	0.006	U	0.0063	U	0.0069	U	0.0066	U	0.0037	U	0.0069		0.019	U		
Endosulfan I	0.0019	J	0.0033	U	0.0035	U	0.0034	U	0.0056		0.0047		0.099			
Endrin	0.006	U	0.0063	U	0.0069	U	0.0066	U	0.0037	U	0.0038	U	0.019	U		
Endrin aldehyde	0.006	U	0.0063	U	0.0069	U	0.0066	U	0.0037	U	0.0038	U	0.019	U		
Endrin ketone	0.006	U	0.0063	U	0.0031	J	0.0066	UJ	0.0048		0.0038	U	0.019	U		
Gamma-BHC/Lindane	0.00073	J	0.0033	U	0.0061		0.0034	U	0.0047		0.0034		0.17			
Heptachlor	0.0031	U	0.0033	U	0.0035	U	0.0004	J	0.0019	U	0.00087	J	0.0098	U		
Heptachlor epoxide	0.0031	U	0.0033	U	0.0035	U	0.0034	U	0.0019	U	0.0028		0.0098	U		
Inorganics (mg/Kg)																
Aluminum									5560		12900		4070			
Arsenic									**9.7**		**30.9**		**3.8**			
Barium									22.3	B	43.2		13.9	B		
Beryllium									0.32	B	0.61	B	0.21	U		
Cadmium									0.21	U	0.19	U	0.21	U		
Calcium									2060		1850		2580			
Chromium	3010	*N	3.6	*N	270		17		24.1	*N	40.2	*N	52.6	*N		
Cobalt									3.9	B	11.3		1.9	B		

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	CPDA-1 CPDA-1 12/16/1996 0-1 ft	CPDA-2 CPDA-2 12/16/1996 0-1 ft	CPDA-3 CPDA-3 12/16/1996 0-1 ft	CPDA-4 CPDA-4 12/16/1996 0-1 ft	DRMA(COMP A) DRMA-COMP-A 12/15/1996 0-1 ft	DRMA(COMP B) DRMA-COMP-B 12/15/1996 0-1 ft	DRMB-(COMP) DRMB-COMP 12/15/1996 0-1 ft	G1-DRMB G1-DRMB 12/15/1996 0-1 ft
Copper					9.7	21.7	6.2	
Iron					7580	17200	3720	
Lead					9.4	17	19.5	
Magnesium					1920	4880	668 B	
Manganese					109	351	44.5	
Mercury					0.11	0.09 U	0.38	
Nickel					10.2	30.1	3.5 B	
Potassium					652 B	1840	190 B	
Sodium					131 B	174 B	79 B	
Thallium					1.8 B	1.8 B	1.7 U	
Vanadium					11.3	24.9	7.2 B	
Zinc					37.2 E	63 E	41.4 E	
Chloride								
Nitrogen, as Ammonia	363	126	153	161	47.4	93	263	
Percent Moisture **(%)**								
Percent Solids **(%)**								
pH **(pH units)**								
Sulfate	590	26800	650	24900	2310	260	5110	
Total Organic Carbon								
EPH (mg/Kg)								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	G2-DRMB G2-DRMB 12/15/1996 0-1 ft		G3-DRMB G3-DRMB 12/15/1996 0-1 ft		G4-DRMB G4-DRMB 12/15/1996 0-1 ft		GA1-DRMA GA1-DRMA 12/15/1996 0-1 ft		GA2-DRMA GA2-DRMA 12/15/1996 0-1 ft		GA3-DRMA GA3-DRMA 12/15/1996 0-1 ft		GA4-DRMA GA4-DRMA 12/15/1996 0-1 ft		GB1-DRMA GB1-DRMA 12/15/1996 0-1 ft	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.016		0.01		0.008		0.002	J	0.005	U	0.005	U	0.008		0.009	
1,1-Dichloroethene	0.007	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,3,5-Trimethylbenzene																
2,4,4-Trimethyl-1-pentene	0.0008	J	0.005	U	0.004	J	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
2,4,4-Trimethyl-2-pentene	0.007	U	0.005	U	0.001	J	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
2-Butanone	0.004	J	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U
2-Hexanone	0.014	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U
4-iso-Propyltoluene																
Acetone	0.022	B	0.009	JB	0.01	JB	0.006	JB	0.007	JB	0.01	JB	0.021	B	0.01	JB
Benzene	0.007	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
Chloroform	0.007	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
Ethyl benzene	0.007	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
Isopropylbenzene																
Methylene chloride	0.007	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene	0.007	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
Tetrachloroethene	0.007	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
Toluene	0.007	U	0.0007	J	0.005	U	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
Trichloroethene	0.007	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
Xylene, o																
Xylenes (m&p)																
Xylenes, Total	0.007	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.006	U	0.005	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene																
2-Methylnaphthalene																
2-Methylphenol																
4-Methylphenol																
Acenaphthylene																
Anthracene																
Benzo(a)anthracene																
Benzo(a)pyrene																
Benzo(b)fluoranthene																
Benzo(ghi)perylene																
Benzo(k)fluoranthene																
Benzoic Acid																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	G2-DRMB G2-DRMB 12/15/1996 0-1 ft	G3-DRMB G3-DRMB 12/15/1996 0-1 ft	G4-DRMB G4-DRMB 12/15/1996 0-1 ft	GA1-DRMA GA1-DRMA 12/15/1996 0-1 ft	GA2-DRMA GA2-DRMA 12/15/1996 0-1 ft	GA3-DRMA GA3-DRMA 12/15/1996 0-1 ft	GA4-DRMA GA4-DRMA 12/15/1996 0-1 ft	GB1-DRMA GB1-DRMA 12/15/1996 0-1 ft
Bis(2-Ethylhexyl)phthalate								
Butylbenzylphthalate								
Chrysene								
Dibenz(a,h)anthracene								
Diethylphthalate								
Di-n-butylphthalate								
Di-n-octylphthalate								
Fluoranthene								
Indeno(1,2,3-cd)pyrene								
Naphthalene								
N-Nitrosodiphenylamine								
Phenanthrene								
Phenol								
Pyrene								
Pesticides/PCBs (mg/Kg)								
4,4'-DDD								
4,4'-DDE								
4,4'-DDT								
Aldrin								
Alpha-BHC								
Alpha-Chlordane								
Beta-BHC								
Chlordane (technical)								
Dieldrin								
Endosulfan I								
Endrin								
Endrin aldehyde								
Endrin ketone								
Gamma-BHC/Lindane								
Heptachlor								
Heptachlor epoxide								
Inorganics (mg/Kg)								
Aluminum								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	G2-DRMB G2-DRMB 12/15/1996 0-1 ft	G3-DRMB G3-DRMB 12/15/1996 0-1 ft	G4-DRMB G4-DRMB 12/15/1996 0-1 ft	GA1-DRMA GA1-DRMA 12/15/1996 0-1 ft	GA2-DRMA GA2-DRMA 12/15/1996 0-1 ft	GA3-DRMA GA3-DRMA 12/15/1996 0-1 ft	GA4-DRMA GA4-DRMA 12/15/1996 0-1 ft	GB1-DRMA GB1-DRMA 12/15/1996 0-1 ft
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Sodium								
Thallium								
Vanadium								
Zinc								
Chloride								
Nitrogen, as Ammonia								
Percent Moisture **(%)**								
Percent Solids **(%)**								
pH **(pH units)**								
Sulfate								
Total Organic Carbon								
EPH (mg/Kg)								
C11-C22 Aromatics								
C11-C22 Aromatics (unadj.)								
C19-C36 Aliphatics								
Extractable Petroleum Hydrocarbons, Total								

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	GB2-DRMA GB2-DRMA 12/15/1996 0-1 ft		GB3-DRMA GB3-DRMA 12/15/1996 0-1 ft		GB4-DRMA GB4-DRMA 12/15/1996 0-1 ft		RSO-14-S1 (0-3 FT) RSO-14 1/24/2000 -0.87-2.13 ft		RSO-14-S1 (0-3) RSO-14 1/24/2000 -0.87-2.13 ft		RSO-15-S1 (0-3 FT) RSO-15 1/24/2000 1.52-4.52 ft		RSO-15-S1 (0-3) RSO-15 1/24/2000 1.52-4.52 ft		TP-21-SN8 TP-21 10/8/1991	
Volatile Organics (mg/Kg)																
1,1,1-Trichloroethane	0.005	U	0.01		0.018				0.005	U			0.009	U	0.0009	U
1,1-Dichloroethene	0.005	U	0.006	U	0.006	U			0.005	U			0.009	U	0.0009	U
1,2,3-Trichlorobenzene																
1,2,4-Trichlorobenzene																
1,2,4-Trimethylbenzene																
1,3,5-Trimethylbenzene																
2,4,4-Trimethyl-1-pentene	0.005	U	0.006	U	0.006	U			0.005	U			0.009	U		
2,4,4-Trimethyl-2-pentene	0.005	U	0.006	U	0.006	U			0.005	U			0.009	U		
2-Butanone	0.01	U	0.012	U	0.012	U			0.01	U			0.017	U	0.0027	U
2-Hexanone	0.01	U	0.012	U	0.012	U			0.01	UJ			0.017	UJ	0.0027	U
4-iso-Propyltoluene																
Acetone	0.01	B	0.013	B	0.019				0.01	U			0.017	U	0.0046	U
Benzene	0.005	U	0.006	U	0.006	U			0.005	U			0.009	U	0.0009	U
Chloroform	0.005	U	0.006	U	0.006	U			0.005	U			0.009	U	0.0009	U
Ethyl benzene	0.005	U	0.006	U	0.006	U			0.005	U			0.009	U	0.0009	U
Isopropylbenzene																
Methylene chloride	0.005	U	0.006	U	0.006	U			0.005	U			0.009	U	0.0018	U
Naphthalene																
Propylbenzene																
sec-Butylbenzene																
Styrene	0.005	U	0.006	U	0.006	U			0.005	U			0.009	U	0.0009	U
Tetrachloroethene	0.005	U	0.006	U	0.006	U			0.005	U			0.009	U	0.0009	U
Toluene	0.005	U	0.006	U	0.0009	J			0.005	U			0.009	U	0.0003	J
Trichloroethene	0.005	U	0.006	U	0.006	U			0.005	U			0.009	U	0.0009	U
Xylene, o																
Xylenes (m&p)																
Xylenes, Total	0.005	U	0.006	U	0.006	U			0.005	U			0.009	U	0.0009	U
Semivolatile Organics (mg/Kg)																
1,2,4-Trichlorobenzene									1.4	U			2	U	0.99	UJ
2-Methylnaphthalene									1.4	U			2	U	0.99	UJ
2-Methylphenol									1.4	U			2	U	0.99	UJ
4-Methylphenol									1.4	U			2	U	0.99	UJ
Acenaphthylene									1.4	U			2	U	0.99	UJ
Anthracene									1.4	U			2	U	0.99	UJ
Benzo(a)anthracene									1.4	U			2	U	0.99	UJ
Benzo(a)pyrene									1.4	U			2	U	0.99	UJ
Benzo(b)fluoranthene									1.4	U			2	U	0.99	UJ
Benzo(ghi)perylene									1.4	U			2	U	0.99	UJ
Benzo(k)fluoranthene									1.4	U			2	U	0.99	UJ
Benzoic Acid									6.8	U			9.5	U	4.8	UJ

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	GB2-DRMA GB2-DRMA 12/15/1996 0-1 ft	GB3-DRMA GB3-DRMA 12/15/1996 0-1 ft	GB4-DRMA GB4-DRMA 12/15/1996 0-1 ft	RSO-14-S1 (0-3 FT) RSO-14 1/24/2000 -0.87-2.13 ft	RSO-14-S1 (0-3) RSO-14 1/24/2000 -0.87-2.13 ft	RSO-15-S1 (0-3 FT) RSO-15 1/24/2000 1.52-4.52 ft	RSO-15-S1 (0-3) RSO-15 1/24/2000 1.52-4.52 ft	TP-21-SN8 TP-21 10/8/1991
Bis(2-Ethylhexyl)phthalate					1.4 U		9.5	**1100** J
Butylbenzylphthalate					1.4 U		2 U	0.99 UJ
Chrysene					1.4 U		2 U	0.99 UJ
Dibenz(a,h)anthracene					1.4 U		2 U	0.99 UJ
Diethylphthalate					1.4 U		2 U	0.99 UJ
Di-n-butylphthalate					1.4 U		2 U	1.3 U
Di-n-octylphthalate					1.4 U		2 U	0.88 J
Fluoranthene					1.4 U		2 U	0.99 UJ
Indeno(1,2,3-cd)pyrene					1.4 U		2 U	0.99 UJ
Naphthalene					1.4 U		2 U	0.99 UJ
N-Nitrosodiphenylamine					1.4 U		2 U	0.99 UJ
Phenanthrene					1.4 U		2 U	0.99 UJ
Phenol					1.4 U		2 U	0.99 UJ
Pyrene					1.4 U		2 U	0.99 UJ
Pesticides/PCBs (mg/Kg)								
4,4'-DDD								R
4,4'-DDE								R
4,4'-DDT								R
Aldrin								R
Alpha-BHC								R
Alpha-Chlordane								R
Beta-BHC								R
Chlordane (technical)								R
Dieldrin								R
Endosulfan I								0.036 J
Endrin								R
Endrin aldehyde								R
Endrin ketone								R
Gamma-BHC/Lindane								R
Heptachlor								R
Heptachlor epoxide								R
Inorganics (mg/Kg)								
Aluminum				13000		5500		3100 J
Arsenic								**4** J
Barium				83		13		11
Beryllium				0.1 U		0.21		1.5 U
Cadmium				0.2 U		0.2 U		1 U
Calcium				7900		17000		160000 J
Chromium				65		28		110
Cobalt				15		2.8		1.5 U

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	GB2-DRMA GB2-DRMA 12/15/1996 0-1 ft		GB3-DRMA GB3-DRMA 12/15/1996 0-1 ft		GB4-DRMA GB4-DRMA 12/15/1996 0-1 ft		RSO-14-S1 (0-3 FT) RSO-14 1/24/2000 -0.87-2.13 ft		RSO-14-S1 (0-3) RSO-14 1/24/2000 -0.87-2.13 ft		RSO-15-S1 (0-3 FT) RSO-15 1/24/2000 1.52-4.52 ft		RSO-15-S1 (0-3) RSO-15 1/24/2000 1.52-4.52 ft		TP-21-SN8 TP-21 10/8/1991	
Copper							18	U			18	U			5	
Iron							17000				8200				2600	
Lead							11				10				10	U
Magnesium							8100				1400				440	
Manganese							200				88				49	
Mercury							0.051				0.05	U			0.91	
Nickel							35				6				4	U
Potassium							3900				360				280	
Sodium							110				80				110	
Thallium							1	U			1	U				R
Vanadium							36				14				12	
Zinc							36				19				38	
Chloride															40	UJ
Nitrogen, as Ammonia															47	
Percent Moisture **(%)**																
Percent Solids **(%)**							90.6				85.3					
pH **(pH units)**																
Sulfate															29000	
Total Organic Carbon																
EPH (mg/Kg)																
C11-C22 Aromatics																
C11-C22 Aromatics (unadj.)																
C19-C36 Aliphatics																
Extractable Petroleum Hydrocarbons, Total																

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	WD 1 (West Ditch 1) WD-1 11/4/1999 0-0 ft		WD 2 (West Ditch 2) WD-2 11/4/1999 0-0 ft	
Volatile Organics (mg/Kg)				
1,1,1-Trichloroethane				
1,1-Dichloroethene				
1,2,3-Trichlorobenzene				
1,2,4-Trichlorobenzene				
1,2,4-Trimethylbenzene				
1,3,5-Trimethylbenzene				
2,4,4-Trimethyl-1-pentene				
2,4,4-Trimethyl-2-pentene				
2-Butanone				
2-Hexanone				
4-iso-Propyltoluene				
Acetone				
Benzene				
Chloroform				
Ethyl benzene				
Isopropylbenzene				
Methylene chloride				
Naphthalene				
Propylbenzene				
sec-Butylbenzene				
Styrene				
Tetrachloroethene				
Toluene				
Trichloroethene				
Xylene, o				
Xylenes (m&p)				
Xylenes, Total				
Semivolatile Organics (mg/Kg)				
1,2,4-Trichlorobenzene				
2-Methylnaphthalene				
2-Methylphenol				
4-Methylphenol				
Acenaphthylene				
Anthracene				
Benzo(a)anthracene				
Benzo(a)pyrene				
Benzo(b)fluoranthene				
Benzo(ghi)perylene				
Benzo(k)fluoranthene				
Benzoic Acid				

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	WD 1 (West Ditch 1) WD-1 11/4/1999 0-0 ft		WD 2 (West Ditch 2) WD-2 11/4/1999 0-0 ft	
Bis(2-Ethylhexyl)phthalate				
Butylbenzylphthalate				
Chrysene				
Dibenz(a,h)anthracene				
Diethylphthalate				
Di-n-butylphthalate				
Di-n-octylphthalate				
Fluoranthene				
Indeno(1,2,3-cd)pyrene				
Naphthalene				
N-Nitrosodiphenylamine				
Phenanthrene				
Phenol				
Pyrene				
Pesticides/PCBs (mg/Kg)				
4,4'-DDD				
4,4'-DDE				
4,4'-DDT				
Aldrin				
Alpha-BHC				
Alpha-Chlordane				
Beta-BHC				
Chlordane (technical)				
Dieldrin				
Endosulfan I				
Endrin				
Endrin aldehyde				
Endrin ketone				
Gamma-BHC/Lindane				
Heptachlor				
Heptachlor epoxide				
Inorganics (mg/Kg)				
Aluminum				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	WD 1 (West Ditch 1) WD-1 11/4/1999 0-0 ft		WD 2 (West Ditch 2) WD-2 11/4/1999 0-0 ft	
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Sodium				
Thallium				
Vanadium				
Zinc				
Chloride				
Nitrogen, as Ammonia				
Percent Moisture **(%)**	44.8		40.2	
Percent Solids **(%)**				
pH **(pH units)**				
Sulfate				
Total Organic Carbon				
EPH (mg/Kg)				
C11-C22 Aromatics				
C11-C22 Aromatics (unadj.)				
C19-C36 Aliphatics				
Extractable Petroleum Hydrocarbons, Total				

Appendix F-7
Summary of Detected Chemicals for Inaccessible Soil Samples - Containment Area
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

param.name	Industrial Soil RSL (1) (mg/Kg)	Risk-Based SSL (2) (mg/Kg)	MCL-Based SSL (2) (mg/Kg)	1120-BD-C1 BD-C1 10/10/2000 4.6-4.6 ft	1120-BD-C10 BD-C10 10/12/2000 10.3-10.3 ft	1120-BD-C13 BD-C13 10/12/2000 10.1-10.1 ft	1120-BD-C4 BD-C4 10/10/2000 7.5-7.5 ft	1120-BD-C7 BD-C7 10/12/2000 7.9-7.9 ft

(1) Values are the Industrial Soil Regional Screening Levels (RSLs).
United States Environmental Protection Agency Regions 3, 6, and 9. November 2013. Regional Screening Levels for Chemical Contaminants at Superfund Sites.
http://www.epa.gov/reg3hwmd/risk/human/rb-concentrations_table/index.htm
RSL for 2,4,4-Trimethyl-1-pentene and 2,4,4-Trimethyl-2-pentene calculated consistent with RSL Guidance.
RSL for Chromium (III) used for chromium.
MCP Method 1 Soil category S-2 Standards were used for screening EPH/VPH.
c - RSL is based on an excess lifetime cancer risk of 1 in 1 million.
c* - where n RSL < 100X c RSL.
c** - where n RSL < 10X c RSL.
n - RSL is based on a non-cancer hazard quotient.
nm - RSL is based on a non-cancer hazard quotient; concentration may exceed ceiling limit.
ns - RSL is based on a non-cancer hazard quotient; concentration may exceed Csat.
(2) Values are the Risk- and MCL-based Soil Screening Levels (SSLs) as presented in the RSLs.

mg/Kg = milligram per kilogram

U = not detected, value is the reporting limit
J = value is estimated
B = analyte was detected in both the sample and its associated laboratory blank
C = value is estimated due to surrogate recovery outside of control limits
F = value is estimated due to matrix spike recovery outside of control limits.
G = value is estimated due to duplicate precision outside of control limits

BOLD outlined cells indicate a concentration greater than the Industrial RSL.
Shaded cells indicate a concentration greater than the risk-based or MCL-based SSL.

Prepared by / Date: KJC 02/27/14
Checked by / Date: CTM 03/10/14

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-ISCO1 ISCO1 11/15/2010		OC-SW-ISCO-1-XXX ISCO1 12/10/2010		OC-SW-ISCO1 ISCO1 3/22/2011		OC-SW-ISCO1 ISCO1 5/16/2011		OC-SW-ISCO-1-XXX ISCO1 6/6/2011		OC-SW-ISCO1 ISCO1 8/23/2011		OC-SW-ISCO1 ISCO1 11/8/2011		OC-ISCO1-SW ISCO1 2/23/2012		OC-SW-ISCO1 ISCO1 6/7/2012		OC-SW-ISCO1 ISCO1 8/23/2012		OC-SW-ISCO1 ISCO1 11/16/2012		OC-ISCO1 ISCO1 3/21/2013	
Volatile Organics (mg/L)																								
1,1,1,2-Tetrachloroethane			0.001	U					0.001	U														
1,1,1-Trichloroethane			0.001	U					0.001	U														
1,1,2,2-Tetrachloroethane			0.0005	U					0.0005	U														
1,1,2-Trichloro-1,2,2-Trifluoroethane			0.001	U					0.001	U														
1,1,2-Trichloroethane			0.001	U					0.001	U														
1,1-Dichloroethane			0.001	U					0.001	U														
1,1-Dichloroethene			0.001	U					0.001	U														
1,1-Dichloropropene			0.001	U					0.001	U														
1,2,3-Trichlorobenzene			0.001	U					0.001	U														
1,2,3-Trichloropropane			0.001	U					0.001	U														
1,2,4-Trichlorobenzene			0.001	U					0.001	U														
1,2,4-Trimethylbenzene			0.001	U					0.001	U														
1,2-Dibromo-3-chloropropane			0.005	U					0.005	U														
1,2-Dibromoethane			0.001	U					0.001	U														
1,2-Dichlorobenzene			0.001	U					0.001	U														
1,2-Dichloroethane			0.001	U					0.001	U														
1,2-Dichloropropane			0.001	U					0.001	U														
1,3,5-Trimethylbenzene			0.001	U					0.001	U														
1,3-Dichlorobenzene			0.001	U					0.001	U														
1,3-Dichloropropane			0.001	U					0.001	U														
1,4-Dichlorobenzene			0.001	U					0.001	U														
1,4-Dioxane				R					0.05	U														
2,2-Dichloropropane			0.001	U					0.001	U														
2,4,4-Trimethyl-1-pentene			0.001	U					0.001	UJ														
2,4,4-Trimethyl-2-pentene			0.001	U					0.001	U														
2-Butanone			0.01	U					0.01	U														
2-Chlorotoluene			0.001	U					0.001	U														
2-Hexanone			0.01	U					0.01	U														
4-Chlorotoluene			0.001	U					0.001	U														
4-iso-Propyltoluene			0.001	U					0.001	U														
4-Methyl-2-pentanone			0.01	U					0.01	U														
Acetic acid, methyl ester			0.02	U					0.02	U														
Acetone			0.05	U					0.05	U														
Benzene			0.001	U					0.001	U														
Bromobenzene			0.001	U					0.001	U														
Bromochloromethane			0.001	U					0.001	U														
Bromodichloromethane			0.001	U					0.0005	U														
Bromoform			0.001	UJ					0.001	UJ														
Bromomethane			0.002	U					0.002	U														
Butane, 2-methoxy-2-methyl-			0.005	U					0.005	UJ														
Carbon disulfide			0.00067	J					0.00021	J														
Carbon tetrachloride			0.001	UJ					0.001	UJ														
Chlorobenzene			0.001	U					0.001	U														
Chlorodibromomethane			0.0005	U					0.0005	U														
Chloroethane			0.002	U					0.002	U														
Chloroform			0.001	U					0.001	U														
Chloromethane			0.002	U					0.002	U														
Cis-1,2-Dichloroethene			0.001	U					0.001	U														
cis-1,3-Dichloropropene			0.0004	U					0.0004	U														
Cyclohexane			0.01	U					0.01	U														
Dibromomethane			0.001	U					0.001	U														

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-ISCO1 ISCO1 11/15/2010		OC-SW-ISCO-1-XXX ISCO1 12/10/2010		OC-SW-ISCO1 ISCO1 3/22/2011		OC-SW-ISCO1 ISCO1 5/16/2011		OC-SW-ISCO-1-XXX ISCO1 6/6/2011		OC-SW-ISCO1 ISCO1 8/23/2011		OC-SW-ISCO1 ISCO1 11/8/2011		OC-ISCO1-SW ISCO1 2/23/2012		OC-SW-ISCO1 ISCO1 6/7/2012		OC-SW-ISCO1 ISCO1 8/23/2012		OC-SW-ISCO1 ISCO1 11/16/2012		OC-ISCO1 ISCO1 3/21/2013	
Dichlorodifluoromethane			0.001	UJ					0.001	U														
Diethyl ether			0.01	U					0.01	U														
Ethyl benzene			0.001	U					0.001	U														
Ethyl-t-Butyl Ether			0.005	U					0.005	UJ														
Hexachlorobutadiene			0.0004	U					0.0004	U														
Isopropyl ether			0.01	U					0.01	U														
Isopropylbenzene			0.001	U					0.001	U														
Methyl cyclohexane			0.01	U					0.01	U														
Methyl Tertbutyl Ether			0.001	U					0.001	UJ														
Methylene chloride			0.002	U					0.002	U														
Naphthalene			0.005	U					0.005	U														
n-Butylbenzene			0.001	U					0.001	U														
Propylbenzene			0.001	U					0.001	U														
sec-Butylbenzene			0.001	U					0.001	U														
Styrene			0.001	UJ					0.001	U														
tert-Butylbenzene			0.001	U					0.001	U														
Tetrachloroethene			0.001	U					0.001	U														
Tetrahydrofuran			0.01	U					0.01	U														
Toluene			0.001	U					0.001	U														
trans-1,2-Dichloroethene			0.001	U					0.001	U														
trans-1,3-Dichloropropene			0.0004	U					0.0004	U														
Trichloroethene			0.001	U					0.001	U														
Trichlorofluoromethane			0.001	U					0.001	U														
Vinyl chloride			0.0005	U					0.0005	U														
Xylene, o			0.001	U					0.001	U														
Xylenes (m&p)			0.002	U					0.002	U														
Semivolatile Organics (mg/L)																								
1,2,4,5-Tetrachlorobenzene			0.0045	U					0.0045	U														
1-Methylnaphthalene			0.0045	U					0.0045	U														
2,3,4,6-Tetrachlorophenol			0.0045	U					0.0045	U														
2,4,5-Trichlorophenol			0.0045	U					0.0045	U														
2,4,6-Trichlorophenol			0.0045	U					0.0045	U														
2,4-Dichlorophenol			0.0045	U					0.0045	U														
2,4-Dimethylphenol			0.0045	U					0.0045	U														
2,4-Dinitrophenol			0.0045	U					0.0045	U														
2,4-Dinitrotoluene			0.0045	U					0.0045	U														
2,6-Dinitrotoluene			0.0045	U					0.0045	U														
2-Chloronaphthalene			0.0045	U					0.0045	U														
2-Chlorophenol			0.0045	U					0.0045	U														
2-Methylnaphthalene			0.00091	U					0.00091	U														
2-Methylphenol			0.0045	U					0.0045	U														
2-Nitroaniline			0.0045	U					0.0045	U														
2-Nitrophenol			0.0045	U					0.0045	U														
3 & 4 Methylphenol			0.0045	U					0.0045	U														
3,3'-Dichlorobenzidine				R						R														
3-Nitroaniline			0.0045	U					0.0045	U														
4,6-Dinitro-2-methylphenol			0.0045	U					0.0045	U														
4-Bromophenyl phenyl ether			0.0045	U					0.0045	U														
4-Chloro-3-methylphenol			0.0045	U					0.0045	U														
4-Chloroaniline			0.0045	UJ					0.0045	U														
4-Chlorophenyl phenyl ether			0.0045	U					0.0045	U														
4-Nitroaniline			0.0045	U					0.0045	U														

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-ISCO1 ISCO1 11/15/2010		OC-SW-ISCO-1-XXX ISCO1 12/10/2010		OC-SW-ISCO1 ISCO1 3/22/2011		OC-SW-ISCO1 ISCO1 5/16/2011		OC-SW-ISCO-1-XXX ISCO1 6/6/2011		OC-SW-ISCO1 ISCO1 8/23/2011		OC-SW-ISCO1 ISCO1 11/8/2011		OC-ISCO1-SW ISCO1 2/23/2012		OC-SW-ISCO1 ISCO1 6/7/2012		OC-SW-ISCO1 ISCO1 8/23/2012		OC-SW-ISCO1 ISCO1 11/16/2012		OC-ISCO1 ISCO1 3/21/2013	
4-Nitrophenol			0.0045	UJ					0.0045	U														
Acenaphthene			0.00091	U					0.00091	U														
Acenaphthylene			0.00027	U					0.00027	U														
Acetophenone			0.0045	U					0.0045	U														
Aniline			0.0045	UJ					0.0045	UJ														
Anthracene			0.00091	U					0.00091	U														
Atrazine			0.0045	U					0.0045	U														
Azobenzene			0.0045	U					0.0045	U														
Benzaldehyde			0.0045	U					0.0045	U														
Benzo(a)anthracene			0.00027	U					0.00027	U														
Benzo(a)pyrene			0.00018	U					0.00018	U														
Benzo(b)fluoranthene			0.00027	U					0.00027	UJ														
Benzo(ghi)perylene			0.00045	U					0.00045	U														
Benzo(k)fluoranthene			0.00027	U					0.00027	U														
Benzoic Acid			0.0019	J					0.0019	J														
Benzyl alcohol			0.0091	U					0.0091	U														
Biphenyl			0.0045	U					0.0045	U														
Bis(2-Chloroethoxy)methane			0.0045	U					0.0045	U														
Bis(2-Chloroethyl)ether			0.0045	U					0.0045	U														
Bis(2-Chloroisopropyl)ether			0.0045	U					0.0045	U														
Bis(2-Ethylhexyl)phthalate				R					0.0018	U														
Butylbenzylphthalate			0.0045	U					0.0045	U														
Caprolactam			0.0045	UJ					0.0045	UJ														
Carbazole			0.0045	U					0.0045	U														
Chrysene			0.00091	U					0.00091	U														
Dibenz(a,h)anthracene			0.00045	U					0.00045	U														
Dibenzofuran			0.0045	U					0.0045	U														
Diethylphthalate			0.0045	U					0.0045	U														
Dimethylphthalate			0.0045	U					0.0045	U														
Di-n-butylphthalate			0.0045	U					0.0045	U														
Di-n-octylphthalate			0.0045	U					0.0045	U														
Diphenyl ether			0.0045	U					0.0045	U														
Diphenylamine			0.0045	U					0.0045	U														
Diphenylmethanone			0.0045	U					0.0045	U														
Fluoranthene			0.00091	U					0.00091	U														
Fluorene			0.00091	U					0.00091	U														
Hexachlorobenzene			0.00091	U					0.00091	U														
Hexachlorocyclopentadiene			0.0045	U					0.0045	U														
Hexachloroethane			0.0027	U					0.0027	U														
Indeno(1,2,3-cd)pyrene			0.00045	U					0.00045	U														
Isophorone			0.0045	U					0.0045	U														
Nitrobenzene			0.0045	U					0.0045	U														
N-Nitrosodimethylamine			0.000061						0.000023															
N-Nitrosodi-n-propylamine			0.0000019	U					0.0000019	U														
N-Nitrosodiphenylamine			0.0045	U					0.0045	U														
Pentachlorophenol			0.00091	U					0.00091	U														
Phenanthrene			0.00018	U					0.00018	U														
Phenol			0.0045	UJ					0.0045	UJ														
Pyrene			0.0045	U					0.0045	U														
Metals, Total (mg/L)																								
Aluminum	0.3		0.25		0.26		0.18		0.1		0.15		0.33		0.085	J	0.088	J	0.08	J	0.2		0.17	J
Antimony			0.0037	J					0.006	U														

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-ISCO1 ISCO1 11/15/2010		OC-SW-ISCO-1-XXX ISCO1 12/10/2010		OC-SW-ISCO1 ISCO1 3/22/2011		OC-SW-ISCO1 ISCO1 5/16/2011		OC-SW-ISCO-1-XXX ISCO1 6/6/2011		OC-SW-ISCO1 ISCO1 8/23/2011		OC-SW-ISCO1 ISCO1 11/8/2011		OC-ISCO1-SW ISCO1 2/23/2012		OC-SW-ISCO1 ISCO1 6/7/2012		OC-SW-ISCO1 ISCO1 8/23/2012		OC-SW-ISCO1 ISCO1 11/16/2012		OC-ISCO1 ISCO1 3/21/2013	
Arsenic			0.01	U					0.01	U														
Barium			0.032						0.028															
Beryllium			0.001	U					0.001	U														
Cadmium			0.001	U					0.001	U														
Calcium			27						25															
Chromium	0.027		0.029		0.016		0.012		0.012		0.016		0.03		0.015		0.0096		0.013		0.019		0.013	
Chromium, Hexavalent									0.001	U														
Cobalt			0.014						0.0054	J														
Copper			0.0043	J					0.00049	J														
Iron			8						4.7															
Lead			0.00045	J					0.00032	J														
Magnesium			4.4						4.4															
Manganese			1.1						0.81															
Mercury			0.0002	U					0.0002	U														
Nickel			0.012						0.0042	J														
Potassium			1.5	J					2.2	J														
Selenium			0.01	U					0.01	U														
Silver			0.001	UJ					0.0001	U														
Sodium	79	J	96		88		63		98		73	J	89		100	J	58	J	69		76		120	
Thallium			0.0031	J					0.01	U														
Tin			0.05	U					0.05	U														
Vanadium			0.01	UJ					0.01	U														
Zinc			0.02	J					0.021	J														
Metals, Filtered (mg/L)																								
Aluminum	0.19				0.17		0.074	J			0.04	J	0.15		0.1	J	0.1		0.043	J	0.17	J	0.16	J
Chromium	0.019				0.013		0.0058				0.0086		0.013		0.015		0.011		0.0096		0.017		0.011	
Sodium	87	J			94		74				90	J	98		120	J	64		69		81		130	
Inorganics (mg/L)																								
Bromide			0.17						0.14															
Chloride	130		150		140		110	J	130		110		120		140		100		120		110		190	
Hardness			85						80															
Lab Specific Conductance **(mS/cm)**	0.87				0.7		0.63				0.79		0.76		0.97		0.64		0.68		0.72		0.87	
Nitrate as N	0.38		0.11		0.36		0.14	J	0.05	U	0.08		0.2		0.27		0.27		0.12		0.34	J	0.49	
Nitrite as N	0.01	U	0.01	U	0.1	U	0.01	UJ	0.01	U	0.1	U	0.01	U	0.1	U	0.1	U	0.1	U		R	0.05	U
Nitrogen, as Ammonia	38		40		14		18	J	31	J	37		25		44		23		29		23		14	
Sulfate	220		240		68		89	J	150		130		110		170		98		120		110		63	
Total Organic Carbon			7.6						6.1															
Total Suspended Solids			18						6	J														
VPH (mg/L)																								
Benzene			0.001	U					0.001	U														
Ethyl benzene			0.001	U					0.001	U														
Methyl Tertbutyl Ether			0.001	U					0.001	U														
Naphthalene			0.005	U					0.005	U														
Toluene			0.001	U					0.001	U														
Xylene, o			0.001	U					0.001	U														
Xylenes (m&p)			0.002	U					0.002	U														
C9-C10 Aromatics			0.05	U					0.05	U														
Volatile Petroleum Hydrocarbons, Total			0.05	U					0.05	U														
EPH (mg/L)																								
2-Methylnaphthalene			0.00091	U					0.00091	U														
Acenaphthene			0.00091	U					0.00091	U														
Acenaphthylene			0.00027	U					0.00027	U														

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-ISCO1 ISCO1 11/15/2010		OC-SW-ISCO-1-XXX ISCO1 12/10/2010		OC-SW-ISCO1 ISCO1 3/22/2011		OC-SW-ISCO1 ISCO1 5/16/2011		OC-SW-ISCO-1-XXX ISCO1 6/6/2011		OC-SW-ISCO1 ISCO1 8/23/2011		OC-SW-ISCO1 ISCO1 11/8/2011		OC-ISCO1-SW ISCO1 2/23/2012		OC-SW-ISCO1 ISCO1 6/7/2012		OC-SW-ISCO1 ISCO1 8/23/2012		OC-SW-ISCO1 ISCO1 11/16/2012		OC-ISCO1 ISCO1 3/21/2013	
Anthracene			0.00091	U					0.00091	U														
Benzo(a)anthracene			0.00027	U					0.00027	U														
Benzo(a)pyrene			0.00018	U					0.00018	U														
Benzo(b)fluoranthene			0.00027	U					0.00027	U														
Benzo(ghi)perylene			0.00045	U					0.00045	U														
Benzo(k)fluoranthene			0.00027	U					0.00027	U														
Chrysene			0.00091	U					0.00091	U														
Dibenz(a,h)anthracene			0.00041	U					0.00041	U														
Fluoranthene			0.00091	U					0.00091	U														
Fluorene			0.00091	U					0.00091	U														
Indeno(1,2,3-cd)pyrene			0.00041	U					0.00041	U														
Naphthalene			0.00091	U					0.00091	U														
Phenanthrene			0.00018	U					0.00018	U														
Pyrene			0.00091	U					0.00091	U														
C11-C22 Aromatics			0.091	U					0.091	U														
C19-C36 Aliphatics			0.091	U					0.091	U														
C9-C18 Aliphatics			0.091	U					0.091	U														
Extractable Petroleum Hydrocarbons, Total			0.091	U					0.091	U														
Specialty Compounds (mg/L)																								
Hydrazine			0.0001	U					0.0001	U														
Monomethylhydrazine (MMH)			0.0005	U					0.0005	U														
UDMH			0.0005	U					0.0005	U														
Acetaldehyde			0.03	U					0.03	U														
Formaldehyde			0.015	J					0.03	U														
Dimethylformamide			0.02	U					0.02	UJ														
Phthalic Acid/Phthalic anhydride			0.01	U					0.01	U														
4-(1,1,3,3-Tetramethylbutyl)phenol			0.00094	U					0.00095	U														
4,4'-Isopropylidenediphenol			0.00094	U					0.00095	U														
4-Nonylphenol (Tech.)			0.0047	U					0.0048	U														
Nonylphenol Diethoxylate			0.019	U					0.019	U														
Perchlorate			0.01	U																				
Kempore (Azodicarbonamide)			1	U					1	U														
OPEX			0.1	UJ					0.1	UJ														

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-ISCO1 ISCO1 5/13/2013	OC-ISCO1 ISCO1 8/22/2013	OC-ISCO1 ISCO1 11/21/2013	OC-SW-ISCO2 ISCO2 11/15/2010	OC-SW-ISCO-2-XXX ISCO2 12/9/2010	OC-SW-ISCO2 ISCO2 3/22/2011	OC-SW-ISCO2 ISCO2 5/16/2011	OC-SW-ISCO-2-XXX ISCO2 6/6/2011	OC-SW-ISCO2 ISCO2 8/23/2011	OC-SW-ISCO2 ISCO2 11/8/2011	OC-ISCO2-SW ISCO2 2/23/2012	OC-SW-ISCO2 ISCO2 6/7/2012
Volatile Organics (mg/L)												
1,1,1,2-Tetrachloroethane					0.001 U			0.001 U				
1,1,1-Trichloroethane					0.001 U			0.001 U				
1,1,2,2-Tetrachloroethane					0.0005 U			0.0005 U				
1,1,2-Trichloro-1,2,2-Trifluoroethane					0.001 U			0.001 U				
1,1,2-Trichloroethane					0.001 U			0.001 U				
1,1-Dichloroethane					0.001 U			0.001 U				
1,1-Dichloroethene					0.001 U			0.001 U				
1,1-Dichloropropene					0.001 U			0.001 U				
1,2,3-Trichlorobenzene					0.001 U			0.001 U				
1,2,3-Trichloropropane					0.001 U			0.001 U				
1,2,4-Trichlorobenzene					0.001 U			0.001 U				
1,2,4-Trimethylbenzene					0.001 U			0.001 U				
1,2-Dibromo-3-chloropropane					0.005 U			0.005 U				
1,2-Dibromoethane					0.001 U			0.001 U				
1,2-Dichlorobenzene					0.001 U			0.001 U				
1,2-Dichloroethane					0.001 U			0.001 U				
1,2-Dichloropropane					0.001 U			0.001 U				
1,3,5-Trimethylbenzene					0.001 U			0.001 U				
1,3-Dichlorobenzene					0.001 U			0.001 U				
1,3-Dichloropropane					0.001 U			0.001 U				
1,3-Dichlorobenzene					0.001 U			0.001 U				
1,3-Dichloropropane					0.001 U			0.001 U				
1,4-Dichlorobenzene					0.001 U			0.001 U				
1,4-Dioxane					R			0.05 U				
2,2-Dichloropropane					0.001 U			0.001 U				
2,4,4-Trimethyl-1-pentene					0.0024			0.0019 J				
2,4,4-Trimethyl-2-pentene					0.001 U			0.00045 J				
2-Butanone					0.01 U			0.01 U				
2-Chlorotoluene					0.001 U			0.001 U				
2-Hexanone					0.01 U			0.01 U				
4-Chlorotoluene					0.001 U			0.001 U				
4-iso-Propyltoluene					0.001 U			0.001 U				
4-Methyl-2-pentanone					0.01 U			0.01 U				
Acetic acid, methyl ester					0.02 U			0.02 U				
Acetone					0.05 U			0.05 U				
Benzene					0.001 U			0.001 U				
Bromobenzene					0.001 U			0.001 U				
Bromochloromethane					0.001 U			0.001 U				
Bromodichloromethane					0.001 U			0.0005 U				
Bromoform					0.001 J			0.00067 J				
Bromomethane					0.002 U			0.002 U				
Butane, 2-methoxy-2-methyl-					0.005 U			0.005 UJ				
Carbon disulfide					0.01 U			0.01 U				
Carbon tetrachloride					0.001 UJ			0.001 UJ				
Chlorobenzene					0.001 U			0.001 U				
Chlorodibromomethane					0.0034			0.0005 U				
Chloroethane					0.002 U			0.002 U				
Chloroform					0.00027 J			0.001 U				
Chloromethane					0.002 U			0.002 U				
Cis-1,2-Dichloroethene					0.001 U			0.001 U				
cis-1,3-Dichloropropene					0.0004 U			0.0004 U				
Cyclohexane					0.01 U			0.01 U				
Dibromomethane					0.00032 J			0.001 U				

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-ISCO1 ISCO1 5/13/2013	OC-ISCO1 ISCO1 8/22/2013	OC-ISCO1 ISCO1 11/21/2013	OC-SW-ISCO2 ISCO2 11/15/2010	OC-SW-ISCO-2-XXX ISCO2 12/9/2010	OC-SW-ISCO2 ISCO2 3/22/2011	OC-SW-ISCO2 ISCO2 5/16/2011	OC-SW-ISCO-2-XXX ISCO2 6/6/2011	OC-SW-ISCO2 ISCO2 8/23/2011	OC-SW-ISCO2 ISCO2 11/8/2011	OC-ISCO2-SW ISCO2 2/23/2012	OC-SW-ISCO2 ISCO2 6/7/2012
Dichlorodifluoromethane					0.001 UJ			0.001 U				
Diethyl ether					0.01 U			0.01 U				
Ethyl benzene					0.001 U			0.001 U				
Ethyl-t-Butyl Ether					0.005 U			0.005 UJ				
Hexachlorobutadiene					0.0004 U			0.0004 U				
Isopropyl ether					0.01 U			0.01 U				
Isopropylbenzene					0.001 U			0.001 U				
Methyl cyclohexane					0.01 U			0.01 U				
Methyl Tertbutyl Ether					0.001 U			0.001 UJ				
Methylene chloride					0.002 U			0.002 U				
Naphthalene					0.005 U			0.005 U				
n-Butylbenzene					0.001 U			0.001 U				
Propylbenzene					0.001 U			0.001 U				
sec-Butylbenzene					0.001 U			0.001 U				
Styrene					0.001 U			0.001 U				
tert-Butylbenzene					0.001 U			0.001 U				
Tetrachloroethene					0.001 U			0.001 U				
Tetrahydrofuran					0.01 U			0.01 U				
Toluene					0.001 U			0.001 U				
trans-1,2-Dichloroethene					0.001 U			0.001 U				
trans-1,3-Dichloropropene					0.0004 U			0.0004 U				
Trichloroethene					0.001 U			0.001 U				
Trichlorofluoromethane					0.001 U			0.001 U				
Vinyl chloride					0.0005 U			0.0005 U				
Xylene, o					0.001 U			0.001 U				
Xylenes (m&p)					0.002 U			0.002 U				
Semivolatile Organics (mg/L)												
1,2,4,5-Tetrachlorobenzene					0.0045 U			0.0045 U				
1-Methylnaphthalene					0.0045 U			0.0045 U				
2,3,4,6-Tetrachlorophenol					0.0045 U			0.0045 U				
2,4,5-Trichlorophenol					0.0045 U			0.0045 U				
2,4,6-Trichlorophenol					0.0045 U			0.0045 U				
2,4-Dichlorophenol					0.0045 U			0.0045 U				
2,4-Dimethylphenol					0.0045 U			0.0045 U				
2,4-Dinitrophenol					0.0045 U			0.0045 U				
2,4-Dinitrotoluene					0.0045 U			0.0045 U				
2,6-Dinitrotoluene					0.0045 U			0.0045 U				
2-Chloronaphthalene					0.0045 U			0.0045 U				
2-Chlorophenol					0.0045 U			0.0045 U				
2-Methylnaphthalene					0.00091 U			0.00091 U				
2-Methylphenol					0.0045 U			0.0045 U				
2-Nitroaniline					0.0045 U			0.0045 U				
2-Nitrophenol					0.00057 J			0.00091 J				
3 & 4 Methylphenol					0.0045 U			0.0045 U				
3,3'-Dichlorobenzidine					0.0045 U			0.0045 U				
3-Nitroaniline					0.0045 U			0.0045 U				
4,6-Dinitro-2-methylphenol					0.0045 U			0.0045 U				
4-Bromophenyl phenyl ether					0.0045 U			0.0045 U				
4-Chloro-3-methylphenol					0.0045 U			0.0045 U				
4-Chloroaniline					0.0045 U			0.0045 U				
4-Chlorophenyl phenyl ether					0.0045 U			0.0045 U				
4-Nitroaniline					0.0045 U			0.0045 U				

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-ISCO1 ISCO1 5/13/2013		OC-ISCO1 ISCO1 8/22/2013		OC-ISCO1 ISCO1 11/21/2013		OC-SW-ISCO2 ISCO2 11/15/2010		OC-SW-ISCO-2-XXX ISCO2 12/9/2010		OC-SW-ISCO2 ISCO2 3/22/2011		OC-SW-ISCO2 ISCO2 5/16/2011		OC-SW-ISCO-2-XXX ISCO2 6/6/2011		OC-SW-ISCO2 ISCO2 8/23/2011		OC-SW-ISCO2 ISCO2 11/8/2011		OC-ISCO2-SW ISCO2 2/23/2012		OC-SW-ISCO2 ISCO2 6/7/2012	
4-Nitrophenol									0.0045	UJ					0.0045	U								
Acenaphthene									0.00091	U					0.00091	U								
Acenaphthylene									0.00027	U					0.00027	U								
Acetophenone									0.0045	U					0.0045	U								
Aniline									0.0045	UJ					0.0045	UJ								
Anthracene									0.00091	U					0.00091	U								
Atrazine									0.0045	U					0.0045	U								
Azobenzene									0.0045	U					0.0045	U								
Benzaldehyde									0.0045	U					0.0045	U								
Benzo(a)anthracene									0.00027	U					0.00027	U								
Benzo(a)pyrene									0.00018	U					0.00015	J								
Benzo(b)fluoranthene									0.00027	U					0.00027	UJ								
Benzo(ghi)perylene									0.00045	U					0.00045	U								
Benzo(k)fluoranthene									0.00027	U					0.00027	U								
Benzoic Acid									0.0045	UJ					0.0019	J								
Benzyl alcohol									0.0091	U					0.0091	U								
Biphenyl									0.0045	U					0.0045	U								
Bis(2-Chloroethoxy)methane									0.0045	U					0.0045	U								
Bis(2-Chloroethyl)ether									0.0045	U					0.0045	U								
Bis(2-Chloroisopropyl)ether									0.0045	U					0.0045	U								
Bis(2-Ethylhexyl)phthalate									0.0065	U					0.0061									
Butylbenzylphthalate									0.0045	U					0.0045	U								
Caprolactam									0.0045	UJ					0.0045	UJ								
Carbazole									0.0045	U					0.0045	U								
Chrysene									0.00091	U					0.00091	U								
Dibenz(a,h)anthracene									0.00045	U					0.00045	U								
Dibenzofuran									0.0045	U					0.0045	U								
Diethylphthalate									0.0051	U					0.0045	U								
Dimethylphthalate									0.0045	U					0.0045	U								
Di-n-butylphthalate									0.0045	U					0.0045	U								
Di-n-octylphthalate									0.0045	U					0.0045	U								
Diphenyl ether									0.0045	U					0.0045	U								
Diphenylamine									0.0045	U					0.0045	U								
Diphenylmethanone									0.0045	U					0.00067	J								
Fluoranthene									0.00091	U					0.00091	U								
Fluorene									0.00091	U					0.00091	U								
Hexachlorobenzene									0.00091	U					0.00091	U								
Hexachlorocyclopentadiene									0.0045	U					0.0045	U								
Hexachloroethane									0.0027	U					0.0027	U								
Indeno(1,2,3-cd)pyrene									0.00045	U					0.00045	U								
Isophorone									0.0045	U					0.0045	U								
Nitrobenzene									0.0045	U					0.0045	U								
N-Nitrosodimethylamine									0.00012						0.000078									
N-Nitrosodi-n-propylamine									0.000002	U					0.000002	U								
N-Nitrosodiphenylamine									0.0045	U					0.0045	U								
Pentachlorophenol									0.00091	U					0.00091	U								
Phenanthrene									0.00018	U					0.00018	U								
Phenol									0.0045	UJ					0.0045	UJ								
Pyrene									0.0045	U					0.0045	U								
Metals, Total (mg/L)																								
Aluminum	0.15	J	0.076	J	0.12	J	0.51		0.6	J	1.7		0.6		5.4		0.23		4		0.14		0.8	
Antimony									0.006	U					0.006	U								

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-ISCO1 ISCO1 5/13/2013		OC-ISCO1 ISCO1 8/22/2013		OC-ISCO1 ISCO1 11/21/2013		OC-SW-ISCO2 ISCO2 11/15/2010		OC-SW-ISCO-2-XXX ISCO2 12/9/2010		OC-SW-ISCO2 ISCO2 3/22/2011		OC-SW-ISCO2 ISCO2 5/16/2011		OC-SW-ISCO-2-XXX ISCO2 6/6/2011		OC-SW-ISCO2 ISCO2 8/23/2011		OC-SW-ISCO2 ISCO2 11/8/2011		OC-ISCO2-SW ISCO2 2/23/2012		OC-SW-ISCO2 ISCO2 6/7/2012	
Arsenic									0.0031	J					0.01	U								
Barium									0.025						0.027									
Beryllium									0.001	U					0.00074	J								
Cadmium									0.001	U					0.001	U								
Calcium									56	J					67									
Chromium	0.011		0.0089	B	0.012		0.047		0.11	J	0.26		0.065		1.1		0.051		0.75		0.073		0.17	
Chromium, Hexavalent															0.001	UJ								
Cobalt									0.025						0.032									
Copper									0.0042	J					0.0078									
Iron									2.4	J					13									
Lead									0.001	U					0.0021									
Magnesium									9.9						14									
Manganese									1.4						1.7									
Mercury									0.0002	U					0.0002	U								
Nickel									0.026						0.034									
Potassium									2.2	J					2.2	J								
Selenium									0.01	U					0.01	U								
Silver									0.001	UJ					0.0001	U								
Sodium	98		110		64		120		120	J	73		56		170		150	J	84	J	140		84	J
Thallium									0.01	U					0.01	U								
Tin									0.05	U					0.05	U								
Vanadium									0.01	U					0.01	U								
Zinc									0.057						0.059									
Metals, Filtered (mg/L)																								
Aluminum	0.063	J	0.2	U	0.069	J	0.29				0.36		0.15				0.036	J	0.13		0.15		0.12	
Chromium	0.0062		0.0061		0.0073		0.027				0.049		0.016				0.013		0.027		0.074		0.037	
Sodium	97		100		66		120				76		66				190	J	100	J	150		83	
Inorganics (mg/L)																								
Bromide									0.33						0.43									
Chloride	150		180		110		140		190		90		70	J	180		170		97		130		100	
Hardness									180	J					220									
Lab Specific Conductance **(mS/cm)**	0.82		1		0.6		1.4				0.72		0.74				2.2		0.86		1.5		1	
Nitrate as N	0.21		0.4		0.16		2.8		2.8		1		0.57	J	0.57		0.79		1.1		1.2		0.55	
Nitrite as N	0.021	J	0.05	U	0.05	U	0.017		0.1	U	0.1	U	0.01	UJ	0.1	U	0.1	U	0.01	U	0.1	U	0.1	U
Nitrogen, as Ammonia	28		31		20		61		74		19		28	J	110		98		33		92		46	
Sulfate	110		130		74		470		560		130		190	J	800		580		180		420		250	
Total Organic Carbon									9.7						9.4									
Total Suspended Solids									2						240	J								
VPH (mg/L)																								
Benzene									0.001	U					0.001	U								
Ethyl benzene									0.001	U					0.001	U								
Methyl Tertbutyl Ether									0.001	U					0.001	U								
Naphthalene									0.005	U					0.005	U								
Toluene									0.001	U					0.001	U								
Xylene, o									0.001	U					0.001	U								
Xylenes (m&p)									0.002	U					0.002	U								
C9-C10 Aromatics									0.05	U					0.05	U								
Volatile Petroleum Hydrocarbons, Total									0.05	U					0.05	U								
EPH (mg/L)																								
2-Methylnaphthalene									0.00091	U					0.00091	U								
Acenaphthene									0.00091	U					0.00091	U								
Acenaphthylene									0.00027	U					0.00027	U								

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-ISCO1 ISCO1 5/13/2013	OC-ISCO1 ISCO1 8/22/2013	OC-ISCO1 ISCO1 11/21/2013	OC-SW-ISCO2 ISCO2 11/15/2010	OC-SW-ISCO-2-XXX ISCO2 12/9/2010	OC-SW-ISCO2 ISCO2 3/22/2011	OC-SW-ISCO2 ISCO2 5/16/2011	OC-SW-ISCO-2-XXX ISCO2 6/6/2011	OC-SW-ISCO2 ISCO2 8/23/2011	OC-SW-ISCO2 ISCO2 11/8/2011	OC-ISCO2-SW ISCO2 2/23/2012	OC-SW-ISCO2 ISCO2 6/7/2012
Anthracene					0.00091 U			0.00091 U				
Benzo(a)anthracene					0.00027 U			0.00027 U				
Benzo(a)pyrene					0.00018 U			0.00018 U				
Benzo(b)fluoranthene					0.00027 U			0.00027 U				
Benzo(ghi)perylene					0.00045 U			0.00045 U				
Benzo(k)fluoranthene					0.00027 U			0.00027 U				
Chrysene					0.00091 U			0.00091 U				
Dibenz(a,h)anthracene					0.00041 U			0.00041 U				
Fluoranthene					0.00091 U			0.00091 U				
Fluorene					0.00091 U			0.00091 U				
Indeno(1,2,3-cd)pyrene					0.00041 U			0.00041 U				
Naphthalene					0.00091 U			0.00091 U				
Phenanthrene					0.00018 U			0.00018 U				
Pyrene					0.00091 U			0.00091 U				
C11-C22 Aromatics					0.091 U			0.091 U				
C19-C36 Aliphatics					0.091 U			0.091 U				
C9-C18 Aliphatics					0.091 U			0.091 U				
Extractable Petroleum Hydrocarbons, Total					0.091 U			0.091 U				
Specialty Compounds (mg/L)												
Hydrazine					0.0001 U			0.00008 J				
Monomethylhydrazine (MMH)					0.0005 U			0.0005 U				
UDMH					0.0005 U			0.0005 U				
Acetaldehyde					0.03 U			0.03 U				
Formaldehyde					0.019 J			0.03 U				
Dimethylformamide					0.02 U			0.02 UJ				
Phthalic Acid/Phthalic anhydride					0.01 U			0.01 U				
4-(1,1,3,3-Tetramethylbutyl)phenol					0.00094 U			0.00099 U				
4,4'-Isopropylidenediphenol					0.00094 U			0.00065 J				
4-Nonylphenol (Tech.)					0.0062			0.0056				
Nonylphenol Diethoxylate					0.019 U			0.02 U				
Perchlorate					0.01 U							
Kempore (Azodicarbonamide)					1 U			1.2 N				
OPEX					0.1 UJ			0.1 UJ				

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-ISCO2 ISCO2 8/23/2012		OC-SW-ISCO2 ISCO2 11/16/2012		OC-ISCO2 ISCO2 3/21/2013		OC-ISCO2 ISCO2 5/13/2013		OC-ISCO2 ISCO2 8/22/2013		OC-ISCO2 ISCO2 11/21/2013		OC-SW-PZ-16RR PZ-16RR 11/15/2010		OC-SW-PZ-16RR-XXX PZ-16RR 12/9/2010		OC-SW-PZ-16RRSW PZ-16RR 3/22/2011		OC-SW-PZ-16RRSW PZ-16RR 5/16/2011	
Volatile Organics (mg/L)																				
1,1,1,2-Tetrachloroethane															0.001	U				
1,1,1-Trichloroethane															0.001	U				
1,1,2,2-Tetrachloroethane															0.0005	U				
1,1,2-Trichloro-1,2,2-Trifluoroethane															0.001	U				
1,1,2-Trichloroethane															0.001	U				
1,1-Dichloroethane															0.001	U				
1,1-Dichloroethene															0.001	U				
1,1-Dichloropropene															0.001	U				
1,2,3-Trichlorobenzene															0.001	U				
1,2,3-Trichloropropane															0.001	U				
1,2,4-Trichlorobenzene															0.001	U				
1,2,4-Trimethylbenzene															0.001	U				
1,2-Dibromo-3-chloropropane															0.005	U				
1,2-Dibromoethane															0.001	U				
1,2-Dichlorobenzene															0.001	U				
1,2-Dichloroethane															0.001	U				
1,2-Dichloropropane															0.001	U				
1,3,5-Trimethylbenzene															0.001	U				
1,3-Dichlorobenzene															0.001	U				
1,3-Dichloropropane															0.001	U				
1,3-Dichlorobenzene															0.001	U				
1,3-Dichloropropane															0.001	U				
1,4-Dichlorobenzene															0.001	U				
1,4-Dioxane																R				
2,2-Dichloropropane															0.001	U				
2,4,4-Trimethyl-1-pentene															0.0042					
2,4,4-Trimethyl-2-pentene															0.001	U				
2-Butanone															0.01	U				
2-Chlorotoluene															0.001	U				
2-Hexanone															0.01	U				
4-Chlorotoluene															0.001	U				
4-iso-Propyltoluene															0.001	U				
4-Methyl-2-pentanone															0.01	U				
Acetic acid, methyl ester															0.02	U				
Acetone															0.05	U				
Benzene															0.001	U				
Bromobenzene															0.001	U				
Bromochloromethane															0.001	U				
Bromodichloromethane															0.001	U				
Bromoform															0.0017	J				
Bromomethane															0.002	U				
Butane, 2-methoxy-2-methyl-															0.005	U				
Carbon disulfide															0.01	U				
Carbon tetrachloride															0.001	UJ				
Chlorobenzene															0.001	U				
Chlorodibromomethane															0.0036					
Chloroethane															0.002	U				
Chloroform															0.0005	J				
Chloromethane															0.002	U				
Cis-1,2-Dichloroethene															0.001	U				
cis-1,3-Dichloropropene															0.0004	U				
Cyclohexane															0.01	U				
Dibromomethane															0.00055	J				

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-ISCO2 ISCO2 8/23/2012	OC-SW-ISCO2 ISCO2 11/16/2012	OC-ISCO2 ISCO2 3/21/2013	OC-ISCO2 ISCO2 5/13/2013	OC-ISCO2 ISCO2 8/22/2013	OC-ISCO2 ISCO2 11/21/2013	OC-SW-PZ-16RR PZ-16RR 11/15/2010	OC-SW-PZ-16RR-XXX PZ-16RR 12/9/2010	OC-SW-PZ-16RRSW PZ-16RR 3/22/2011	OC-SW-PZ-16RRSW PZ-16RR 5/16/2011
Dichlorodifluoromethane								0.001 UJ		
Diethyl ether								0.01 U		
Ethyl benzene								0.001 U		
Ethyl-t-Butyl Ether								0.005 U		
Hexachlorobutadiene								0.0004 U		
Isopropyl ether								0.01 U		
Isopropylbenzene								0.001 U		
Methyl cyclohexane								0.01 U		
Methyl Tertbutyl Ether								0.001 U		
Methylene chloride								0.002 U		
Naphthalene								0.005 U		
n-Butylbenzene								0.001 U		
Propylbenzene								0.001 U		
sec-Butylbenzene								0.001 U		
Styrene								0.001 U		
tert-Butylbenzene								0.001 U		
Tetrachloroethene								0.001 U		
Tetrahydrofuran								0.01 U		
Toluene								0.001 U		
trans-1,2-Dichloroethene								0.001 U		
trans-1,3-Dichloropropene								0.0004 U		
Trichloroethene								0.001 U		
Trichlorofluoromethane								0.001 U		
Vinyl chloride								0.0005 U		
Xylene, o								0.001 U		
Xylenes (m&p)								0.002 U		
Semivolatile Organics (mg/L)										
1,2,4,5-Tetrachlorobenzene								0.0045 U		
1-Methylnaphthalene								0.0045 U		
2,3,4,6-Tetrachlorophenol								0.0045 U		
2,4,5-Trichlorophenol								0.0045 U		
2,4,6-Trichlorophenol								0.0045 U		
2,4-Dichlorophenol								0.0045 U		
2,4-Dimethylphenol								0.0045 U		
2,4-Dinitrophenol								0.0045 U		
2,4-Dinitrotoluene								0.0045 U		
2,6-Dinitrotoluene								0.0045 U		
2-Chloronaphthalene								0.0045 U		
2-Chlorophenol								0.0045 U		
2-Methylnaphthalene								0.00091 U		
2-Methylphenol								0.0045 U		
2-Nitroaniline								0.0045 U		
2-Nitrophenol								0.001 J		
3 & 4 Methylphenol								0.0045 U		
3,3'-Dichlorobenzidine								0.0045 U		
3-Nitroaniline								0.0045 U		
4,6-Dinitro-2-methylphenol								0.0045 U		
4-Bromophenyl phenyl ether								0.0045 U		
4-Chloro-3-methylphenol								0.0045 U		
4-Chloroaniline								0.0045 U		
4-Chlorophenyl phenyl ether								0.0045 U		
4-Nitroaniline								0.0045 U		

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-ISCO2 ISCO2 8/23/2012	OC-SW-ISCO2 ISCO2 11/16/2012	OC-ISCO2 ISCO2 3/21/2013	OC-ISCO2 ISCO2 5/13/2013	OC-ISCO2 ISCO2 8/22/2013	OC-ISCO2 ISCO2 11/21/2013	OC-SW-PZ-16RR PZ-16RR 11/15/2010	OC-SW-PZ-16RR-XXX PZ-16RR 12/9/2010	OC-SW-PZ-16RRSW PZ-16RR 3/22/2011	OC-SW-PZ-16RRSW PZ-16RR 5/16/2011
4-Nitrophenol								0.00072 J		
Acenaphthene								0.00091 U		
Acenaphthylene								0.00027 U		
Acetophenone								0.0045 U		
Aniline								0.0045 UJ		
Anthracene								0.00091 U		
Atrazine								0.0045 U		
Azobenzene								0.0045 U		
Benzaldehyde								0.0045 U		
Benzo(a)anthracene								0.00027 U		
Benzo(a)pyrene								0.00018 UJ		
Benzo(b)fluoranthene								0.00027 UJ		
Benzo(ghi)perylene								0.00045 UJ		
Benzo(k)fluoranthene								0.00027 UJ		
Benzoic Acid								0.0018 J		
Benzyl alcohol								0.0091 U		
Biphenyl								0.0045 U		
Bis(2-Chloroethoxy)methane								0.0045 U		
Bis(2-Chloroethyl)ether								0.0045 U		
Bis(2-Chloroisopropyl)ether								0.0045 U		
Bis(2-Ethylhexyl)phthalate								0.0038 U		
Butylbenzylphthalate								0.0045 U		
Caprolactam								0.0045 UJ		
Carbazole								0.0045 U		
Chrysene								0.00091 U		
Dibenz(a,h)anthracene								0.00045 UJ		
Dibenzofuran								0.0045 U		
Diethylphthalate								0.0045 U		
Dimethylphthalate								0.0045 U		
Di-n-butylphthalate								0.0045 U		
Di-n-octylphthalate								0.0045 UJ		
Diphenyl ether								0.00056 J		
Diphenylamine								0.0045 U		
Diphenylmethanone								0.0045 U		
Fluoranthene								0.00091 U		
Fluorene								0.00091 U		
Hexachlorobenzene								0.00091 U		
Hexachlorocyclopentadiene								0.0045 U		
Hexachloroethane								0.0027 U		
Indeno(1,2,3-cd)pyrene								0.00045 UJ		
Isophorone								0.0045 U		
Nitrobenzene								0.0045 U		
N-Nitrosodimethylamine								0.00017		
N-Nitrosodi-n-propylamine								0.000004 U		
N-Nitrosodiphenylamine								0.0045 U		
Pentachlorophenol								0.00091 U		
Phenanthrene								0.00018 U		
Phenol								0.0045 UJ		
Pyrene								0.0045 U		
Metals, Total (mg/L)										
Aluminum	0.16	0.55	0.96	0.38	1.6	1	1.9	2.9	1.8	0.99
Antimony								0.006 U		

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-ISCO2 ISCO2 8/23/2012		OC-SW-ISCO2 ISCO2 11/16/2012		OC-ISCO2 ISCO2 3/21/2013		OC-ISCO2 ISCO2 5/13/2013		OC-ISCO2 ISCO2 8/22/2013		OC-ISCO2 ISCO2 11/21/2013		OC-SW-PZ-16RR PZ-16RR 11/15/2010		OC-SW-PZ-16RR-XXX PZ-16RR 12/9/2010		OC-SW-PZ-16RRSW PZ-16RR 3/22/2011		OC-SW-PZ-16RRSW PZ-16RR 5/16/2011	
Arsenic															0.0035	J				
Barium															0.023					
Beryllium															0.001	U				
Cadmium															0.001	U				
Calcium															57					
Chromium	0.03		0.074		0.13		0.064		0.34	B	0.18		0.39		0.61		0.38		0.19	
Chromium, Hexavalent																				
Cobalt															0.035					
Copper															0.0091	J				
Iron															5.7					
Lead															0.00039	J				
Magnesium															12					
Manganese															1.6					
Mercury															0.0002	U				
Nickel															0.039					
Potassium															2.5	J				
Selenium															0.01	U				
Silver															0.001	UJ				
Sodium	190		120		100		120		160		170		120		150		85	J	69	
Thallium															0.01	U				
Tin															0.05	U				
Vanadium															0.01	U				
Zinc															0.066					
Metals, Filtered (mg/L)																				
Aluminum	0.058	J	0.14	J	0.43		0.13	J	0.31		0.2	U	0.86				0.46		0.18	
Chromium	0.013		0.031		0.068		0.024		0.073		0.019		0.25				0.12		0.062	
Sodium	200		120		100		110		160		180		130				100	J	80	
Inorganics (mg/L)																				
Bromide															0.36					
Chloride	210		140		150		140		160		210		160		200		130		90	J
Hardness															190					
Lab Specific Conductance **(mS/cm)**	2.1		1.3		0.85		1.2		1.5		1.8		1.5				0.82		0.84	
Nitrate as N	2.1		2	J	1.1		0.71		1.5		1.1		2		1.9		1.4		0.47	J
Nitrite as N	0.1	U		R	0.05	U	0.023	J	0.036	J	0.026	J	0.017		0.1	U	0.1	U	0.01	UJ
Nitrogen, as Ammonia	110		50		19		37		55		71		66		77		19		24	J
Sulfate	690		330		150		290		360		490		520		660		120		200	J
Total Organic Carbon															13					
Total Suspended Solids															13					
VPH (mg/L)																				
Benzene															0.001	U				
Ethyl benzene															0.001	U				
Methyl Tertbutyl Ether															0.001	U				
Naphthalene															0.005	U				
Toluene															0.001	U				
Xylene, o															0.001	U				
Xylenes (m&p)															0.002	U				
C9-C10 Aromatics															0.05	U				
Volatile Petroleum Hydrocarbons, Total															0.05	U				
EPH (mg/L)																				
2-Methylnaphthalene															0.00091	U				
Acenaphthene															0.00091	U				
Acenaphthylene															0.00027	U				

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-ISCO2 ISCO2 8/23/2012	OC-SW-ISCO2 ISCO2 11/16/2012	OC-ISCO2 ISCO2 3/21/2013	OC-ISCO2 ISCO2 5/13/2013	OC-ISCO2 ISCO2 8/22/2013	OC-ISCO2 ISCO2 11/21/2013	OC-SW-PZ-16RR PZ-16RR 11/15/2010	OC-SW-PZ-16RR-XXX PZ-16RR 12/9/2010	OC-SW-PZ-16RRSW PZ-16RR 3/22/2011	OC-SW-PZ-16RRSW PZ-16RR 5/16/2011
Anthracene								0.00091 U		
Benzo(a)anthracene								0.00027 U		
Benzo(a)pyrene								0.00018 U		
Benzo(b)fluoranthene								0.00027 U		
Benzo(ghi)perylene								0.00045 U		
Benzo(k)fluoranthene								0.00027 U		
Chrysene								0.00091 U		
Dibenz(a,h)anthracene								0.00041 U		
Fluoranthene								0.00091 U		
Fluorene								0.00091 U		
Indeno(1,2,3-cd)pyrene								0.00041 U		
Naphthalene								0.00091 U		
Phenanthrene								0.00018 U		
Pyrene								0.00091 U		
C11-C22 Aromatics								0.091 U		
C19-C36 Aliphatics								0.091 U		
C9-C18 Aliphatics								0.091 U		
Extractable Petroleum Hydrocarbons, Total								0.091 U		
Specialty Compounds (mg/L)										
Hydrazine								0.0001 U		
Monomethylhydrazine (MMH)								0.0005 U		
UDMH								0.0005 U		
Acetaldehyde								0.03 U		
Formaldehyde								0.021 J		
Dimethylformamide								0.02 U		
Phthalic Acid/Phthalic anhydride								0.01 U		
4-(1,1,3,3-Tetramethylbutyl)phenol								0.00098 U		
4,4'-Isopropylidenediphenol								0.00098 U		
4-Nonylphenol (Tech.)								0.015		
Nonylphenol Diethoxylate								0.02 U		
Perchlorate								0.01 U		
Kempore (Azodicarbonamide)								1 U		
OPEX								0.1 UJ		

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-16RR-XXX PZ-16RR 6/6/2011		OC-SW-PZ-16RRSW PZ-16RR 8/23/2011		OC-SW-PZ16RR PZ-16RR 11/8/2011		OC-SW-PZ16RR-SW PZ-16RR 2/23/2012		OC-SW-PZ-16RRSW PZ-16RR 6/7/2012		OC-SW-PZ-16RRSW PZ-16RR 8/23/2012		OC-SW-PZ-16RRSW PZ-16RR 11/16/2012		OC-PZ-16RRSW PZ-16RR 3/21/2013		OC-PZ-16RRSW PZ-16RR 5/13/2013		OC-PZ-16RRSW PZ-16RR 8/22/2013		OC-PZ-16RRSW PZ-16RR 11/21/2013		OC-SW-PZ-17RR PZ-17RR 11/15/2010	
Volatile Organics (mg/L)																								
1,1,1,2-Tetrachloroethane	0.001	U																						
1,1,1-Trichloroethane	0.001	U																						
1,1,2,2-Tetrachloroethane	0.0005	U																						
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	U																						
1,1,2-Trichloroethane	0.001	U																						
1,1-Dichloroethane	0.001	U																						
1,1-Dichloroethene	0.001	U																						
1,1-Dichloropropene	0.001	U																						
1,2,3-Trichlorobenzene	0.001	U																						
1,2,3-Trichloropropane	0.001	U																						
1,2,4-Trichlorobenzene	0.001	U																						
1,2,4-Trimethylbenzene	0.001	U																						
1,2-Dibromo-3-chloropropane	0.005	U																						
1,2-Dibromoethane	0.001	U																						
1,2-Dichlorobenzene	0.001	U																						
1,2-Dichloroethane	0.001	U																						
1,2-Dichloropropane	0.001	U																						
1,3,5-Trimethylbenzene	0.001	U																						
1,3-Dichlorobenzene	0.0003	J																						
1,3-Dichloropropane	0.001	U																						
1,4-Dichlorobenzene	0.001	U																						
1,4-Dioxane	0.05	U																						
2,2-Dichloropropane	0.001	U																						
2,4,4-Trimethyl-1-pentene	0.0056	J																						
2,4,4-Trimethyl-2-pentene	0.0012																							
2-Butanone	0.01	U																						
2-Chlorotoluene	0.001	U																						
2-Hexanone	0.01	U																						
4-Chlorotoluene	0.001	U																						
4-iso-Propyltoluene	0.001	U																						
4-Methyl-2-pentanone	0.01	U																						
Acetic acid, methyl ester	0.02	U																						
Acetone	0.05	U																						
Benzene	0.001	U																						
Bromobenzene	0.001	U																						
Bromochloromethane	0.001	U																						
Bromodichloromethane	0.00021	J																						
Bromoform	0.0018																							
Bromomethane	0.002	U																						
Butane, 2-methoxy-2-methyl-	0.005	UJ																						
Carbon disulfide	0.01	U																						
Carbon tetrachloride	0.001	UJ																						
Chlorobenzene	0.001	U																						
Chlorodibromomethane	0.00048	J																						
Chloroethane	0.002	U																						
Chloroform	0.00049	J																						
Chloromethane	0.002	U																						
Cis-1,2-Dichloroethene	0.001	U																						
cis-1,3-Dichloropropene	0.0004	U																						
Cyclohexane	0.01	U																						
Dibromomethane	0.00057	J																						

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-16RR-XXX PZ-16RR 6/6/2011		OC-SW-PZ-16RRSW PZ-16RR 8/23/2011		OC-SW-PZ16RR PZ-16RR 11/8/2011		OC-SW-PZ16RR-SW PZ-16RR 2/23/2012		OC-SW-PZ-16RRSW PZ-16RR 6/7/2012		OC-SW-PZ-16RRSW PZ-16RR 8/23/2012		OC-SW-PZ-16RRSW PZ-16RR 11/16/2012		OC-PZ-16RRSW PZ-16RR 3/21/2013		OC-PZ-16RRSW PZ-16RR 5/13/2013		OC-PZ-16RRSW PZ-16RR 8/22/2013		OC-PZ-16RRSW PZ-16RR 11/21/2013		OC-SW-PZ-17RR PZ-17RR 11/15/2010	
Dichlorodifluoromethane	0.001	U																						
Diethyl ether	0.01	U																						
Ethyl benzene	0.001	U																						
Ethyl-t-Butyl Ether	0.005	UJ																						
Hexachlorobutadiene	0.0004	U																						
Isopropyl ether	0.01	U																						
Isopropylbenzene	0.001	U																						
Methyl cyclohexane	0.01	U																						
Methyl Tertbutyl Ether	0.001	UJ																						
Methylene chloride	0.002	U																						
Naphthalene	0.005	U																						
n-Butylbenzene	0.001	U																						
Propylbenzene	0.001	U																						
sec-Butylbenzene	0.001	U																						
Styrene	0.001	U																						
tert-Butylbenzene	0.001	U																						
Tetrachloroethene	0.001	U																						
Tetrahydrofuran	0.01	U																						
Toluene	0.001	U																						
trans-1,2-Dichloroethene	0.001	U																						
trans-1,3-Dichloropropene	0.0004	U																						
Trichloroethene	0.001	U																						
Trichlorofluoromethane	0.001	U																						
Vinyl chloride	0.0005	U																						
Xylene, o	0.001	U																						
Xylenes (m&p)	0.002	U																						
Semivolatile Organics (mg/L)																								
1,2,4,5-Tetrachlorobenzene	0.0045	U																						
1-Methylnaphthalene	0.0045	U																						
2,3,4,6-Tetrachlorophenol	0.0045	U																						
2,4,5-Trichlorophenol	0.0045	U																						
2,4,6-Trichlorophenol	0.0045	U																						
2,4-Dichlorophenol	0.0045	U																						
2,4-Dimethylphenol	0.0045	U																						
2,4-Dinitrophenol	0.0045	U																						
2,4-Dinitrotoluene	0.0045	U																						
2,6-Dinitrotoluene	0.0045	U																						
2-Chloronaphthalene	0.0045	U																						
2-Chlorophenol	0.0045	U																						
2-Methylnaphthalene	0.00091	U																						
2-Methylphenol	0.0045	U																						
2-Nitroaniline	0.0045	U																						
2-Nitrophenol	0.0013	J																						
3 & 4 Methylphenol	0.0045	U																						
3,3'-Dichlorobenzidine	0.0045	U																						
3-Nitroaniline	0.0045	U																						
4,6-Dinitro-2-methylphenol	0.0045	U																						
4-Bromophenyl phenyl ether	0.0045	U																						
4-Chloro-3-methylphenol	0.0045	U																						
4-Chloroaniline	0.0045	U																						
4-Chlorophenyl phenyl ether	0.0045	U																						
4-Nitroaniline	0.0045	U																						

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-16RR-XXX PZ-16RR 6/6/2011		OC-SW-PZ-16RRSW PZ-16RR 8/23/2011		OC-SW-PZ16RR PZ-16RR 11/8/2011		OC-SW-PZ16RR-SW PZ-16RR 2/23/2012		OC-SW-PZ-16RRSW PZ-16RR 6/7/2012		OC-SW-PZ-16RRSW PZ-16RR 8/23/2012		OC-SW-PZ-16RRSW PZ-16RR 11/16/2012		OC-PZ-16RRSW PZ-16RR 3/21/2013		OC-PZ-16RRSW PZ-16RR 5/13/2013		OC-PZ-16RRSW PZ-16RR 8/22/2013		OC-PZ-16RRSW PZ-16RR 11/21/2013		OC-SW-PZ-17RR PZ-17RR 11/15/2010	
4-Nitrophenol	0.0018	J																						
Acenaphthene	0.00091	U																						
Acenaphthylene	0.00027	U																						
Acetophenone	0.0045	U																						
Aniline	0.0045	UJ																						
Anthracene	0.00091	U																						
Atrazine	0.0045	U																						
Azobenzene	0.00046	J																						
Benzaldehyde	0.0045	U																						
Benzo(a)anthracene	0.00027	U																						
Benzo(a)pyrene	0.00018	U																						
Benzo(b)fluoranthene	0.00027	UJ																						
Benzo(ghi)perylene	0.00045	U																						
Benzo(k)fluoranthene	0.00027	U																						
Benzoic Acid	0.002	J																						
Benzyl alcohol	0.0091	U																						
Biphenyl	0.0045	U																						
Bis(2-Chloroethoxy)methane	0.0045	U																						
Bis(2-Chloroethyl)ether	0.0045	U																						
Bis(2-Chloroisopropyl)ether	0.0045	U																						
Bis(2-Ethylhexyl)phthalate	0.0018	U																						
Butylbenzylphthalate	0.0045	U																						
Caprolactam	0.0045	UJ																						
Carbazole	0.0045	U																						
Chrysene	0.00091	U																						
Dibenz(a,h)anthracene	0.00045	U																						
Dibenzofuran	0.0045	U																						
Diethylphthalate	0.0045	U																						
Dimethylphthalate	0.0045	U																						
Di-n-butylphthalate	0.0045	U																						
Di-n-octylphthalate	0.0045	U																						
Diphenyl ether	0.00062	J																						
Diphenylamine	0.0045	U																						
Diphenylmethanone	0.001	J																						
Fluoranthene	0.00091	U																						
Fluorene	0.00091	U																						
Hexachlorobenzene	0.00091	U																						
Hexachlorocyclopentadiene	0.0045	U																						
Hexachloroethane	0.0027	U																						
Indeno(1,2,3-cd)pyrene	0.00045	U																						
Isophorone	0.0045	U																						
Nitrobenzene	0.0045	U																						
N-Nitrosodimethylamine	0.00017	J																						
N-Nitrosodi-n-propylamine	0.0000095	UJ																						
N-Nitrosodiphenylamine	0.0045	U																						
Pentachlorophenol	0.00091	U																						
Phenanthrene	0.00018	U																						
Phenol	0.0045	UJ																						
Pyrene	0.0045	U																						
Metals, Total (mg/L)																								
Aluminum	0.85		1.9		1.8		0.64	J	0.31		0.99		2.3		1.8		1.6		2.3		0.19	J	3.4	
Antimony	0.006	U																						

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-16RR-XXX PZ-16RR 6/6/2011		OC-SW-PZ-16RRSW PZ-16RR 8/23/2011		OC-SW-PZ16RR PZ-16RR 11/8/2011		OC-SW-PZ16RR-SW PZ-16RR 2/23/2012		OC-SW-PZ-16RRSW PZ-16RR 6/7/2012		OC-SW-PZ-16RRSW PZ-16RR 8/23/2012		OC-SW-PZ-16RRSW PZ-16RR 11/16/2012		OC-PZ-16RRSW PZ-16RR 3/21/2013		OC-PZ-16RRSW PZ-16RR 5/13/2013		OC-PZ-16RRSW PZ-16RR 8/22/2013		OC-PZ-16RRSW PZ-16RR 11/21/2013		OC-SW-PZ-17RR PZ-17RR 11/15/2010	
Arsenic	0.01	U																						
Barium	0.023																							
Beryllium	0.0003	J																						
Cadmium	0.001	U																						
Calcium	72																							
Chromium	0.27		0.56		0.38		0.34		0.14	J	0.37		0.53		0.37		0.34		0.67	B	0.041		0.79	
Chromium, Hexavalent																								
Cobalt	0.041																							
Copper	0.0064																							
Iron	4.8																							
Lead	0.0001	U																						
Magnesium	16																							
Manganese	1.9																							
Mercury	0.00029																							
Nickel	0.047																							
Potassium	2.2	J																						
Selenium	0.01	U																						
Silver	0.0001	U																						
Sodium	200		160	J	110	J	150	J	88	J	210		130		130		130		290		230		130	
Thallium	0.01	U																						
Tin	0.05	U																						
Vanadium	0.01	U																						
Zinc	0.075																							
Metals, Filtered (mg/L)																								
Aluminum			1.5		0.069	J	0.76	J	0.36		0.14		1.1		0.53		0.3		1.1		0.12	J	1.6	
Chromium			0.49		0.023		0.36		0.16	J	0.17		0.3		0.17		0.13		0.38		0.028		0.49	
Sodium			200	J	130	J	170	J	95		220		130		120		130		280		230		140	
Inorganics (mg/L)																								
Bromide	0.43																							
Chloride	190		190		120		160		120		230		140		190		160		280		250		160	
Hardness	240																							
Lab Specific Conductance **(mS/cm)**			2.3		0.95		1.6		1.1		2.4		1.4		0.99		1.2		3.4		2.6		1.5	
Nitrate as N	0.26		0.39		1.8		1.1		0.44		0.7		1.3	J	0.6		0.56		0.72		0.87		0.53	
Nitrite as N	0.01	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		R	0.05	U	0.023	J	0.05	U	0.05	U	0.01	U
Nitrogen, as Ammonia	110		110		31		100		48		140		52		23		40		160		120		66	
Sulfate	800		620		160		470		270		830		320		170		310		1100		800		530	
Total Organic Carbon	10																							
Total Suspended Solids	14	J																						
VPH (mg/L)																								
Benzene	0.001	U																						
Ethyl benzene	0.001	U																						
Methyl Tertbutyl Ether	0.001	U																						
Naphthalene	0.005	U																						
Toluene	0.001	U																						
Xylene, o	0.001	U																						
Xylenes (m&p)	0.002	U																						
C9-C10 Aromatics	0.05	U																						
Volatile Petroleum Hydrocarbons, Total	0.05	U																						
EPH (mg/L)																								
2-Methylnaphthalene	0.00091	U																						
Acenaphthene	0.00091	U																						
Acenaphthylene	0.00027	U																						

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-16RR-XXX PZ-16RR 6/6/2011		OC-SW-PZ-16RRSW PZ-16RR 8/23/2011		OC-SW-PZ16RR PZ-16RR 11/8/2011		OC-SW-PZ16RR-SW PZ-16RR 2/23/2012		OC-SW-PZ-16RRSW PZ-16RR 6/7/2012		OC-SW-PZ-16RRSW PZ-16RR 8/23/2012		OC-SW-PZ-16RRSW PZ-16RR 11/16/2012		OC-PZ-16RRSW PZ-16RR 3/21/2013		OC-PZ-16RRSW PZ-16RR 5/13/2013		OC-PZ-16RRSW PZ-16RR 8/22/2013		OC-PZ-16RRSW PZ-16RR 11/21/2013		OC-SW-PZ-17RR PZ-17RR 11/15/2010	
Anthracene	0.00091	U																						
Benzo(a)anthracene	0.00027	U																						
Benzo(a)pyrene	0.00018	U																						
Benzo(b)fluoranthene	0.00027	U																						
Benzo(ghi)perylene	0.00045	U																						
Benzo(k)fluoranthene	0.00027	U																						
Chrysene	0.00091	U																						
Dibenz(a,h)anthracene	0.00041	U																						
Fluoranthene	0.00091	U																						
Fluorene	0.00091	U																						
Indeno(1,2,3-cd)pyrene	0.00041	U																						
Naphthalene	0.00091	U																						
Phenanthrene	0.00018	U																						
Pyrene	0.00091	U																						
C11-C22 Aromatics	0.091	U																						
C19-C36 Aliphatics	0.091	U																						
C9-C18 Aliphatics	0.091	U																						
Extractable Petroleum Hydrocarbons, Total	0.091	U																						
Specialty Compounds (mg/L)																								
Hydrazine	0.0001	U																						
Monomethylhydrazine (MMH)	0.0005	U																						
UDMH	0.0005	U																						
Acetaldehyde	0.03	U																						
Formaldehyde	0.03	U																						
Dimethylformamide	0.02	UJ																						
Phthalic Acid/Phthalic anhydride	0.01	U																						
4-(1,1,3,3-Tetramethylbutyl)phenol	0.00095	U																						
4,4'-Isopropylidenediphenol	0.00096																							
4-Nonylphenol (Tech.)	0.017																							
Nonylphenol Diethoxylate	0.019	U																						
Perchlorate																								
Kempore (Azodicarbonamide)	1.1	U																						
OPEX	0.1	UJ																						

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-17RR-XXX PZ-17RR 12/10/2010		OC-SW-PZ-17RRSW PZ-17RR 3/22/2011		OC-SW-PZ-17RRSW PZ-17RR 5/16/2011		OC-SW-PZ-17RR-XXX PZ-17RR 6/6/2011		OC-SW-PZ-17RRSW PZ-17RR 8/23/2011		OC-SW-PZ17RR PZ-17RR 11/8/2011		OC-SW-PZ-17RR-SW PZ-17RR 2/23/2012		OC-SW-PZ-17RRSW PZ-17RR 6/7/2012		OC-SW-PZ-17RRSW PZ-17RR 8/23/2012		OC-SW-PZ-17RRSW PZ-17RR 11/16/2012		OC-PZ-16RRSW PZ-16RR 3/21/2013		OC-PZ-16RRSW PZ-16RR 5/13/2013	
Volatile Organics (mg/L)																								
1,1,1,2-Tetrachloroethane	0.001	U					0.001	U																
1,1,1-Trichloroethane	0.001	U					0.001	U																
1,1,2,2-Tetrachloroethane	0.0005	U					0.0005	U																
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	U					0.001	U																
1,1,2-Trichloroethane	0.001	U					0.001	U																
1,1-Dichloroethane	0.001	U					0.001	U																
1,1-Dichloroethene	0.001	U					0.001	U																
1,1-Dichloropropene	0.001	U					0.001	U																
1,2,3-Trichlorobenzene	0.001	U					0.001	U																
1,2,3-Trichloropropane	0.001	U					0.001	U																
1,2,4-Trichlorobenzene	0.001	U					0.001	U																
1,2,4-Trimethylbenzene	0.001	U					0.001	U																
1,2-Dibromo-3-chloropropane	0.005	U					0.005	U																
1,2-Dibromoethane	0.001	U					0.001	U																
1,2-Dichlorobenzene	0.001	U					0.001	U																
1,2-Dichloroethane	0.001	U					0.001	U																
1,2-Dichloropropane	0.001	U					0.001	U																
1,3,5-Trimethylbenzene	0.001	U					0.001	U																
1,3-Dichlorobenzene	0.001	U					0.00057	J																
1,3-Dichloropropane	0.001	U					0.001	U																
1,4-Dichlorobenzene	0.001	U					0.001	U																
1,4-Dioxane		R					0.05	U																
2,2-Dichloropropane	0.001	U					0.001	U																
2,4,4-Trimethyl-1-pentene	0.0074						0.01	J																
2,4,4-Trimethyl-2-pentene	0.0007	J					0.002																	
2-Butanone	0.01	U					0.01	U																
2-Chlorotoluene	0.001	U					0.001	U																
2-Hexanone	0.01	U					0.01	U																
4-Chlorotoluene	0.001	U					0.001	U																
4-iso-Propyltoluene	0.001	U					0.001	U																
4-Methyl-2-pentanone	0.01	U					0.01	U																
Acetic acid, methyl ester	0.02	U					0.02	U																
Acetone	0.05	U					0.05	U																
Benzene	0.001	U					0.001	U																
Bromobenzene	0.001	U					0.001	U																
Bromochloromethane	0.001	U					0.001	U																
Bromodichloromethane	0.00036	J					0.00051																	
Bromoform	0.0029	J					0.0034																	
Bromomethane	0.002	U					0.002	U																
Butane, 2-methoxy-2-methyl-	0.005	U					0.005	UJ																
Carbon disulfide	0.00058	J					0.01	U																
Carbon tetrachloride	0.001	UJ					0.001	UJ																
Chlorobenzene	0.001	U					0.001	U																
Chlorodibromomethane	0.0038						0.001																	
Chloroethane	0.002	U					0.002	U																
Chloroform	0.00098	J					0.0012																	
Chloromethane	0.002	U					0.002	U																
Cis-1,2-Dichloroethene	0.001	U					0.001	U																
cis-1,3-Dichloropropene	0.0004	U					0.0004	U																
Cyclohexane	0.01	U					0.01	U																
Dibromomethane	0.001						0.0011																	

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-17RR-XXX PZ-17RR 12/10/2010		OC-SW-PZ-17RRSW PZ-17RR 3/22/2011		OC-SW-PZ-17RRSW PZ-17RR 5/16/2011		OC-SW-PZ-17RR-XXX PZ-17RR 6/6/2011		OC-SW-PZ-17RRSW PZ-17RR 8/23/2011		OC-SW-PZ17RR PZ-17RR 11/8/2011		OC-SW-PZ-17RR-SW PZ-17RR 2/23/2012		OC-SW-PZ-17RRSW PZ-17RR 6/7/2012		OC-SW-PZ-17RRSW PZ-17RR 8/23/2012		OC-SW-PZ-17RRSW PZ-17RR 11/16/2012		OC-PZ-16RRSW PZ-16RR 3/21/2013		OC-PZ-16RRSW PZ-16RR 5/13/2013	
Dichlorodifluoromethane	0.001	UJ					0.001	U																
Diethyl ether	0.01	U					0.01	U																
Ethyl benzene	0.001	U					0.001	U																
Ethyl-t-Butyl Ether	0.005	U					0.005	UJ																
Hexachlorobutadiene	0.0004	U					0.0004	U																
Isopropyl ether	0.01	U					0.01	U																
Isopropylbenzene	0.001	U					0.001	U																
Methyl cyclohexane	0.01	U					0.01	U																
Methyl Tertbutyl Ether	0.001	U					0.001	UJ																
Methylene chloride	0.002	U					0.002	U																
Naphthalene	0.005	U					0.005	U																
n-Butylbenzene	0.001	U					0.001	U																
Propylbenzene	0.001	U					0.001	U																
sec-Butylbenzene	0.001	U					0.001	U																
Styrene	0.001	U					0.001	U																
tert-Butylbenzene	0.001	U					0.001	U																
Tetrachloroethene	0.001	U					0.001	U																
Tetrahydrofuran	0.01	U					0.01	U																
Toluene	0.00046	J					0.00048	J																
trans-1,2-Dichloroethene	0.001	U					0.001	U																
trans-1,3-Dichloropropene	0.0004	U					0.0004	U																
Trichloroethene	0.001	U					0.001	U																
Trichlorofluoromethane	0.001	U					0.001	U																
Vinyl chloride	0.0005	U					0.0005	U																
Xylene, o	0.001	U					0.001	U																
Xylenes (m&p)	0.002	U					0.002	U																
Semivolatile Organics (mg/L)																								
1,2,4,5-Tetrachlorobenzene	0.0045	U					0.0045	U																
1-Methylnaphthalene	0.0045	U					0.0045	U																
2,3,4,6-Tetrachlorophenol	0.0045	U					0.0045	U																
2,4,5-Trichlorophenol	0.0045	U					0.0045	U																
2,4,6-Trichlorophenol	0.0045	U					0.0045	U																
2,4-Dichlorophenol	0.0045	U					0.0045	U																
2,4-Dimethylphenol	0.0045	U					0.0045	U																
2,4-Dinitrophenol	0.0045	U					0.0045	U																
2,4-Dinitrotoluene	0.0045	U					0.0045	U																
2,6-Dinitrotoluene	0.0045	U					0.0045	U																
2-Chloronaphthalene	0.0045	U					0.0045	U																
2-Chlorophenol	0.0045	U					0.0045	U																
2-Methylnaphthalene	0.00091	U					0.00091	U																
2-Methylphenol	0.0045	U					0.0045	U																
2-Nitroaniline	0.0045	U					0.0045	U																
2-Nitrophenol	0.0045	U					0.0018	J																
3 & 4 Methylphenol	0.0045	U					0.0045	U																
3,3'-Dichlorobenzidine	0.0045	U					0.0045	U																
3-Nitroaniline	0.0045	U					0.0045	U																
4,6-Dinitro-2-methylphenol	0.0045	U					0.0045	U																
4-Bromophenyl phenyl ether	0.0045	U					0.0045	U																
4-Chloro-3-methylphenol	0.0045	U					0.0045	U																
4-Chloroaniline	0.0045	U					0.0045	U																
4-Chlorophenyl phenyl ether	0.0045	U					0.0045	U																
4-Nitroaniline	0.0045	U					0.0045	U																

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-17RR-XXX PZ-17RR 12/10/2010		OC-SW-PZ-17RRSW PZ-17RR 3/22/2011		OC-SW-PZ-17RRSW PZ-17RR 5/16/2011		OC-SW-PZ-17RR-XXX PZ-17RR 6/6/2011		OC-SW-PZ-17RRSW PZ-17RR 8/23/2011		OC-SW-PZ17RR PZ-17RR 11/8/2011		OC-SW-PZ-17RR-SW PZ-17RR 2/23/2012		OC-SW-PZ-17RRSW PZ-17RR 6/7/2012		OC-SW-PZ-17RRSW PZ-17RR 8/23/2012		OC-SW-PZ-17RRSW PZ-17RR 11/16/2012		OC-PZ-16RRSW PZ-16RR 3/21/2013		OC-PZ-16RRSW PZ-16RR 5/13/2013	
4-Nitrophenol	0.0016	J					0.0021	J																
Acenaphthene	0.00091	U					0.00091	U																
Acenaphthylene	0.00027	U					0.00027	U																
Acetophenone	0.0045	U					0.0045	U																
Aniline	0.0045	UJ					0.0045	UJ																
Anthracene	0.00091	U					0.00091	U																
Atrazine	0.0045	U					0.0045	U																
Azobenzene	0.0045	U					0.00053	J																
Benzaldehyde	0.0045	U					0.0045	U																
Benzo(a)anthracene	0.00027	U					0.00027	U																
Benzo(a)pyrene	0.00018	U					0.00018	U																
Benzo(b)fluoranthene	0.00027	U					0.00027	UJ																
Benzo(ghi)perylene	0.00045	U					0.00045	U																
Benzo(k)fluoranthene	0.00027	U					0.00027	U																
Benzoic Acid	0.0045	UJ					0.0021	J																
Benzyl alcohol	0.0091	U					0.0091	U																
Biphenyl	0.0045	U					0.0045	U																
Bis(2-Chloroethoxy)methane	0.0045	U					0.0045	U																
Bis(2-Chloroethyl)ether	0.0045	U					0.0045	U																
Bis(2-Chloroisopropyl)ether	0.0045	U					0.0045	U																
Bis(2-Ethylhexyl)phthalate	0.0089	U					0.0018	U																
Butylbenzylphthalate	0.0045	U					0.0045	U																
Caprolactam	0.0045	UJ					0.0045	UJ																
Carbazole	0.0045	U					0.0045	U																
Chrysene	0.00091	U					0.00091	U																
Dibenz(a,h)anthracene	0.00045	U					0.00045	U																
Dibenzofuran	0.0045	U					0.0045	U																
Diethylphthalate	0.0045	U					0.0045	U																
Dimethylphthalate	0.0045	U					0.0045	U																
Di-n-butylphthalate	0.0045	U					0.0045	U																
Di-n-octylphthalate	0.0045	U					0.0045	U																
Diphenyl ether	0.00076	J					0.0011	J																
Diphenylamine	0.0045	U					0.0045	U																
Diphenylmethanone	0.00052	J					0.0012	J																
Fluoranthene	0.00091	U					0.00091	U																
Fluorene	0.00091	U					0.00091	U																
Hexachlorobenzene	0.00091	U					0.00091	U																
Hexachlorocyclopentadiene	0.0045	U					0.0045	U																
Hexachloroethane	0.0027	U					0.0027	U																
Indeno(1,2,3-cd)pyrene	0.00045	U					0.00045	U																
Isophorone	0.0045	U					0.0045	U																
Nitrobenzene	0.0045	U					0.0045	U																
N-Nitrosodimethylamine	0.0003						0.00029	J																
N-Nitrosodi-n-propylamine	0.0000095	U					0.000021	UJ																
N-Nitrosodiphenylamine	0.00047	J					0.00064	J																
Pentachlorophenol	0.00091	U					0.00091	U																
Phenanthrene	0.00018	U					0.00018	U																
Phenol	0.0045	UJ					0.0045	UJ																
Pyrene	0.0045	U					0.0045	U																
Metals, Total (mg/L)																								
Aluminum	11		1.3		1.5		9		5.7		2		1	J	0.54		7.6		3.8		1.8		1.6	
Antimony	0.006	U					0.006	U																

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-17RR-XXX PZ-17RR 12/10/2010		OC-SW-PZ-17RRSW PZ-17RR 3/22/2011		OC-SW-PZ-17RRSW PZ-17RR 5/16/2011		OC-SW-PZ-17RR-XXX PZ-17RR 6/6/2011		OC-SW-PZ-17RRSW PZ-17RR 8/23/2011		OC-SW-PZ17RR PZ-17RR 11/8/2011		OC-SW-PZ-17RR-SW PZ-17RR 2/23/2012		OC-SW-PZ-17RRSW PZ-17RR 6/7/2012		OC-SW-PZ-17RRSW PZ-17RR 8/23/2012		OC-SW-PZ-17RRSW PZ-17RR 11/16/2012		OC-PZ-16RRSW PZ-16RR 3/21/2013		OC-PZ-16RRSW PZ-16RR 5/13/2013	
Arsenic	0.01	U					0.01	U																
Barium	0.025						0.021																	
Beryllium	0.0011						0.0011																	
Cadmium	0.001	U					0.001	U																
Calcium	62						72																	
Chromium	2.2		0.3		0.36		1.8		1.3		0.47		0.51		0.26		1.8		0.92		0.37		0.34	
Chromium, Hexavalent																								
Cobalt	0.047						0.05																	
Copper	0.026	J					0.021																	
Iron	10						12																	
Lead	0.0012						0.00042	J																
Magnesium	15						17																	
Manganese	2.1						2.2																	
Mercury	0.0002	U					0.0002	U																
Nickel	0.052						0.057																	
Potassium	2.5	J					3.4	J																
Selenium	0.01	U					0.01	U																
Silver	0.001	UJ					0.0001	U																
Sodium	180		98	J	81		220		160	J	120	J	190	J	110	J	240		140		130		130	
Thallium	0.01	U					0.01	U																
Tin	0.05	U					0.05	U																
Vanadium	0.01	UJ					0.01	U																
Zinc	0.083						0.097																	
Metals, Filtered (mg/L)																								
Aluminum			0.39		0.29				1.4		0.11		1.2	J	0.53		1.9		0.93		0.53		0.3	
Chromium			0.12		0.16				0.6		0.055		0.54		0.26		0.83		0.36		0.17		0.13	
Sodium			110	J	97				190	J	140	J	220	J	99		240		140		120		130	
Inorganics (mg/L)																								
Bromide	0.45						0.48																	
Chloride	240		160		120	J	230		190		130		220		130		250		160		190		160	
Hardness	220						250																	
Lab Specific Conductance **(mS/cm)**			0.9		0.98				2.2		1		2		1.1		2.4		1.4		0.99		1.2	
Nitrate as N	0.69		1.9		0.35	J	1.8		0.18		1.8		3.4		0.35		0.36		0.69	J	0.6		0.56	
Nitrite as N	0.01	U	0.1	U	0.01	UJ	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U		R	0.05	U	0.023	J
Nitrogen, as Ammonia	96		17		30	J	130		110		33		89		49		130		58		23		40	
Sulfate	810		120		230	J	990		600		180		550		280		850		350		170		310	
Total Organic Carbon	20						14																	
Total Suspended Solids	76						70	J																
VPH (mg/L)																								
Benzene	0.001	U					0.001	U																
Ethyl benzene	0.001	U					0.001	U																
Methyl Tertbutyl Ether	0.001	U					0.001	U																
Naphthalene	0.005	U					0.005	U																
Toluene	0.001	U					0.001	U																
Xylene, o	0.001	U					0.001	U																
Xylenes (m&p)	0.002	U					0.002	U																
C9-C10 Aromatics	0.05	U					0.05	U																
Volatile Petroleum Hydrocarbons, Total	0.05	U					0.05	U																
EPH (mg/L)																								
2-Methylnaphthalene	0.00091	U					0.00091	U																
Acenaphthene	0.00091	U					0.00091	U																
Acenaphthylene	0.00027	U					0.00027	U																

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-17RR-XXX PZ-17RR 12/10/2010		OC-SW-PZ-17RRSW PZ-17RR 3/22/2011		OC-SW-PZ-17RRSW PZ-17RR 5/16/2011		OC-SW-PZ-17RR-XXX PZ-17RR 6/6/2011		OC-SW-PZ-17RRSW PZ-17RR 8/23/2011		OC-SW-PZ17RR PZ-17RR 11/8/2011		OC-SW-PZ-17RR-SW PZ-17RR 2/23/2012		OC-SW-PZ-17RRSW PZ-17RR 6/7/2012		OC-SW-PZ-17RRSW PZ-17RR 8/23/2012		OC-SW-PZ-17RRSW PZ-17RR 11/16/2012		OC-PZ-16RRSW PZ-16RR 3/21/2013		OC-PZ-16RRSW PZ-16RR 5/13/2013	
Anthracene	0.00091	U					0.00091	U																
Benzo(a)anthracene	0.00027	U					0.00027	U																
Benzo(a)pyrene	0.00018	U					0.00018	U																
Benzo(b)fluoranthene	0.00027	U					0.00027	U																
Benzo(ghi)perylene	0.00045	U					0.00045	U																
Benzo(k)fluoranthene	0.00027	U					0.00027	U																
Chrysene	0.00091	U					0.00091	U																
Dibenz(a,h)anthracene	0.00041	U					0.00041	U																
Fluoranthene	0.00091	U					0.00091	U																
Fluorene	0.00091	U					0.00091	U																
Indeno(1,2,3-cd)pyrene	0.00041	U					0.00041	U																
Naphthalene	0.00091	U					0.00091	U																
Phenanthrene	0.00018	U					0.00018	U																
Pyrene	0.00091	U					0.00091	U																
C11-C22 Aromatics	0.091	U					0.091	U																
C19-C36 Aliphatics	0.091	U					0.091	U																
C9-C18 Aliphatics	0.091	U					0.091	U																
Extractable Petroleum Hydrocarbons, Total	0.091	U					0.091	U																
Specialty Compounds (mg/L)																								
Hydrazine	0.0001	U					0.0001	U																
Monomethylhydrazine (MMH)	0.0005	U					0.0005	U																
UDMH	0.0005	U					0.0005	U																
Acetaldehyde	0.03	U					0.03	U																
Formaldehyde	0.016	J					0.03	U																
Dimethylformamide	0.02	U					0.02	UJ																
Phthalic Acid/Phthalic anhydride							0.01	U																
4-(1,1,3,3-Tetramethylbutyl)phenol	0.00094	U					0.00095	UJ																
4,4'-Isopropylidenediphenol	0.00094	U					0.00087	J																
4-Nonylphenol (Tech.)	0.014						0.018	J																
Nonylphenol Diethoxylate	0.019	U					0.019	UJ																
Perchlorate	0.01	U																						
Kempore (Azodicarbonamide)	1	U					1.1	NJ																
OPEX	0.1	UJ					0.1	UJ																

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-PZ-16RRSW PZ-16RR 8/22/2013		OC-PZ-16RRSW PZ-16RR 11/21/2013		OC-SW-PZ-17RR-XXX PZ-17RR 12/17/2012		OC-SW-PZ-18R PZ-18R 11/15/2010		OC-SW-PZ-18RSW PZ-18R 3/22/2011		OC-SW-PZ-18RSW PZ-18R 5/16/2011		OC-SW-PZ-18RSW PZ-18R 8/23/2011		OC-SW-PZ18R PZ-18R 11/8/2011		OC-PZ18R-SW PZ-18R 2/23/2012		OC-SW-PZ-18RSW PZ-18R 6/7/2012		OC-SW-PZ-18RSW PZ-18R 8/23/2012	
Volatile Organics (mg/L)																						
1,1,1,2-Tetrachloroethane					0.001	U																
1,1,1-Trichloroethane					0.001	U																
1,1,2,2-Tetrachloroethane					0.0005	U																
1,1,2-Trichloro-1,2,2-Trifluoroethane					0.001	U																
1,1,2-Trichloroethane					0.001	U																
1,1-Dichloroethane					0.001	U																
1,1-Dichloroethene					0.001	U																
1,1-Dichloropropene					0.001	U																
1,2,3-Trichlorobenzene					0.001	U																
1,2,3-Trichloropropane					0.001	U																
1,2,4-Trichlorobenzene					0.001	U																
1,2,4-Trimethylbenzene					0.001	U																
1,2-Dibromo-3-chloropropane					0.005	U																
1,2-Dibromoethane					0.001	U																
1,2-Dichlorobenzene					0.001	U																
1,2-Dichloroethane					0.001	U																
1,2-Dichloropropane					0.001	U																
1,3,5-Trimethylbenzene					0.001	U																
1,3-Dichlorobenzene					0.001	U																
1,3-Dichloropropane					0.001	U																
1,4-Dichlorobenzene					0.001	U																
1,4-Dioxane						R																
2,2-Dichloropropane					0.001	U																
2,4,4-Trimethyl-1-pentene					0.0014																	
2,4,4-Trimethyl-2-pentene					0.001	U																
2-Butanone					0.0071	J																
2-Chlorotoluene					0.001	U																
2-Hexanone					0.01	U																
4-Chlorotoluene					0.001	U																
4-iso-Propyltoluene					0.001	U																
4-Methyl-2-pentanone					0.01	U																
Acetic acid, methyl ester					0.02	U																
Acetone					0.0084	J																
Benzene					0.001	U																
Bromobenzene					0.001	U																
Bromochloromethane					0.001	U																
Bromodichloromethane					0.0005	U																
Bromoform					0.001	U																
Bromomethane					0.002	U																
Butane, 2-methoxy-2-methyl-					0.005	U																
Carbon disulfide					0.01	U																
Carbon tetrachloride					0.001	U																
Chlorobenzene					0.001	U																
Chlorodibromomethane					0.0005	U																
Chloroethane					0.002	U																
Chloroform					0.001	U																
Chloromethane					0.002	U																
Cis-1,2-Dichloroethene					0.001	U																
cis-1,3-Dichloropropene					0.0004	U																
Cyclohexane					0.001	U																
Dibromomethane					0.001	U																

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-PZ-16RRSW PZ-16RR 8/22/2013	OC-PZ-16RRSW PZ-16RR 11/21/2013	OC-SW-PZ-17RR-XXX PZ-17RR 12/17/2012		OC-SW-PZ-18R PZ-18R 11/15/2010	OC-SW-PZ-18RSW PZ-18R 3/22/2011	OC-SW-PZ-18RSW PZ-18R 5/16/2011	OC-SW-PZ-18RSW PZ-18R 8/23/2011	OC-SW-PZ18R PZ-18R 11/8/2011	OC-PZ18R-SW PZ-18R 2/23/2012	OC-SW-PZ-18RSW PZ-18R 6/7/2012	OC-SW-PZ-18RSW PZ-18R 8/23/2012
Dichlorodifluoromethane			0.001	U								
Diethyl ether			0.001	U								
Ethyl benzene			0.001	U								
Ethyl-t-Butyl Ether			0.005	U								
Hexachlorobutadiene			0.0004	U								
Isopropyl ether			0.01	U								
Isopropylbenzene			0.001	U								
Methyl cyclohexane			0.001	U								
Methyl Tertbutyl Ether			0.001	U								
Methylene chloride			0.001	U								
Naphthalene			0.005	U								
n-Butylbenzene			0.001	U								
Propylbenzene			0.001	U								
sec-Butylbenzene			0.001	U								
Styrene			0.001	U								
tert-Butylbenzene			0.001	U								
Tetrachloroethene			0.001	U								
Tetrahydrofuran			0.01	U								
Toluene			0.001	U								
trans-1,2-Dichloroethene			0.001	U								
trans-1,3-Dichloropropene			0.0004	U								
Trichloroethene			0.001	U								
Trichlorofluoromethane			0.001	U								
Vinyl chloride			0.0005	U								
Xylene, o			0.001	U								
Xylenes (m&p)			0.002	U								
Semivolatile Organics (mg/L)												
1,2,4,5-Tetrachlorobenzene			0.00096	U								
1-Methylnaphthalene			0.00096	U								
2,3,4,6-Tetrachlorophenol			0.00096	UJ								
2,4,5-Trichlorophenol			0.00096	U								
2,4,6-Trichlorophenol			0.00096	UJ								
2,4-Dichlorophenol			0.00096	UJ								
2,4-Dimethylphenol			0.00096	U								
2,4-Dinitrophenol			0.00096	U								
2,4-Dinitrotoluene			0.00096	U								
2,6-Dinitrotoluene			0.00096	U								
2-Chloronaphthalene			0.00096	U								
2-Chlorophenol			0.00096	U								
2-Methylnaphthalene			0.00096	U								
2-Methylphenol			0.00096	U								
2-Nitroaniline			0.0048	U								
2-Nitrophenol			0.00096	U								
3 & 4 Methylphenol			0.00096	U								
3,3'-Dichlorobenzidine			0.0019	U								
3-Nitroaniline			0.0048	U								
4,6-Dinitro-2-methylphenol			0.0048	U								
4-Bromophenyl phenyl ether			0.00096	U								
4-Chloro-3-methylphenol			0.0019	U								
4-Chloroaniline			0.0019	U								
4-Chlorophenyl phenyl ether			0.00096	U								
4-Nitroaniline			0.0048	U								

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-PZ-16RRSW PZ-16RR 8/22/2013		OC-PZ-16RRSW PZ-16RR 11/21/2013		OC-SW-PZ-17RR-XXX PZ-17RR 12/17/2012		OC-SW-PZ-18R PZ-18R 11/15/2010		OC-SW-PZ-18RSW PZ-18R 3/22/2011		OC-SW-PZ-18RSW PZ-18R 5/16/2011		OC-SW-PZ-18RSW PZ-18R 8/23/2011		OC-SW-PZ18R PZ-18R 11/8/2011		OC-PZ18R-SW PZ-18R 2/23/2012		OC-SW-PZ-18RSW PZ-18R 6/7/2012		OC-SW-PZ-18RSW PZ-18R 8/23/2012	
4-Nitrophenol					0.0048	UJ																
Acenaphthene					0.00096	U																
Acenaphthylene					0.00096	U																
Acetophenone					0.00096	U																
Aniline					0.00096	U																
Anthracene					0.00096	U																
Atrazine					0.00096	U																
Azobenzene					0.00096	U																
Benzaldehyde					0.00096	U																
Benzo(a)anthracene					0.00096	U																
Benzo(a)pyrene					0.00096	U																
Benzo(b)fluoranthene					0.00096	UJ																
Benzo(ghi)perylene					0.00096	U																
Benzo(k)fluoranthene					0.00096	U																
Benzoic Acid						R																
Benzyl alcohol					0.0019	U																
Biphenyl					0.00096	U																
Bis(2-Chloroethoxy)methane					0.00096	U																
Bis(2-Chloroethyl)ether					0.00096	U																
Bis(2-Chloroisopropyl)ether					0.00096	U																
Bis(2-Ethylhexyl)phthalate					0.0048	U																
Butylbenzylphthalate					0.00096	U																
Caprolactam					0.00096	UJ																
Carbazole					0.00096	U																
Chrysene					0.00096	U																
Dibenz(a,h)anthracene					0.00096	U																
Dibenzofuran					0.00096	U																
Diethylphthalate					0.00096	U																
Dimethylphthalate					0.00096	U																
Di-n-butylphthalate					0.0048	U																
Di-n-octylphthalate					0.00096	U																
Diphenyl ether					0.00096	U																
Diphenylamine																						
Diphenylmethanone					0.00096	U																
Fluoranthene					0.00096	U																
Fluorene					0.00096	U																
Hexachlorobenzene					0.00096	U																
Hexachlorocyclopentadiene					0.0019	U																
Hexachloroethane					0.00096	U																
Indeno(1,2,3-cd)pyrene					0.00096	U																
Isophorone					0.00096	U																
Nitrobenzene					0.00096	U																
N-Nitrosodimethylamine					0.000045	J																
N-Nitrosodi-n-propylamine					0.0000093																	
N-Nitrosodiphenylamine					0.00096	U																
Pentachlorophenol					0.00096	U																
Phenanthrene					0.00096	U																
Phenol					0.00096	U																
Pyrene					0.00096	U																
Metals, Total (mg/L)																						
Aluminum	2.3		0.19	J	3.6		0.24	J	0.25		0.18		0.14		0.27		0.082	J	0.17		0.093	J
Antimony					0.006	U																

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-PZ-16RRSW PZ-16RR 8/22/2013		OC-PZ-16RRSW PZ-16RR 11/21/2013		OC-SW-PZ-17RR-XXX PZ-17RR 12/17/2012		OC-SW-PZ-18R PZ-18R 11/15/2010		OC-SW-PZ-18RSW PZ-18R 3/22/2011		OC-SW-PZ-18RSW PZ-18R 5/16/2011		OC-SW-PZ-18RSW PZ-18R 8/23/2011		OC-SW-PZ18R PZ-18R 11/8/2011		OC-PZ18R-SW PZ-18R 2/23/2012		OC-SW-PZ-18RSW PZ-18R 6/7/2012		OC-SW-PZ-18RSW PZ-18R 8/23/2012	
Arsenic					0.01	U																
Barium					0.021																	
Beryllium					0.00056	J																
Cadmium					0.001	U																
Calcium					26																	
Chromium	0.67	B	0.041		0.71		0.024		0.016		0.012		0.015		0.022		0.014		0.018		0.013	
Chromium, Hexavalent					0.005	U																
Cobalt					0.013																	
Copper					0.0096	J																
Iron					3.7																	
Lead					0.00056	J																
Magnesium					5.1																	
Manganese					0.85																	
Mercury					0.0002	U																
Nickel					0.014																	
Potassium					1.7																	
Selenium					0.01	U																
Silver					0.001	UJ																
Sodium	290		230		88		71	J	86		66		67	J	88		98	J	65	J	64	
Thallium					0.01	U																
Tin					0.01	UJ																
Vanadium					0.0022	J																
Zinc					0.038	J																
Metals, Filtered (mg/L)																						
Aluminum	1.1		0.12	J			0.15	J	0.17		0.1		0.036	J	0.17		0.092	J	0.16		0.064	J
Chromium	0.38		0.028				0.016		0.013		0.0073		0.0082		0.014		0.014		0.015		0.011	
Sodium	280		230				81	J	92		73		89	J	96		120	J	63		64	
Inorganics (mg/L)																						
Bromide					0.2	U																
Chloride	280		250		96		120		150		140	J	110		120		140		110		100	
Hardness					80																	
Lab Specific Conductance **(mS/cm)**	3.4		2.6				0.79		0.69		0.64		0.79		0.78		1		0.64		0.63	
Nitrate as N	0.72		0.87		0.62	J	0.25		0.43		0.14	J	0.078		0.2		0.34		0.27		0.14	
Nitrite as N	0.05	U	0.05	U	0.022	J	0.01	U	0.1	U	0.01	UJ	0.01	U	0.01	U	0.1	U	0.1	U	0.1	U
Nitrogen, as Ammonia	160		120		33		36		14		18	J	33		30		51		28		27	
Sulfate	1100		800		150		190	J	75		89	J	130		120		180		97		97	
Total Organic Carbon					7.6																	
Total Suspended Solids					19																	
VPH (mg/L)																						
Benzene																						
Ethyl benzene																						
Methyl Tertbutyl Ether																						
Naphthalene																						
Toluene																						
Xylene, o																						
Xylenes (m&p)																						
C9-C10 Aromatics																						
Volatile Petroleum Hydrocarbons, Total																						
EPH (mg/L)																						
2-Methylnaphthalene																						
Acenaphthene																						
Acenaphthylene																						

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-PZ-16RRSW PZ-16RR 8/22/2013	OC-PZ-16RRSW PZ-16RR 11/21/2013	OC-SW-PZ-17RR-XXX PZ-17RR 12/17/2012	OC-SW-PZ-18R PZ-18R 11/15/2010	OC-SW-PZ-18RSW PZ-18R 3/22/2011	OC-SW-PZ-18RSW PZ-18R 5/16/2011	OC-SW-PZ-18RSW PZ-18R 8/23/2011	OC-SW-PZ18R PZ-18R 11/8/2011	OC-PZ18R-SW PZ-18R 2/23/2012	OC-SW-PZ-18RSW PZ-18R 6/7/2012	OC-SW-PZ-18RSW PZ-18R 8/23/2012
Anthracene											
Benzo(a)anthracene											
Benzo(a)pyrene											
Benzo(b)fluoranthene											
Benzo(ghi)perylene											
Benzo(k)fluoranthene											
Chrysene											
Dibenz(a,h)anthracene											
Fluoranthene											
Fluorene											
Indeno(1,2,3-cd)pyrene											
Naphthalene											
Phenanthrene											
Pyrene											
C11-C22 Aromatics											
C19-C36 Aliphatics											
C9-C18 Aliphatics											
Extractable Petroleum Hydrocarbons, Total											
Specialty Compounds (mg/L)											
Hydrazine											
Monomethylhydrazine (MMH)											
UDMH											
Acetaldehyde											
Formaldehyde											
Dimethylformamide											
Phthalic Acid/Phthalic anhydride											
4-(1,1,3,3-Tetramethylbutyl)phenol											
4,4'-Isopropylidenediphenol											
4-Nonylphenol (Tech.)											
Nonylphenol Diethoxylate											
Perchlorate											
Kempore (Azodicarbonamide)											
OPEX											

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-18RSW PZ-18R 11/16/2012	OC-PZ-18RSW PZ-18R 3/21/2013	OC-PZ-18RSW PZ-18R 5/13/2013	OC-PZ-18RSW PZ-18R 8/22/2013	OC-PZ-18RSW PZ-18R 11/21/2013	OC-SW-SD-17 SD-17 11/15/2010	OC-SW-SD-17 SD-17 3/22/2011	OC-SW-SD-17 SD-17 5/16/2011	OC-SW-SD-17 SD-17 8/23/2011	OC-SW-SD17 SD-17 11/8/2011	OC-SD-17-SW SD-17 2/23/2012
Volatile Organics (mg/L)											
1,1,1,2-Tetrachloroethane											
1,1,1-Trichloroethane											
1,1,2,2-Tetrachloroethane											
1,1,2-Trichloro-1,2,2-Trifluoroethane											
1,1,2-Trichloroethane											
1,1-Dichloroethane											
1,1-Dichloroethene											
1,1-Dichloropropene											
1,2,3-Trichlorobenzene											
1,2,3-Trichloropropane											
1,2,4-Trichlorobenzene											
1,2,4-Trimethylbenzene											
1,2-Dibromo-3-chloropropane											
1,2-Dibromoethane											
1,2-Dichlorobenzene											
1,2-Dichloroethane											
1,2-Dichloropropane											
1,3,5-Trimethylbenzene											
1,3-Dichlorobenzene											
1,3-Dichloropropane											
1,4-Dichlorobenzene											
1,4-Dioxane											
2,2-Dichloropropane											
2,4,4-Trimethyl-1-pentene											
2,4,4-Trimethyl-2-pentene											
2-Butanone											
2-Chlorotoluene											
2-Hexanone											
4-Chlorotoluene											
4-iso-Propyltoluene											
4-Methyl-2-pentanone											
Acetic acid, methyl ester											
Acetone											
Benzene											
Bromobenzene											
Bromochloromethane											
Bromodichloromethane											
Bromoform											
Bromomethane											
Butane, 2-methoxy-2-methyl-											
Carbon disulfide											
Carbon tetrachloride											
Chlorobenzene											
Chlorodibromomethane											
Chloroethane											
Chloroform											
Chloromethane											
Cis-1,2-Dichloroethene											
cis-1,3-Dichloropropene											
Cyclohexane											
Dibromomethane											

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-18RSW PZ-18R 11/16/2012	OC-PZ-18RSW PZ-18R 3/21/2013	OC-PZ-18RSW PZ-18R 5/13/2013	OC-PZ-18RSW PZ-18R 8/22/2013	OC-PZ-18RSW PZ-18R 11/21/2013	OC-SW-SD-17 SD-17 11/15/2010	OC-SW-SD-17 SD-17 3/22/2011	OC-SW-SD-17 SD-17 5/16/2011	OC-SW-SD-17 SD-17 8/23/2011	OC-SW-SD17 SD-17 11/8/2011	OC-SD-17-SW SD-17 2/23/2012
Dichlorodifluoromethane											
Diethyl ether											
Ethyl benzene											
Ethyl-t-Butyl Ether											
Hexachlorobutadiene											
Isopropyl ether											
Isopropylbenzene											
Methyl cyclohexane											
Methyl Tertbutyl Ether											
Methylene chloride											
Naphthalene											
n-Butylbenzene											
Propylbenzene											
sec-Butylbenzene											
Styrene											
tert-Butylbenzene											
Tetrachloroethene											
Tetrahydrofuran											
Toluene											
trans-1,2-Dichloroethene											
trans-1,3-Dichloropropene											
Trichloroethene											
Trichlorofluoromethane											
Vinyl chloride											
Xylene, o											
Xylenes (m&p)											
Semivolatile Organics (mg/L)											
1,2,4,5-Tetrachlorobenzene											
1-Methylnaphthalene											
2,3,4,6-Tetrachlorophenol											
2,4,5-Trichlorophenol											
2,4,6-Trichlorophenol											
2,4-Dichlorophenol											
2,4-Dimethylphenol											
2,4-Dinitrophenol											
2,4-Dinitrotoluene											
2,6-Dinitrotoluene											
2-Chloronaphthalene											
2-Chlorophenol											
2-Methylnaphthalene											
2-Methylphenol											
2-Nitroaniline											
2-Nitrophenol											
3 & 4 Methylphenol											
3,3'-Dichlorobenzidine											
3-Nitroaniline											
4,6-Dinitro-2-methylphenol											
4-Bromophenyl phenyl ether											
4-Chloro-3-methylphenol											
4-Chloroaniline											
4-Chlorophenyl phenyl ether											
4-Nitroaniline											

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-18RSW PZ-18R 11/16/2012		OC-PZ-18RSW PZ-18R 3/21/2013		OC-PZ-18RSW PZ-18R 5/13/2013		OC-PZ-18RSW PZ-18R 8/22/2013		OC-PZ-18RSW PZ-18R 11/21/2013		OC-SW-SD-17 SD-17 11/15/2010		OC-SW-SD-17 SD-17 3/22/2011		OC-SW-SD-17 SD-17 5/16/2011		OC-SW-SD-17 SD-17 8/23/2011		OC-SW-SD17 SD-17 11/8/2011		OC-SD-17-SW SD-17 2/23/2012	
4-Nitrophenol																						
Acenaphthene																						
Acenaphthylene																						
Acetophenone																						
Aniline																						
Anthracene																						
Atrazine																						
Azobenzene																						
Benzaldehyde																						
Benzo(a)anthracene																						
Benzo(a)pyrene																						
Benzo(b)fluoranthene																						
Benzo(ghi)perylene																						
Benzo(k)fluoranthene																						
Benzoic Acid																						
Benzyl alcohol																						
Biphenyl																						
Bis(2-Chloroethoxy)methane																						
Bis(2-Chloroethyl)ether																						
Bis(2-Chloroisopropyl)ether																						
Bis(2-Ethylhexyl)phthalate																						
Butylbenzylphthalate																						
Caprolactam																						
Carbazole																						
Chrysene																						
Dibenz(a,h)anthracene																						
Dibenzofuran																						
Diethylphthalate																						
Dimethylphthalate																						
Di-n-butylphthalate																						
Di-n-octylphthalate																						
Diphenyl ether																						
Diphenylamine																						
Diphenylmethanone																						
Fluoranthene																						
Fluorene																						
Hexachlorobenzene																						
Hexachlorocyclopentadiene																						
Hexachloroethane																						
Indeno(1,2,3-cd)pyrene																						
Isophorone																						
Nitrobenzene																						
N-Nitrosodimethylamine																						
N-Nitrosodi-n-propylamine																						
N-Nitrosodiphenylamine																						
Pentachlorophenol																						
Phenanthrene																						
Phenol																						
Pyrene																						
Metals, Total (mg/L)																						
Aluminum	0.21		0.18	J	0.16	J	0.2	U	0.14	J	3.6		1.3		1.4		1.2		2.1		0.78	J
Antimony																						

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-18RSW PZ-18R 11/16/2012		OC-PZ-18RSW PZ-18R 3/21/2013		OC-PZ-18RSW PZ-18R 5/13/2013		OC-PZ-18RSW PZ-18R 8/22/2013		OC-PZ-18RSW PZ-18R 11/21/2013		OC-SW-SD-17 SD-17 11/15/2010		OC-SW-SD-17 SD-17 3/22/2011		OC-SW-SD-17 SD-17 5/16/2011		OC-SW-SD-17 SD-17 8/23/2011		OC-SW-SD17 SD-17 11/8/2011		OC-SD-17-SW SD-17 2/23/2012	
Arsenic																						
Barium																						
Beryllium																						
Cadmium																						
Calcium																						
Chromium	0.02		0.012		0.012		0.0085	B	0.012		0.85		0.3		0.33		0.28		0.47		0.37	J
Chromium, Hexavalent																						
Cobalt																						
Copper																						
Iron																						
Lead																						
Magnesium																						
Manganese																						
Mercury																						
Nickel																						
Potassium																						
Selenium																						
Silver																						
Sodium	78		130		99		100		65		140		100	J	82		96	J	120	J	180	J
Thallium																						
Tin																						
Vanadium																						
Zinc																						
Metals, Filtered (mg/L)																						
Aluminum	0.12	J	0.15	J	0.078	J	0.2	U	0.066	J	1.7		0.11		0.34		0.92		1.9		0.89	J
Chromium	0.015		0.013		0.0071		0.0049	J	0.0061		0.5		0.058		0.16		0.28		0.37		0.41	J
Sodium	79		120		100		100		66		140		120	J	97		140	J	140	J	210	J
Inorganics (mg/L)																						
Bromide																						
Chloride	110		210		160		170		110		170		170		120	J	130		130		210	
Hardness																						
Lab Specific Conductance **(mS/cm)**	0.73		0.87		0.81		0.98		0.61		1.6		0.94		0.98		1.1		1		1.8	
Nitrate as N	0.35	J	0.5		0.22		0.37		0.16		0.52		2.3		0.42	J	0.16		1.7		3.7	
Nitrite as N		R	0.05	U	0.02	J	0.05	U	0.05	U	0.01		0.1	U	0.01	UJ	0.1	U	0.01	U	0.1	U
Nitrogen, as Ammonia	24		14		28		33		18	J	71		18		32	J	41		32		77	
Sulfate	110		73		110		130		72		540		130		230	J	240		190		460	
Total Organic Carbon																						
Total Suspended Solids																						
VPH (mg/L)																						
Benzene																						
Ethyl benzene																						
Methyl Tertbutyl Ether																						
Naphthalene																						
Toluene																						
Xylene, o																						
Xylenes (m&p)																						
C9-C10 Aromatics																						
Volatile Petroleum Hydrocarbons, Total																						
EPH (mg/L)																						
2-Methylnaphthalene																						
Acenaphthene																						
Acenaphthylene																						

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-PZ-18RSW PZ-18R 11/16/2012	OC-PZ-18RSW PZ-18R 3/21/2013	OC-PZ-18RSW PZ-18R 5/13/2013	OC-PZ-18RSW PZ-18R 8/22/2013	OC-PZ-18RSW PZ-18R 11/21/2013	OC-SW-SD-17 SD-17 11/15/2010	OC-SW-SD-17 SD-17 3/22/2011	OC-SW-SD-17 SD-17 5/16/2011	OC-SW-SD-17 SD-17 8/23/2011	OC-SW-SD17 SD-17 11/8/2011	OC-SD-17-SW SD-17 2/23/2012
Anthracene											
Benzo(a)anthracene											
Benzo(a)pyrene											
Benzo(b)fluoranthene											
Benzo(ghi)perylene											
Benzo(k)fluoranthene											
Chrysene											
Dibenz(a,h)anthracene											
Fluoranthene											
Fluorene											
Indeno(1,2,3-cd)pyrene											
Naphthalene											
Phenanthrene											
Pyrene											
C11-C22 Aromatics											
C19-C36 Aliphatics											
C9-C18 Aliphatics											
Extractable Petroleum Hydrocarbons, Total											
Specialty Compounds (mg/L)											
Hydrazine											
Monomethylhydrazine (MMH)											
UDMH											
Acetaldehyde											
Formaldehyde											
Dimethylformamide											
Phthalic Acid/Phthalic anhydride											
4-(1,1,3,3-Tetramethylbutyl)phenol											
4,4'-Isopropylidenediphenol											
4-Nonylphenol (Tech.)											
Nonylphenol Diethoxylate											
Perchlorate											
Kempore (Azodicarbonamide)											
OPEX											

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-SD-17 SD-17 6/7/2012		OC-SW-SD-17 SD-17 8/23/2012		OC-SW-SD-17 SD-17 11/16/2012		OC-SD-17 SW SD-17 3/21/2013		OC-SD-17 SD-17 5/13/2013		OC-SD-17 SD-17 8/22/2013		OC-SD-17 SD-17 11/21/2013		OC-SW-SD-1-XXX SD-1 12/9/2010		OC-SW-SD-1-XXX SD-1 6/6/2011		OC-SW-SD-1-XXX SD-1 12/17/2012	
Volatile Organics (mg/L)																				
1,1,1,2-Tetrachloroethane															0.001	U	0.001	U	0.001	U
1,1,1-Trichloroethane															0.001	U	0.001	U	0.001	U
1,1,2,2-Tetrachloroethane															0.0005	U	0.0005	U	0.0005	U
1,1,2-Trichloro-1,2,2-Trifluoroethane															0.001	U	0.001	U	0.001	U
1,1,2-Trichloroethane															0.001	U	0.001	U	0.001	U
1,1-Dichloroethane															0.001	U	0.001	U	0.001	U
1,1-Dichloroethene															0.001	U	0.001	U	0.001	U
1,1-Dichloropropene															0.001	U	0.001	U	0.001	U
1,2,3-Trichlorobenzene															0.001	U	0.001	U	0.001	U
1,2,3-Trichloropropane															0.001	U	0.001	U	0.001	U
1,2,4-Trichlorobenzene															0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene															0.001	U	0.001	U	0.001	U
1,2-Dibromo-3-chloropropane															0.005	U	0.005	U	0.005	U
1,2-Dibromoethane															0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene															0.001	U	0.001	U	0.001	U
1,2-Dichloroethane															0.001	U	0.001	U	0.001	U
1,2-Dichloropropane															0.001	U	0.001	U	0.001	U
1,3,5-Trimethylbenzene															0.001	U	0.001	U	0.001	U
1,3-Dichlorobenzene															0.001	U	0.001	U	0.001	U
1,3-Dichloropropane															0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene															0.001	U	0.001	U	0.001	U
1,4-Dioxane																R	0.05	U		R
2,2-Dichloropropane															0.001	U	0.001	U	0.001	U
2,4,4-Trimethyl-1-pentene															0.003		0.0019	J	0.001	U
2,4,4-Trimethyl-2-pentene															0.001	U	0.00044	J	0.001	U
2-Butanone															0.01	U	0.01	U	0.025	J
2-Chlorotoluene															0.001	U	0.001	U	0.001	U
2-Hexanone															0.01	U	0.01	U	0.01	U
4-Chlorotoluene															0.001	U	0.001	U	0.001	U
4-iso-Propyltoluene															0.001	U	0.001	U	0.001	U
4-Methyl-2-pentanone															0.01	U	0.01	U	0.01	U
Acetic acid, methyl ester															0.02	U	0.02	U	0.02	U
Acetone															0.05	U	0.05	U	0.012	J
Benzene															0.001	U	0.001	U	0.001	U
Bromobenzene															0.001	U	0.001	U	0.001	U
Bromochloromethane															0.001	U	0.001	U	0.001	U
Bromodichloromethane															0.001	U	0.0005	U	0.0005	U
Bromoform															0.0012	J	0.00072	J	0.001	U
Bromomethane															0.002	U	0.002	U	0.002	U
Butane, 2-methoxy-2-methyl-															0.005	U	0.005	UJ	0.005	U
Carbon disulfide															0.01	U	0.01	U	0.01	U
Carbon tetrachloride															0.001	UJ	0.001	UJ	0.001	U
Chlorobenzene															0.001	U	0.001	U	0.001	U
Chlorodibromomethane															0.0034		0.0005	U	0.0005	U
Chloroethane															0.002	U	0.002	U	0.002	U
Chloroform															0.00037	J	0.001	U	0.001	U
Chloromethane															0.002	U	0.002	U	0.002	U
Cis-1,2-Dichloroethene															0.001	U	0.001	U	0.001	U
cis-1,3-Dichloropropene															0.0004	U	0.0004	U	0.0004	U
Cyclohexane															0.01	U	0.01	U	0.001	U
Dibromomethane															0.00038	J	0.001	U	0.001	U

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-SD-17 SD-17 6/7/2012		OC-SW-SD-17 SD-17 8/23/2012		OC-SW-SD-17 SD-17 11/16/2012		OC-SD-17 SW SD-17 3/21/2013		OC-SD-17 SD-17 5/13/2013		OC-SD-17 SD-17 8/22/2013		OC-SD-17 SD-17 11/21/2013		OC-SW-SD-1-XXX SD-1 12/9/2010		OC-SW-SD-1-XXX SD-1 6/6/2011		OC-SW-SD-1-XXX SD-1 12/17/2012	
Dichlorodifluoromethane															0.001	UJ	0.001	U	0.001	U
Diethyl ether															0.01	U	0.01	U	0.001	U
Ethyl benzene															0.001	U	0.001	U	0.001	U
Ethyl-t-Butyl Ether															0.005	U	0.005	UJ	0.005	U
Hexachlorobutadiene															0.0004	U	0.0004	U	0.0004	U
Isopropyl ether															0.01	U	0.01	U	0.01	U
Isopropylbenzene															0.001	U	0.001	U	0.001	U
Methyl cyclohexane															0.01	U	0.01	U	0.001	U
Methyl Tertbutyl Ether															0.001	U	0.001	UJ	0.001	U
Methylene chloride															0.002	U	0.002	U	0.001	U
Naphthalene															0.005	U	0.005	U	0.005	U
n-Butylbenzene															0.001	U	0.001	U	0.001	U
Propylbenzene															0.001	U	0.001	U	0.001	U
sec-Butylbenzene															0.001	U	0.001	U	0.001	U
Styrene															0.001	U	0.001	U	0.001	U
tert-Butylbenzene															0.001	U	0.001	U	0.001	U
Tetrachloroethene															0.001	U	0.001	U	0.001	U
Tetrahydrofuran															0.01	U	0.01	U	0.01	U
Toluene															0.001	U	0.001	U	0.001	U
trans-1,2-Dichloroethene															0.001	U	0.001	U	0.001	U
trans-1,3-Dichloropropene															0.0004	U	0.0004	U	0.0004	U
Trichloroethene															0.001	U	0.001	U	0.001	U
Trichlorofluoromethane															0.001	U	0.001	U	0.001	U
Vinyl chloride															0.0005	U	0.0005	U	0.0005	U
Xylene, o															0.001	U	0.001	U	0.001	U
Xylenes (m&p)															0.002	U	0.002	U	0.002	U
Semivolatile Organics (mg/L)																				
1,2,4,5-Tetrachlorobenzene															0.0045	U	0.005	U	0.00099	U
1-Methylnaphthalene															0.0045	U	0.005	U	0.00099	U
2,3,4,6-Tetrachlorophenol															0.0045	U	0.005	U	0.00099	UJ
2,4,5-Trichlorophenol															0.0045	U	0.005	U	0.00099	U
2,4,6-Trichlorophenol															0.0045	U	0.005	U	0.00099	UJ
2,4-Dichlorophenol															0.0045	U	0.005	U	0.00099	UJ
2,4-Dimethylphenol															0.0045	U	0.005	U	0.00099	U
2,4-Dinitrophenol															0.0045	U	0.005	U	0.00099	U
2,4-Dinitrotoluene															0.0045	U	0.005	U	0.00099	U
2,6-Dinitrotoluene															0.0045	U	0.005	U	0.00099	U
2-Chloronaphthalene															0.0045	U	0.005	U	0.00099	U
2-Chlorophenol															0.0045	U	0.005	U	0.00099	U
2-Methylnaphthalene															0.00091	U	0.001	U	0.00099	U
2-Methylphenol															0.0045	U	0.005	U	0.00099	U
2-Nitroaniline															0.0045	U	0.005	U	0.005	U
2-Nitrophenol															0.00072	J	0.00067	J	0.00099	U
3 & 4 Methylphenol															0.0045	U	0.005	U	0.00099	U
3,3'-Dichlorobenzidine															0.0045	U	0.005	U	0.002	U
3-Nitroaniline															0.0045	U	0.005	U	0.005	U
4,6-Dinitro-2-methylphenol															0.0045	U	0.005	U	0.005	U
4-Bromophenyl phenyl ether															0.0045	U	0.005	U	0.00099	U
4-Chloro-3-methylphenol															0.0045	U	0.005	U	0.002	U
4-Chloroaniline															0.0045	U	0.005	U	0.002	U
4-Chlorophenyl phenyl ether															0.0045	U	0.005	U	0.00099	U
4-Nitroaniline															0.0045	U	0.005	U	0.005	U

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-SD-17 SD-17 6/7/2012		OC-SW-SD-17 SD-17 8/23/2012		OC-SW-SD-17 SD-17 11/16/2012		OC-SD-17 SW SD-17 3/21/2013		OC-SD-17 SD-17 5/13/2013		OC-SD-17 SD-17 8/22/2013		OC-SD-17 SD-17 11/21/2013		OC-SW-SD-1-XXX SD-1 12/9/2010		OC-SW-SD-1-XXX SD-1 6/6/2011		OC-SW-SD-1-XXX SD-1 12/17/2012	
4-Nitrophenol															0.0045	UJ	0.005	U	0.005	UJ
Acenaphthene															0.00091	U	0.001	U	0.00099	U
Acenaphthylene															0.00027	U	0.0003	U	0.00099	U
Acetophenone															0.0045	U	0.005	U	0.00099	U
Aniline															0.0045	UJ	0.005	UJ	0.00099	U
Anthracene															0.00091	U	0.001	U	0.00099	U
Atrazine															0.0045	U	0.005	U	0.00099	U
Azobenzene															0.0045	U	0.005	U	0.00099	U
Benzaldehyde															0.0045	U	0.005	U	0.00099	U
Benzo(a)anthracene															0.00027	U	0.0003	U	0.00099	U
Benzo(a)pyrene															0.00018	UJ	0.0002	U	0.00099	U
Benzo(b)fluoranthene															0.00027	UJ	0.0003	UJ	0.00099	UJ
Benzo(ghi)perylene															0.00045	UJ	0.0005	U	0.00099	U
Benzo(k)fluoranthene															0.00027	UJ	0.0003	U	0.00099	U
Benzoic Acid															0.0045	UJ	0.0021	J		R
Benzyl alcohol															0.0091	U	0.01	U	0.002	U
Biphenyl															0.0045	U	0.005	U	0.00099	U
Bis(2-Chloroethoxy)methane															0.0045	U	0.005	U	0.00099	U
Bis(2-Chloroethyl)ether															0.0045	U	0.005	U	0.00099	U
Bis(2-Chloroisopropyl)ether															0.0045	U	0.005	U	0.00099	U
Bis(2-Ethylhexyl)phthalate															0.0035	U	0.0018	J	0.005	U
Butylbenzylphthalate															0.0045	U	0.005	U	0.00099	U
Caprolactam															0.0045	UJ	0.005	UJ	0.00099	UJ
Carbazole															0.0045	U	0.005	U	0.00099	U
Chrysene															0.00091	U	0.001	U	0.00099	U
Dibenz(a,h)anthracene															0.00045	UJ	0.0005	U	0.00099	U
Dibenzofuran															0.0045	U	0.005	U	0.00099	U
Diethylphthalate															0.0045	U	0.005	U	0.00099	U
Dimethylphthalate															0.0045	U	0.005	U	0.00099	U
Di-n-butylphthalate															0.0045	U	0.005	U	0.005	U
Di-n-octylphthalate															0.0045	UJ	0.005	U	0.00099	U
Diphenyl ether															0.0045	U	0.005	U	0.00099	U
Diphenylamine															0.0045	U	0.005	U		
Diphenylmethanone															0.0045	U	0.005	U	0.00099	U
Fluoranthene															0.00091	U	0.001	U	0.00099	U
Fluorene															0.00091	U	0.001	U	0.00099	U
Hexachlorobenzene															0.00091	U	0.001	U	0.00099	U
Hexachlorocyclopentadiene															0.0045	U	0.005	U	0.002	U
Hexachloroethane															0.0027	U	0.003	U	0.00099	U
Indeno(1,2,3-cd)pyrene															0.00045	UJ	0.0005	U	0.00099	U
Isophorone															0.0045	U	0.005	U	0.00099	U
Nitrobenzene															0.0045	U	0.005	U	0.00099	U
N-Nitrosodimethylamine															0.00014		0.000048		0.000024	J
N-Nitrosodi-n-propylamine															0.000002	U	0.000002	U	0.0000049	
N-Nitrosodiphenylamine															0.0045	U	0.005	U	0.00099	U
Pentachlorophenol															0.00091	U	0.001	U	0.00099	U
Phenanthrene															0.00018	U	0.0002	U	0.00099	U
Phenol															0.0045	UJ	0.005	UJ	0.00099	U
Pyrene															0.0045	U	0.005	U	0.00099	U
Metals, Total (mg/L)																				
Aluminum	2.9		11		3.4		1.5		2.1		26		6.3		1.1		0.46		1.8	
Antimony															0.006	U	0.006	U	0.006	U

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
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Chemical Name	OC-SW-SD-17 SD-17 6/7/2012		OC-SW-SD-17 SD-17 8/23/2012		OC-SW-SD-17 SD-17 11/16/2012		OC-SD-17 SW SD-17 3/21/2013		OC-SD-17 SD-17 5/13/2013		OC-SD-17 SD-17 8/22/2013		OC-SD-17 SD-17 11/21/2013		OC-SW-SD-1-XXX SD-1 12/9/2010		OC-SW-SD-1-XXX SD-1 6/6/2011		OC-SW-SD-1-XXX SD-1 12/17/2012	
Arsenic															0.01	U	0.01	U	0.01	U
Barium															0.027		0.026		0.013	
Beryllium															0.001	U	0.001	U	0.001	U
Cadmium															0.001	U	0.001	U	0.001	U
Calcium															70		81		23	
Chromium	0.68		2.4		0.84		0.36		0.5		5.7	B	1.3		0.23		0.11		0.29	
Chromium, Hexavalent																			0.005	U
Cobalt															0.034		0.039		0.0076	
Copper															0.0095	J	0.00021	J	0.0044	J
Iron															3.7		2		1.5	
Lead															0.00054	J	0.0003	J	0.00043	J
Magnesium															13		17		3.3	
Manganese															1.8		2		0.5	
Mercury															0.0002	U	0.0002	U	0.0002	U
Nickel															0.036		0.041		0.009	J
Potassium															3.2	J	2.6	J	1.3	
Selenium															0.01	U	0.01	U	0.01	U
Silver															0.001	UJ	0.0001	U	0.000017	J
Sodium	110	J	190		130		110		140		320		260		160		220		52	
Thallium															0.01	U	0.01	U	0.01	U
Tin															0.05	U	0.05	U	0.01	UJ
Vanadium															0.01	U	0.01	U	0.01	U
Zinc															0.076		0.055		0.025	J
Metals, Filtered (mg/L)																				
Aluminum	2.9		1		0.95		0.25		0.7		22		2.5							
Chromium	0.66		0.52		0.36		0.12		0.28		5		0.59							
Sodium	99		200		140		110		140		320		260							
Inorganics (mg/L)																				
Bromide															0.34		0.46		0.2	U
Chloride	130		210		170		160		180		320		300		200		300		64	
Hardness															230		270		80	
Lab Specific Conductance **(mS/cm)**	1.1		2		1.5		0.89		1.3		3.7		2.8							
Nitrate as N	0.44		0.6		0.6	J	0.71		0.44		0.41		0.63		2.8		6		0.96	J
Nitrite as N	0.1	U	0.1	U		R	0.05	U	0.05	U	0.05	U	0.05	U	0.1	U	0.1	U	0.043	J
Nitrogen, as Ammonia	60		110		61		20		47		180		130		66		95		21	
Sulfate	280		670		350		140		310		1300		900		590		800		110	
Total Organic Carbon															11		24		4.5	
Total Suspended Solids															2.8		19	J	6	
VPH (mg/L)																				
Benzene															0.001	U	0.001	U		
Ethyl benzene															0.001	U	0.001	U		
Methyl Tertbutyl Ether															0.001	U	0.001	U		
Naphthalene															0.005	U	0.005	U		
Toluene															0.001	U	0.001	U		
Xylene, o															0.001	U	0.001	U		
Xylenes (m&p)															0.002	U	0.002	U		
C9-C10 Aromatics															0.05	U	0.05	U		
Volatile Petroleum Hydrocarbons, Total															0.05	U	0.05	U		
EPH (mg/L)																				
2-Methylnaphthalene															0.00091	U	0.00091	U		
Acenaphthene															0.00091	U	0.00091	U		
Acenaphthylene															0.00027	U	0.00027	U		

Appendix F-8
Surface Water Analytical Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-SD-17 SD-17 6/7/2012		OC-SW-SD-17 SD-17 8/23/2012		OC-SW-SD-17 SD-17 11/16/2012		OC-SD-17 SW SD-17 3/21/2013		OC-SD-17 SD-17 5/13/2013		OC-SD-17 SD-17 8/22/2013		OC-SD-17 SD-17 11/21/2013		OC-SW-SD-1-XXX SD-1 12/9/2010		OC-SW-SD-1-XXX SD-1 6/6/2011		OC-SW-SD-1-XXX SD-1 12/17/2012	
Anthracene															0.00091	U	0.00091	U		
Benzo(a)anthracene															0.00027	U	0.00027	U		
Benzo(a)pyrene															0.00018	U	0.00018	U		
Benzo(b)fluoranthene															0.00027	U	0.00027	U		
Benzo(ghi)perylene															0.00045	U	0.00045	U		
Benzo(k)fluoranthene															0.00027	U	0.00027	U		
Chrysene															0.00091	U	0.00091	U		
Dibenz(a,h)anthracene															0.00041	U	0.00041	U		
Fluoranthene															0.00091	U	0.00091	U		
Fluorene															0.00091	U	0.00091	U		
Indeno(1,2,3-cd)pyrene															0.00041	U	0.00041	U		
Naphthalene															0.00091	U	0.00091	U		
Phenanthrene															0.00018	U	0.00018	U		
Pyrene															0.00091	U	0.00091	U		
C11-C22 Aromatics															0.091	U	0.091	U		
C19-C36 Aliphatics															0.091	U	0.091	U		
C9-C18 Aliphatics															0.091	U	0.091	U		
Extractable Petroleum Hydrocarbons, Total															0.091	U	0.091	U		
Specialty Compounds (mg/L)																				
Hydrazine															0.0001	U	0.000076	J		
Monomethylhydrazine (MMH)															0.0005	U	0.0005	U		
UDMH															0.0005	U	0.0005	U		
Acetaldehyde															0.03	U	0.03	U		
Formaldehyde															0.018	J	0.03	U		
Dimethylformamide															0.02	U	0.02	UJ		
Phthalic Acid/Phthalic anhydride															0.01	U	0.01	U		
4-(1,1,3,3-Tetramethylbutyl)phenol															0.00097	U				
4,4'-Isopropylidenediphenol															0.00097	U				
4-Nonylphenol (Tech.)															0.0077					
Nonylphenol Diethoxylate															0.019	U				
Perchlorate															0.01	U				
Kempore (Azodicarbonamide)															1	U	1.4	N		
OPEX															0.1	UJ	0.1	UJ		

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

Prepared by : LCG 11/21/2014
Checked by: BJR 12/8/2014

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-9
Analytical Surface Water Data - Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-SD-501-XXX SD-501 12/17/2012	
Volatile Organics (mg/L)		
1,1,1,2-Tetrachloroethane	0.002	U
1,1,1-Trichloroethane	0.002	U
1,1,2,2-Tetrachloroethane	0.001	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.002	U
1,1,2-Trichloroethane	0.002	U
1,1-Dichloroethane	0.002	U
1,1-Dichloroethene	0.002	U
1,1-Dichloropropene	0.002	U
1,2,3-Trichlorobenzene	0.002	U
1,2,3-Trichloropropane	0.002	U
1,2,4-Trichlorobenzene	0.002	U
1,2,4-Trimethylbenzene	0.002	U
1,2-Dibromo-3-chloropropane	0.01	U
1,2-Dibromoethane	0.002	U
1,2-Dichlorobenzene	0.002	U
1,2-Dichloroethane	0.002	U
1,2-Dichloropropane	0.002	U
1,3,5-Trimethylbenzene	0.002	U
1,3-Dichlorobenzene	0.002	U
1,3-Dichloropropane	0.002	U
1,4-Dichlorobenzene	0.002	U
1,4-Dioxane		R
2,2-Dichloropropane	0.002	U
2,4,4-Trimethyl-1-pentene	0.002	U
2,4,4-Trimethyl-2-pentene	0.002	U
2-Butanone	0.02	U
2-Chlorotoluene	0.002	U
2-Hexanone	0.02	U
4-Chlorotoluene	0.002	U
4-iso-Propyltoluene	0.002	U
4-Methyl-2-pentanone	0.02	U
Acetic acid, methyl ester	0.04	U
Acetone	0.1	U
Benzene	0.002	U
Bromobenzene	0.002	U
Bromochloromethane	0.002	U
Bromodichloromethane	0.001	U
Bromoform	0.002	U
Bromomethane	0.004	U
Butane, 2-methoxy-2-methyl-	0.01	U
Carbon disulfide	0.02	U
Carbon tetrachloride	0.002	U
Chlorobenzene	0.002	U
Chlorodibromomethane	0.001	U
Chloroethane	0.004	U
Chloroform	0.002	U
Chloromethane	0.004	U
Cis-1,2-Dichloroethene	0.002	U
cis-1,3-Dichloropropene	0.0008	U
Cyclohexane	0.002	U
Dibromomethane	0.002	U
Dichlorodifluoromethane	0.002	U
Diethyl ether	0.002	U
Ethyl benzene	0.002	U
Ethyl-t-Butyl Ether	0.01	U
Hexachlorobutadiene	0.0008	U
Isopropyl ether	0.02	U
Isopropylbenzene	0.002	U
Methyl cyclohexane	0.002	U
Methyl Tertbutyl Ether	0.002	U
Methylene chloride	0.002	U
Naphthalene	0.01	U
n-Butylbenzene	0.002	U
Propylbenzene	0.002	U
sec-Butylbenzene	0.002	U
Styrene	0.002	U
tert-Butylbenzene	0.002	U
Tetrachloroethene	0.002	U

Appendix F-9
Analytical Surface Water Data - Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-SD-501-XXX SD-501 12/17/2012	
Tetrahydrofuran	0.02	U
Toluene	0.002	U
trans-1,2-Dichloroethene	0.002	U
trans-1,3-Dichloropropene	0.0008	U
Trichloroethene	0.002	U
Trichlorofluoromethane	0.002	U
Vinyl chloride	0.001	U
Xylene, o	0.002	U
Xylenes (m&p)	0.004	U
Semivolatile Organics (mg/L)		
1,2,4,5-Tetrachlorobenzene	0.00095	U
1-Methylnaphthalene	0.00095	U
2,3,4,6-Tetrachlorophenol	0.00095	UJ
2,4,5-Trichlorophenol	0.00095	U
2,4,6-Trichlorophenol	0.00095	UJ
2,4-Dichlorophenol	0.00095	UJ
2,4-Dimethylphenol	0.00095	U
2,4-Dinitrophenol	0.00095	U
2,4-Dinitrotoluene	0.00095	U
2,6-Dinitrotoluene	0.00095	U
2-Chloronaphthalene	0.00095	U
2-Chlorophenol	0.00095	U
2-Methylnaphthalene	0.00095	U
2-Methylphenol	0.00095	U
2-Nitroaniline	0.0048	U
2-Nitrophenol	0.00095	U
3 & 4 Methylphenol	0.00095	U
3,3'-Dichlorobenzidine	0.0019	U
3-Nitroaniline	0.0048	U
4,6-Dinitro-2-methylphenol	0.0048	U
4-Bromophenyl phenyl ether	0.00095	U
4-Chloro-3-methylphenol	0.0019	U
4-Chloroaniline	0.0019	U
4-Chlorophenyl phenyl ether	0.00095	U
4-Nitroaniline	0.0048	U
4-Nitrophenol	0.0048	UJ
Acenaphthene	0.00095	U
Acenaphthylene	0.00095	U
Acetophenone	0.00095	U
Aniline	0.00095	U
Anthracene	0.00095	U
Atrazine	0.00095	U
Azobenzene	0.00095	U
Benzaldehyde	0.00095	U
Benzo(a)anthracene	0.00095	U
Benzo(a)pyrene	0.00095	U
Benzo(b)fluoranthene	0.00095	UJ
Benzo(ghi)perylene	0.00095	U
Benzo(k)fluoranthene	0.00095	U
Benzoic Acid		R
Benzyl alcohol	0.0019	U
Biphenyl	0.00095	U
Bis(2-Chloroethoxy)methane	0.00095	U
Bis(2-Chloroethyl)ether	0.00095	U
Bis(2-Chloroisopropyl)ether	0.00095	U
Bis(2-Ethylhexyl)phthalate	0.0048	U
Butylbenzylphthalate	0.00095	U
Caprolactam	0.00095	UJ
Carbazole	0.00095	U

Appendix F-9
Analytical Surface Water Data - Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-SD-501-XXX SD-501 12/17/2012	
Chrysene	0.00095	U
Dibenz(a,h)anthracene	0.00095	U
Dibenzofuran	0.00095	U
Diethylphthalate	0.00095	U
Dimethylphthalate	0.00095	U
Di-n-butylphthalate	0.0048	U
Di-n-octylphthalate	0.00095	U
Diphenyl ether	0.00095	U
Diphenylmethanone	0.00095	U
Fluoranthene	0.00095	U
Fluorene	0.00095	U
Hexachlorobenzene	0.00095	U
Hexachlorocyclopentadiene	0.0019	U
Hexachloroethane	0.00095	U
Indeno(1,2,3-cd)pyrene	0.00095	U
Isophorone	0.00095	U
Nitrobenzene	0.00095	U
N-Nitrosodimethylamine	0.0000019	UJ
N-Nitrosodi-n-propylamine	0.0000019	U
N-Nitrosodiphenylamine	0.00095	U
Pentachlorophenol	0.00095	U
Phenanthrene	0.00095	U
Phenol	0.00095	U
Pyrene	0.00095	U
Metals, Total (mg/L)		
Aluminum	0.21	
Antimony	0.006	U
Arsenic	0.01	U
Barium	0.049	
Beryllium	0.001	U
Cadmium	0.001	U
Calcium	190	
Chromium	0.0085	
Chromium, Hexavalent	0.005	U
Cobalt	0.0012	J
Copper	0.0018	J
Iron	0.43	
Lead	0.0009	J
Magnesium	13	
Manganese	0.7	
Mercury	0.0002	U
Nickel	0.0053	J
Potassium	7.6	
Selenium	0.01	U
Silver	0.000015	J
Sodium	68	
Thallium	0.01	U
Tin	0.01	UJ
Vanadium	0.01	U
Zinc	0.04	J
Inorganics (mg/L)		
Bromide	0.13	J
Chloride	52	
Hardness	460	
Nitrate as N	3.6	J
Nitrite as N	0.075	J
Nitrogen, as Ammonia	28	
Sulfate	460	
Total Organic Carbon	11	
Total Suspended Solids	4	U

mg/L = milligram per liter

Prepared by: LCG 11/21/2014
Checked by: BJR 12/8/2014

U = not detected, value is the reporting limit
J = value is estimated
R = value is rejected

Appendix F-10
Analytical Surface Water Data - Detention Basin
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-SD-503-XXX SD-503 12/17/2012	
Volatile Organics (mg/L)		
1,1,1,2-Tetrachloroethane	0.002	U
1,1,1-Trichloroethane	0.002	U
1,1,2,2-Tetrachloroethane	0.001	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.002	U
1,1,2-Trichloroethane	0.002	U
1,1-Dichloroethane	0.002	U
1,1-Dichloroethene	0.002	U
1,1-Dichloropropene	0.002	U
1,2,3-Trichlorobenzene	0.002	U
1,2,3-Trichloropropane	0.002	U
1,2,4-Trichlorobenzene	0.002	U
1,2,4-Trimethylbenzene	0.002	U
1,2-Dibromo-3-chloropropane	0.01	U
1,2-Dibromoethane	0.002	U
1,2-Dichlorobenzene	0.002	U
1,2-Dichloroethane	0.002	U
1,2-Dichloropropane	0.002	U
1,3,5-Trimethylbenzene	0.002	U
1,3-Dichlorobenzene	0.002	U
1,3-Dichloropropane	0.002	U
1,4-Dichlorobenzene	0.002	U
1,4-Dioxane		R
2,2-Dichloropropane	0.002	U
2,4,4-Trimethyl-1-pentene	0.002	U
2,4,4-Trimethyl-2-pentene	0.002	U
2-Butanone	0.02	U
2-Chlorotoluene	0.002	U
2-Hexanone	0.02	U
4-Chlorotoluene	0.002	U
4-iso-Propyltoluene	0.002	U
4-Methyl-2-pentanone	0.02	U
Acetic acid, methyl ester	0.04	U
Acetone	0.1	U
Benzene	0.002	U
Bromobenzene	0.002	U
Bromochloromethane	0.002	U
Bromodichloromethane	0.001	U
Bromoform	0.002	U
Bromomethane	0.004	U
Butane, 2-methoxy-2-methyl-	0.01	U
Carbon disulfide	0.02	U
Carbon tetrachloride	0.002	U
Chlorobenzene	0.002	U
Chlorodibromomethane	0.001	U
Chloroethane	0.004	U
Chloroform	0.002	U
Chloromethane	0.004	U
Cis-1,2-Dichloroethene	0.002	U
cis-1,3-Dichloropropene	0.0008	U
Cyclohexane	0.002	U
Dibromomethane	0.002	U
Dichlorodifluoromethane	0.002	U
Diethyl ether	0.002	U
Ethyl benzene	0.002	U
Ethyl-t-Butyl Ether	0.01	U

Appendix F-10
Analytical Surface Water Data - Detention Basin
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-SD-503-XXX SD-503 12/17/2012	
Hexachlorobutadiene	0.0008	U
Isopropyl ether	0.02	U
Isopropylbenzene	0.002	U
Methyl cyclohexane	0.002	U
Methyl Tertbutyl Ether	0.002	U
Methylene chloride	0.002	U
Naphthalene	0.01	U
n-Butylbenzene	0.002	U
Propylbenzene	0.002	U
sec-Butylbenzene	0.002	U
Styrene	0.002	U
tert-Butylbenzene	0.002	U
Tetrachloroethene	0.002	U
Tetrahydrofuran	0.02	U
Toluene	0.002	U
trans-1,2-Dichloroethene	0.002	U
trans-1,3-Dichloropropene	0.0008	U
Trichloroethene	0.002	U
Trichlorofluoromethane	0.002	U
Vinyl chloride	0.001	U
Xylene, o	0.002	U
Xylenes (m&p)	0.004	U
Semivolatile Organics (mg/L)		
1,2,4,5-Tetrachlorobenzene	0.00095	U
1-Methylnaphthalene	0.00095	U
2,3,4,6-Tetrachlorophenol	0.00095	UJ
2,4,5-Trichlorophenol	0.00095	U
2,4,6-Trichlorophenol	0.00095	UJ
2,4-Dichlorophenol	0.00095	UJ
2,4-Dimethylphenol	0.00095	U
2,4-Dinitrophenol	0.00095	U
2,4-Dinitrotoluene	0.00095	U
2,6-Dinitrotoluene	0.00095	U
2-Chloronaphthalene	0.00095	U
2-Chlorophenol	0.00095	U
2-Methylnaphthalene	0.00095	U
2-Methylphenol	0.00095	U
2-Nitroaniline	0.0048	U
2-Nitrophenol	0.00095	U
3 & 4 Methylphenol	0.00095	U
3,3'-Dichlorobenzidine	0.0019	U
3-Nitroaniline	0.0048	U
4,6-Dinitro-2-methylphenol	0.0048	U
4-Bromophenyl phenyl ether	0.00095	U
4-Chloro-3-methylphenol	0.0019	U
4-Chloroaniline	0.0019	U
4-Chlorophenyl phenyl ether	0.00095	U
4-Nitroaniline	0.0048	U
4-Nitrophenol	0.0048	UJ
Acenaphthene	0.00095	U
Acenaphthylene	0.00095	U
Acetophenone	0.00095	U
Aniline	0.00095	U
Anthracene	0.00095	U
Atrazine	0.00095	U
Azobenzene	0.00095	U

Appendix F-10
Analytical Surface Water Data - Detention Basin
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-SD-503-XXX SD-503 12/17/2012	
Benzaldehyde	0.00095	U
Benzo(a)anthracene	0.00095	U
Benzo(a)pyrene	0.00095	U
Benzo(b)fluoranthene	0.00095	UJ
Benzo(ghi)perylene	0.00095	U
Benzo(k)fluoranthene	0.00095	U
Benzoic Acid		R
Benzyl alcohol	0.0019	U
Biphenyl	0.00095	U
Bis(2-Chloroethoxy)methane	0.00095	U
Bis(2-Chloroethyl)ether	0.00095	U
Bis(2-Chloroisopropyl)ether	0.00095	U
Bis(2-Ethylhexyl)phthalate	0.0048	U
Butylbenzylphthalate	0.00095	U
Caprolactam	0.00095	UJ
Carbazole	0.00095	U
Chrysene	0.00095	U
Dibenz(a,h)anthracene	0.00095	U
Dibenzofuran	0.00095	U
Diethylphthalate	0.00095	U
Dimethylphthalate	0.00095	U
Di-n-butylphthalate	0.0048	U
Di-n-octylphthalate	0.00095	U
Diphenyl ether	0.00095	U
Diphenylmethanone	0.00095	U
Fluoranthene	0.00095	U
Fluorene	0.00095	U
Hexachlorobenzene	0.00095	U
Hexachlorocyclopentadiene	0.0019	U
Hexachloroethane	0.00095	U
Indeno(1,2,3-cd)pyrene	0.00095	U
Isophorone	0.00095	U
Nitrobenzene	0.00095	U
N-Nitrosodimethylamine	0.0000032	J
N-Nitrosodi-n-propylamine	0.0000074	
N-Nitrosodiphenylamine	0.00095	U
Pentachlorophenol	0.00095	U
Phenanthrene	0.00095	U
Phenol	0.00095	U
Pyrene	0.00095	U
Metals, Total (mg/L)		
Aluminum	0.9	
Antimony	0.006	U
Arsenic	0.01	U
Barium	0.026	
Beryllium	0.001	U
Cadmium	0.001	U
Calcium	53	
Chromium	0.0068	J
Chromium, Hexavalent	0.01	
Cobalt	0.004	U
Copper	0.0027	J
Iron	1.5	
Lead	0.003	J
Magnesium	2.4	
Manganese	0.12	

Appendix F-10
Analytical Surface Water Data - Detention Basin
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SW-SD-503-XXX SD-503 12/17/2012	
Mercury	0.0002	U
Nickel	0.0014	J
Potassium	4	
Selenium	0.01	U
Silver	0.000056	J
Sodium	18	
Thallium	0.01	U
Tin	0.01	UJ
Vanadium	0.002	J
Zinc	0.01	J
Inorganics (mg/L)		
Bromide	0.2	U
Chloride	9	
Hardness	120	
Nitrate as N	0.084	J
Nitrite as N	0.026	J
Nitrogen, as Ammonia	7.5	
Sulfate	96	
Total Organic Carbon	11	
Total Suspended Solids	38	

mg/L = milligram per liter

U = not detected, value is the reporting limit
J = value is estimated
R = value is rejected

Prepared by: LCG 11/24/2014
Checked by: BJR 12/8/2014

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-ISCO-2-XXX ISCO2 12/9/2010 0-0.5 ft	OC-SD-ISCO-2-XXX ISCO2 2/17/2011	OC-SD-SD-1-XXX SD-1 12/9/2010 0-0.5 ft	OC-SD-SD2-0.0/0.5 SD-SD2 11/11/2011 0-0.5 ft	OC-SD-SD2 SD-SD2 11/16/2012 0-0.5 ft	OC-SD-SD2 SD-SD2 11/21/2013 0-0.5 ft	OC-SD-SD3-0.0/0.5 SD-SD3 11/11/2011 0-0.5 ft	OC-SD-SD3 SD-SD3 11/16/2012 0-0.5 ft	OC-SD-SD3 SD-SD3 11/21/2013 0-0.5 ft
Volatile Organics (mg/Kg)									
1,1,1,2-Tetrachloroethane	0.004 U	0.0039 U	0.0037 U						
1,1,1-Trichloroethane	0.004 U	0.0039 U	0.0037 U						
1,1,2,2-Tetrachloroethane	0.004 U	0.0039 U	0.0037 U						
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.02 U	0.019 U	0.019 U						
1,1,2-Trichloroethane	0.004 U	0.0039 U	0.0037 U						
1,1-Dichloroethane	0.004 U	0.0039 U	0.0037 U						
1,1-Dichloroethene	0.004 U	0.0039 U	0.0037 U						
1,1-Dichloropropene	0.004 U	0.0039 U	0.0037 U						
1,2,3-Trichlorobenzene	0.004 U	0.0039 U	0.0037 U						
1,2,3-Trichloropropane	0.004 U	0.0039 U	0.0037 U						
1,2,4-Trichlorobenzene	0.004 U	0.0039 U	0.0037 U						
1,2,4-Trimethylbenzene	0.004 U	0.0039 U *	0.0037 U						
1,2-Dibromo-3-chloropropane	0.04 U	0.039 U	0.037 U						
1,2-Dibromoethane	0.004 U	0.0039 U	0.0037 U						
1,2-Dichlorobenzene	0.004 U	0.0039 U	0.0037 U						
1,2-Dichloroethane	0.004 U	0.0039 U	0.0037 U						
1,2-Dichloropropane	0.004 U	0.0039 U	0.0037 U						
1,3,5-Trimethylbenzene	0.004 U	0.0039 U	0.0037 U						
1,3-Dichlorobenzene	0.004 U	0.0039 U	0.0037 U						
1,3-Dichloropropane	0.004 U	0.0039 U	0.0037 U						
1,4-Dichlorobenzene	0.004 U	0.0039 U	0.0037 U						
1,4-Dioxane	0.4 UJ	0.39 U	0.37 UJ						
2,2-Dichloropropane	0.004 U	0.0039 U	0.0037 U						
2,4,4-Trimethyl-1-pentene	0.0096	0.02	0.0075 U						
2,4,4-Trimethyl-2-pentene	0.0035 J	0.0078 U	0.0075 U						
2-Butanone	0.032 J	0.038 J	0.037 U						
2-Chlorotoluene	0.004 U	0.0039 U	0.0037 U						
2-Hexanone	0.04 U	0.039 U	0.037 U						
4-Chlorotoluene	0.004 U	0.0039 U	0.0037 U						
4-iso-Propyltoluene	0.004 U	0.0039 U	0.0037 U						
4-Methyl-2-pentanone	0.04 U	0.039 U	0.037 U						
Acetic acid, methyl ester	0.08 UJ	0.078 U	0.075 UJ						
Acetone	0.4 UJ	0.12 J *	0.37 UJ						
Benzene	0.004 U	0.0039 U	0.0037 U						
Bromobenzene	0.004 U	0.0039 U	0.0037 U						
Bromochloromethane	0.004 U	0.0039 U	0.0037 U						
Bromodichloromethane	0.004 U	0.0039 U	0.0037 U						

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-ISCO-2-XXX ISCO2 12/9/2010 0-0.5 ft	OC-SD-ISCO-2-XXX ISCO2 2/17/2011	OC-SD-SD-1-XXX SD-1 12/9/2010 0-0.5 ft	OC-SD-SD2-0.0/0.5 SD-SD2 11/11/2011 0-0.5 ft	OC-SD-SD2 SD-SD2 11/16/2012 0-0.5 ft	OC-SD-SD2 SD-SD2 11/21/2013 0-0.5 ft	OC-SD-SD3-0.0/0.5 SD-SD3 11/11/2011 0-0.5 ft	OC-SD-SD3 SD-SD3 11/16/2012 0-0.5 ft	OC-SD-SD3 SD-SD3 11/21/2013 0-0.5 ft
Bromoform	0.004 U	0.0039 U	0.0037 U						
Bromomethane	0.008 U	0.0078 U	0.0075 U						
Butane, 2-methoxy-2-methyl-	0.004 U	0.0039 U	0.0037 U						
Carbon disulfide	0.004 U	0.0039 U	0.0037 U						
Carbon tetrachloride	0.004 U	0.0039 U	0.0037 U						
Chlorobenzene	0.004 U	0.0039 U	0.0037 U						
Chlorodibromomethane	0.004 U	0.0039 U	0.0037 U						
Chloroethane	0.008 U	0.0078 U	0.0075 U						
Chloroform	0.004 U	0.0039 U	0.0037 U						
Chloromethane	0.008 U	0.0078 U	0.0075 U						
Cis-1,2-Dichloroethene	0.0024 J	0.0039 U	0.0037 U						
cis-1,3-Dichloropropene	0.004 U	0.0039 U	0.0037 U						
Cyclohexane	0.04 U	0.039 U	0.037 U						
Dibromomethane	0.004 U	0.0039 U	0.0037 U						
Dichlorodifluoromethane	0.008 UJ	0.0078 U	0.0075 UJ						
Diethyl ether	0.004 U	0.0039 U	0.0037 U						
Ethyl benzene	0.004 U	0.0039 U	0.0037 U						
Ethyl-t-Butyl Ether	0.004 U	0.0039 U	0.0037 U						
Hexachlorobutadiene	0.004 U	0.0039 U	0.0037 U						
Isopropyl ether	0.004 U	0.0039 U	0.0037 U						
Isopropylbenzene	0.004 U	0.0039 U	0.0037 U						
Methyl cyclohexane	0.004 U	0.0039 U	0.0037 U						
Methyl Tertbutyl Ether	0.004 U	0.0039 U	0.0037 U						
Methylene chloride	0.016 U	0.016 U	0.015 U						
Naphthalene	0.04 U	0.039 U	0.037 U						
n-Butylbenzene	0.004 U	0.0039 U	0.0037 U						
Propylbenzene	0.004 U	0.0039 U	0.0037 U						
sec-Butylbenzene	0.004 U	0.0039 U	0.0037 U						
Styrene	0.004 U	0.0039 U	0.0037 U						
tert-Butylbenzene	0.004 U	0.0039 U	0.0037 U						
Tetrachloroethene	0.004 U	0.0039 U	0.0037 U						
Tetrahydrofuran	0.04 UJ	0.039 U	0.037 UJ						
Toluene	0.004 U	0.0039 U	0.0037 U						
trans-1,2-Dichloroethene	0.0045	0.0039 U	0.0037 U						
trans-1,3-Dichloropropene	0.004 U	0.0039 U	0.0037 U						
Trichloroethene	0.004 U	0.0039 U	0.0037 U						
Trichlorofluoromethane	0.008 U	0.0078 U	0.0075 U						
Vinyl chloride	0.004 U	0.0039 U	0.0037 U						

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-ISCO-2-XXX ISCO2 12/9/2010 0-0.5 ft	OC-SD-ISCO-2-XXX ISCO2 2/17/2011	OC-SD-SD-1-XXX SD-1 12/9/2010 0-0.5 ft	OC-SD-SD2-0.0/0.5 SD-SD2 11/11/2011 0-0.5 ft	OC-SD-SD2 SD-SD2 11/16/2012 0-0.5 ft	OC-SD-SD2 SD-SD2 11/21/2013 0-0.5 ft	OC-SD-SD3-0.0/0.5 SD-SD3 11/11/2011 0-0.5 ft	OC-SD-SD3 SD-SD3 11/16/2012 0-0.5 ft	OC-SD-SD3 SD-SD3 11/21/2013 0-0.5 ft
Xylene, o	0.004 U	0.0039 U	0.0037 U						
Xylenes (m&p)	0.008 U	0.0078 U	0.0075 U						
Semivolatile Organics (mg/Kg)									
1,2,4,5-Tetrachlorobenzene	0.31 U	5.4 U	0.29 U						
1,2,4-Trichlorobenzene	0.31 U	5.4 U	0.29 U						
1,2-Dichlorobenzene	0.31 U	5.4 U	0.29 U						
1,3-Dichlorobenzene	0.31 U	5.4 U	0.29 U						
1,4-Dichlorobenzene	0.31 U	5.4 U	0.29 U						
1-Methylnaphthalene	0.31 U	5.4 U	0.29 U						
2,3,4,6-Tetrachlorophenol	0.31 U	5.4 U	0.29 U						
2,4,5-Trichlorophenol	0.31 U	5.4 U	0.29 U						
2,4,6-Trichlorophenol	0.31 U	5.4 U	0.29 U						
2,4-Dichlorophenol	0.31 U	5.4 U	0.29 U						
2,4-Dimethylphenol	0.31 U	5.4 U	0.29 U						
2,4-Dinitrophenol	0.31 U	5.4 U	0.29 U						
2,4-Dinitrotoluene	0.31 U	5.4 U	0.29 U						
2,6-Dinitrotoluene	0.31 U	5.4 U	0.29 U						
2-Chloronaphthalene	0.31 U	5.4 U	0.29 U						
2-Chlorophenol	0.31 U	5.4 U	0.29 U						
2-Methylnaphthalene	0.31 U	5.4 U	0.29 U						
2-Methylphenol	0.31 U	5.4 U	0.29 U						
2-Nitroaniline	1.6 U	27 U	1.4 U						
2-Nitrophenol	0.31 U	5.4 U	0.29 U						
3 & 4 Methylphenol	0.31 U	5.4 U	0.29 U						
3,3'-Dichlorobenzidine	0.62 U	11 U	0.58 U						
3-Nitroaniline	1.6 U	27 U	1.4 U						
4,6-Dinitro-2-methylphenol	1.6 U	27 U	1.4 U						
4-Bromophenyl phenyl ether	0.31 U	5.4 U	0.29 U						
4-Chloro-3-methylphenol	0.62 U	11 U	0.58 U						
4-Chloroaniline	0.62 U	11 U	0.58 U						
4-Chlorophenyl phenyl ether	0.31 U	5.4 U	0.29 U						
4-Nitroaniline	1.6 U	27 U	1.4 U						
4-Nitrophenol	1.6 U	27 U	1.4 U						
Acenaphthene	0.31 U	5.4 U	0.29 U						
Acenaphthylene	0.31 U	5.4 U	0.29 U						
Acetophenone	0.31 U	5.4 U	0.29 U						
Aniline	0.23 J	5.4 U *	0.29 U						
Anthracene	0.31 U	5.4 U	0.29 U						

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-ISCO-2-XXX ISCO2 12/9/2010 0-0.5 ft	OC-SD-ISCO-2-XXX ISCO2 2/17/2011	OC-SD-SD-1-XXX SD-1 12/9/2010 0-0.5 ft	OC-SD-SD2-0.0/0.5 SD-SD2 11/11/2011 0-0.5 ft	OC-SD-SD2 SD-SD2 11/16/2012 0-0.5 ft	OC-SD-SD2 SD-SD2 11/21/2013 0-0.5 ft	OC-SD-SD3-0.0/0.5 SD-SD3 11/11/2011 0-0.5 ft	OC-SD-SD3 SD-SD3 11/16/2012 0-0.5 ft	OC-SD-SD3 SD-SD3 11/21/2013 0-0.5 ft
Atrazine	0.31 U	5.4 U *	0.29 U						
Azobenzene	0.31 U	5.4 U	0.29 U						
Benzaldehyde	0.12 J	5.4 U	0.29 U						
Benzo(a)anthracene	0.31 U	5.4 U	0.29 U						
Benzo(a)pyrene	0.31 U	5.4 U	0.29 U						
Benzo(b)fluoranthene	0.31 U	5.4 U	0.29 U						
Benzo(ghi)perylene	0.31 U	5.4 U	0.29 U						
Benzo(k)fluoranthene	0.31 U	5.4 U	0.29 U						
Benzoic Acid	0.43 J	27 U	1.4 U						
Benzyl alcohol	0.62 U	11 U	0.58 U						
Biphenyl	0.32	5.4 U	0.29 U						
Bis(2-Chloroethoxy)methane	0.31 U	5.4 U	0.29 U						
Bis(2-Chloroethyl)ether	0.31 U	5.4 U	0.29 U						
Bis(2-Chloroisopropyl)ether	0.31 U	5.4 U	0.29 U						
Bis(2-Ethylhexyl)phthalate	280	480	210						
Butylbenzylphthalate	0.31 U	5.4 U	0.29 U						
Caprolactam	0.31 UJ	5.4 U	0.29 UJ						
Carbazole	0.31 U	5.4 U	0.29 U						
Chrysene	0.31 U	5.4 U	0.29 U						
Dibenz(a,h)anthracene	0.31 U	5.4 U	0.29 U						
Dibenzofuran	0.31 U	5.4 U	0.29 U						
Diethylphthalate	0.31 U	5.4 U	0.29 U						
Dimethylphthalate	0.31 U	5.4 U	0.29 U						
Di-n-butylphthalate	0.31 U	5.4 U	0.29 U						
Di-n-octylphthalate	0.31 U	5.4 U	0.15 J						
Diphenyl ether	2.6	5.4 U	0.22 J						
Diphenylamine	0.095		0.058 U						
Diphenylmethanone	0.31 U	5.4 U	0.29 U						
Fluoranthene	0.31 U	5.4 U	0.29 U						
Fluorene	0.31 U	5.4 U	0.29 U						
Hexachlorobenzene	0.31 U	5.4 U	0.29 U						
Hexachlorobutadiene	0.31 U	5.4 U	0.29 U						
Hexachlorocyclopentadiene	0.62 U	11 U	0.58 U						
Hexachloroethane	0.31 U	5.4 U	0.29 U						
Indeno(1,2,3-cd)pyrene	0.31 U	5.4 U	0.29 U						
Isophorone	0.31 U	5.4 U	0.29 U						
Naphthalene	0.75 U	13 U	0.7 U						
Nitrobenzene	0.31 U	5.4 U	0.29 U						

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-ISCO-2-XXX ISCO2 12/9/2010 0-0.5 ft	OC-SD-ISCO-2-XXX ISCO2 2/17/2011	OC-SD-SD-1-XXX SD-1 12/9/2010 0-0.5 ft	OC-SD-SD2-0.0/0.5 SD-SD2 11/11/2011 0-0.5 ft	OC-SD-SD2 SD-SD2 11/16/2012 0-0.5 ft	OC-SD-SD2 SD-SD2 11/21/2013 0-0.5 ft	OC-SD-SD3-0.0/0.5 SD-SD3 11/11/2011 0-0.5 ft	OC-SD-SD3 SD-SD3 11/16/2012 0-0.5 ft	OC-SD-SD3 SD-SD3 11/21/2013 0-0.5 ft
N-Nitrosodimethylamine	0.31 U	5.4 U	0.29 U						
N-Nitrosodi-n-propylamine	0.31 U	5.4 U	0.29 U						
N-Nitrosodiphenylamine	1.6	5.4 U	0.065						
Pentachlorophenol	0.31 U	5.4 U	0.29 U						
Phenanthrene	0.37 U	6.4 U	0.35 U						
Phenol	0.13 J	5.4 U	0.29 U						
Pyrene	0.31 U	5.4 U	0.29 U						
Inorganics (mg/Kg)									
Aluminum	10000	8100	7900	11000 J	5100 J	9700	9700 J	6600 J	11000
Antimony	0.98 UJ	0.89 U	0.91 UJ						
Arsenic	6.2	6.7	5						
Barium	11 J	14	12 J						
Beryllium	1.3	0.77	1						
Cadmium	1.2	0.58	0.32 J						
Calcium	1300	1100 B	820 J						
Chromium	2500	3000	1800	130	430	94	35	41	29
Chromium, Hexavalent	28		25						
Cobalt	21	17	4.7						
Copper	21	20	17						
Iron	4700	4300 B	4400	14000 J	6200	12000	14000 J	9600	17000
Lead	11	11	9.4						
Magnesium	480 J	410 B	470 J						
Manganese	67 J	49 B	38 J						
Mercury	0.24	0.22 B	0.12 U						
Nickel	24	17	11						
Potassium	1700	1500	1400						
Selenium	0.72 J	0.89 U	0.91 U						
Silver	51	62 ^	35						
Sodium	95 J	110 J	160 J						
Thallium	2 U	1.8 U	1.8 U						
Tin	9.8 U	1.6 J B	9.1 U						
Vanadium	9.4	8	8.5						
Zinc	45 J	30	33 J						
Chloride	130	130	140						
Nitrate as N	9.4 U	7.3 U	8.6 U						
Nitrite as N	1.9 U	1.5 U	1.7 U						
Nitrogen, as Ammonia	290 J	170	240 J						
Oxidation Reduction Potential **(mV)**	200		360						

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-ISCO-2-XXX ISCO2 12/9/2010 0-0.5 ft	OC-SD-ISCO-2-XXX ISCO2 2/17/2011	OC-SD-SD-1-XXX SD-1 12/9/2010 0-0.5 ft	OC-SD-SD2-0.0/0.5 SD-SD2 11/11/2011 0-0.5 ft	OC-SD-SD2 SD-SD2 11/16/2012 0-0.5 ft	OC-SD-SD2 SD-SD2 11/21/2013 0-0.5 ft	OC-SD-SD3-0.0/0.5 SD-SD3 11/11/2011 0-0.5 ft	OC-SD-SD3 SD-SD3 11/16/2012 0-0.5 ft	OC-SD-SD3 SD-SD3 11/21/2013 0-0.5 ft
pH **(pH units)**	6.88 HF		5.83 HF						
Sulfate	600	830	640						
Total Organic Carbon	52000	44000	48000						
VPH (mg/Kg)									
C5-C8 Aliphatics	4.9 U		4.5 U						
C9-C10 Aromatics	4.9 U		4.5 U						
C9-C12 Aliphatics	4.9 U		4.5 U						
Volatile Petroleum Hydrocarbons, Total	4.9 U		4.5 U						
EPH (mg/Kg)									
C11-C22 Aromatics	9400		1100						
C19-C36 Aliphatics	6400		690						
C9-C18 Aliphatics	770		96						
Extractable Petroleum Hydrocarbons, Total	17000		1900						
Specialty Compounds (mg/Kg)									
Hydrazine	0.0024 J		0.0013 J						
Monomethylhydrazine (MMH)	0.0084 U		0.0089 U						
UDMH	0.0084 U		0.0089 U						
Acetaldehyde	0.063 J		0.33 U						
Formaldehyde	0.6		0.27						
Dimethylformamide	0.14 U		0.18 U						
Phthalic Acid/Phthalic anhydride	0.19 U		0.17 U						

mg/Kg = milligram per kilogram
mV = millivolts
U = not detected, value is the reporting limit
J = value is estimated
JEB = value is estimated, analyte detected in an equipment blank
B = compound was found in the blank and sample
* = LCS or LCSD exceeds the control limits
^ = ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.
HF = holding time exceeded

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD5-0.0/0.5 SD-SD5 11/11/2011 0-0.5 ft	OC-SD-SD5 SD-SD5 11/16/2012 0-0.5 ft	OC-SD-SD5 SD-SD5 11/21/2013 0-0.5 ft	OC-SD-SD-SD2-XXX SD-SD2 12/10/2010 0-0.5 ft	OC-SD-SD-SD3-XXX SD-SD3 12/9/2010 0-0.5 ft	OC-SD-SDSW-E-XXX SDSW-E 12/9/2010 0-0.5 ft
Volatile Organics (mg/Kg)						
1,1,1,2-Tetrachloroethane				0.0034 UJ	0.0033 U	0.0023 U
1,1,1-Trichloroethane				0.0034 UJ	0.0033 U	0.0023 U
1,1,2,2-Tetrachloroethane				0.0034 UJ	0.0033 U	0.0023 U
1,1,2-Trichloro-1,2,2-Trifluoroethane				0.017 UJ	0.017 U	0.012 U
1,1,2-Trichloroethane				0.0034 UJ	0.0033 U	0.0023 U
1,1-Dichloroethane				0.0034 UJ	0.0033 U	0.0023 U
1,1-Dichloroethene				0.0034 UJ	0.0033 U	0.0023 U
1,1-Dichloropropene				0.0034 UJ	0.0033 U	0.0023 U
1,2,3-Trichlorobenzene				0.0034 UJ	0.0033 U	0.0023 U
1,2,3-Trichloropropane				0.0034 UJ	0.0033 U	0.0023 U
1,2,4-Trichlorobenzene				0.0034 UJ	0.0033 U	0.0023 U
1,2,4-Trimethylbenzene				0.0034 UJ	0.0033 U	0.0023 U
1,2-Dibromo-3-chloropropane				0.034 UJ	0.033 U	0.023 U
1,2-Dibromoethane				0.0034 UJ	0.0033 U	0.0023 U
1,2-Dichlorobenzene				0.0034 UJ	0.0033 U	0.0023 U
1,2-Dichloroethane				0.0034 UJ	0.0033 U	0.0023 U
1,2-Dichloropropane				0.0034 UJ	0.0033 U	0.0023 U
1,3,5-Trimethylbenzene				0.0034 UJ	0.0033 U	0.0023 U
1,3-Dichlorobenzene				0.0034 UJ	0.0033 U	0.0023 U
1,3-Dichloropropane				0.0034 UJ	0.0033 U	0.0023 U
1,4-Dichlorobenzene				0.0034 UJ	0.0033 U	0.0023 U
1,4-Dioxane				0.34 UJ	0.33 UJ	0.23 UJ
2,2-Dichloropropane				0.0034 UJ	0.0033 U	0.0023 U
2,4,4-Trimethyl-1-pentene				0.037 J	0.0066 U	0.0046 U
2,4,4-Trimethyl-2-pentene				0.0028 J	0.0066 U	0.0046 U
2-Butanone				0.02 J	0.033 U	0.023 U
2-Chlorotoluene				0.0034 UJ	0.0033 U	0.0023 U
2-Hexanone				0.034 UJ	0.033 U	0.023 U
4-Chlorotoluene				0.0034 UJ	0.0033 U	0.0023 U
4-iso-Propyltoluene				0.0034 UJ	0.0026 J	0.0023 U
4-Methyl-2-pentanone				0.034 UJ	0.033 U	0.023 U
Acetic acid, methyl ester				0.068 UJ	0.066 UJ	0.046 UJ
Acetone				0.34 UJ	0.33 UJ	0.23 UJ
Benzene				0.0034 UJ	0.0033 U	0.0023 U
Bromobenzene				0.0034 UJ	0.0033 U	0.0023 U
Bromochloromethane				0.0034 UJ	0.0033 U	0.0023 U
Bromodichloromethane				0.0034 UJ	0.0033 U	0.0023 U

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD5-0.0/0.5 SD-SD5 11/11/2011 0-0.5 ft	OC-SD-SD5 SD-SD5 11/16/2012 0-0.5 ft	OC-SD-SD5 SD-SD5 11/21/2013 0-0.5 ft	OC-SD-SD-SD2-XXX SD-SD2 12/10/2010 0-0.5 ft	OC-SD-SD-SD3-XXX SD-SD3 12/9/2010 0-0.5 ft	OC-SD-SDSW-E-XXX SDSW-E 12/9/2010 0-0.5 ft
Bromoform				0.0034 UJ	0.0033 U	0.0023 U
Bromomethane				0.0068 UJ	0.0066 U	0.0046 U
Butane, 2-methoxy-2-methyl-				0.0034 UJ	0.0033 U	0.0023 U
Carbon disulfide				0.0034 UJ	0.0033 U	0.0023 U
Carbon tetrachloride				0.0034 UJ	0.0033 U	0.0023 U
Chlorobenzene				0.0034 UJ	0.0033 U	0.0023 U
Chlorodibromomethane				0.0034 UJ	0.0033 U	0.0023 U
Chloroethane				0.0068 UJ	0.0066 U	0.0046 U
Chloroform				0.0034 UJ	0.0033 U	0.0023 U
Chloromethane				0.0068 UJ	0.0066 U	0.0046 U
Cis-1,2-Dichloroethene				0.0034 UJ	0.0033 U	0.0023 U
cis-1,3-Dichloropropene				0.0034 UJ	0.0033 U	0.0023 U
Cyclohexane				0.034 UJ	0.033 U	0.023 U
Dibromomethane				0.0034 UJ	0.0033 U	0.0023 U
Dichlorodifluoromethane				0.0068 UJ	0.0066 UJ	0.0046 UJ
Diethyl ether				0.0034 UJ	0.0033 U	0.0023 U
Ethyl benzene				0.0034 UJ	0.0033 U	0.0023 U
Ethyl-t-Butyl Ether				0.0034 UJ	0.0033 U	0.0023 U
Hexachlorobutadiene				0.0034 UJ	0.0033 U	0.0023 U
Isopropyl ether				0.0034 UJ	0.0033 U	0.0023 U
Isopropylbenzene				0.0034 UJ	0.0033 U	0.0023 U
Methyl cyclohexane				0.0034 UJ	0.0033 U	0.0023 U
Methyl Tertbutyl Ether				0.0034 UJ	0.0033 U	0.0023 U
Methylene chloride				0.014 UJ	0.013 U	0.0092 U
Naphthalene				0.034 UJ	0.033 U	0.023 U
n-Butylbenzene				0.0034 UJ	0.0033 U	0.0023 U
Propylbenzene				0.0034 UJ	0.0033 U	0.0023 U
sec-Butylbenzene				0.0034 UJ	0.0033 U	0.0023 U
Styrene				0.0034 UJ	0.0033 U	0.0023 U
tert-Butylbenzene				0.0034 UJ	0.0033 U	0.0023 U
Tetrachloroethene				0.0034 UJ	0.0033 U	0.0023 U
Tetrahydrofuran				0.034 UJ	0.033 UJ	0.023 UJ
Toluene				0.0034 UJ	0.0033 U	0.0023 U
trans-1,2-Dichloroethene				0.0034 UJ	0.0033 U	0.0023 U
trans-1,3-Dichloropropene				0.0034 UJ	0.0033 U	0.0023 U
Trichloroethene				0.0034 UJ	0.0033 U	0.0023 U
Trichlorofluoromethane				0.0068 UJ	0.0066 U	0.0046 U
Vinyl chloride				0.0034 UJ	0.0033 U	0.0023 U

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD5-0.0/0.5 SD-SD5 11/11/2011 0-0.5 ft	OC-SD-SD5 SD-SD5 11/16/2012 0-0.5 ft	OC-SD-SD5 SD-SD5 11/21/2013 0-0.5 ft	OC-SD-SD-SD2-XXX SD-SD2 12/10/2010 0-0.5 ft	OC-SD-SD-SD3-XXX SD-SD3 12/9/2010 0-0.5 ft	OC-SD-SDSW-E-XXX SDSW-E 12/9/2010 0-0.5 ft
Xylene, o				0.0034 UJ	0.0033 U	0.0023 U
Xylenes (m&p)				0.0068 UJ	0.0066 U	0.0046 U
Semivolatile Organics (mg/Kg)						
1,2,4,5-Tetrachlorobenzene				0.055 U	0.22 U	0.21 U
1,2,4-Trichlorobenzene				0.055 U	0.22 U	0.21 U
1,2-Dichlorobenzene				0.055 U	0.22 U	0.21 U
1,3-Dichlorobenzene				0.039 J	0.22 U	0.21 U
1,4-Dichlorobenzene				0.055 U	0.22 U	0.21 U
1-Methylnaphthalene				0.055 U	0.22 U	0.21 U
2,3,4,6-Tetrachlorophenol				0.055 U	0.22 U	0.21 U
2,4,5-Trichlorophenol				0.055 U	0.22 U	0.21 U
2,4,6-Trichlorophenol				0.055 U	0.22 U	0.21 U
2,4-Dichlorophenol				0.055 U	0.22 U	0.21 U
2,4-Dimethylphenol				0.055 U	0.22 U	0.21 U
2,4-Dinitrophenol				0.055 U	0.22 U	0.21 U
2,4-Dinitrotoluene				0.055 U	0.22 U	0.21 U
2,6-Dinitrotoluene				0.055 U	0.22 U	0.21 U
2-Chloronaphthalene				0.055 U	0.22 U	0.21 U
2-Chlorophenol				0.055 U	0.22 U	0.21 U
2-Methylnaphthalene				0.055 U	0.22 U	0.21 U
2-Methylphenol				0.055 U	0.22 U	0.21 U
2-Nitroaniline				0.27 U	1.1 U	1.1 U
2-Nitrophenol				0.055 U	0.22 U	0.21 U
3 & 4 Methylphenol				2	3	0.61
3,3'-Dichlorobenzidine				0.11 U	0.44 U	0.43 U
3-Nitroaniline				0.27 U	1.1 U	1.1 U
4,6-Dinitro-2-methylphenol				0.27 U	1.1 U	1.1 U
4-Bromophenyl phenyl ether				0.055 U	0.22 U	0.21 U
4-Chloro-3-methylphenol				0.11 U	0.44 U	0.43 U
4-Chloroaniline				0.11 UJ	0.44 U	0.43 U
4-Chlorophenyl phenyl ether				0.055 U	0.22 U	0.21 U
4-Nitroaniline				0.27 U	1.1 U	1.1 U
4-Nitrophenol				0.27 U	1.1 U	1.1 U
Acenaphthene				0.055 U	0.22 U	0.21 U
Acenaphthylene				0.055 U	0.22 U	0.21 U
Acetophenone				0.09	0.22 U	0.21 U
Aniline				0.055 UJ	0.22 U	0.21 U
Anthracene				0.018 J	0.22 U	0.21 U

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD5-0.0/0.5 SD-SD5 11/11/2011 0-0.5 ft	OC-SD-SD5 SD-SD5 11/16/2012 0-0.5 ft	OC-SD-SD5 SD-SD5 11/21/2013 0-0.5 ft	OC-SD-SD-SD2-XXX SD-SD2 12/10/2010 0-0.5 ft	OC-SD-SD-SD3-XXX SD-SD3 12/9/2010 0-0.5 ft	OC-SD-SDSW-E-XXX SDSW-E 12/9/2010 0-0.5 ft
Atrazine				0.055 U	0.22 U	0.21 U
Azobenzene				0.055 U	0.22 U	0.21 U
Benzaldehyde				0.48	0.62	0.2 J
Benzo(a)anthracene				0.06	0.12 J	0.21 U
Benzo(a)pyrene				0.046 J	0.13 J	0.11 J
Benzo(b)fluoranthene				0.075	0.16 J	0.093 J
Benzo(ghi)perylene				0.054 J	0.096 J	0.073 J
Benzo(k)fluoranthene				0.083	0.087 J	0.21 U
Benzoic Acid				0.047 J	0.22 J	1.1 U
Benzyl alcohol				0.071 J	0.44 U	0.43 U
Biphenyl				0.016 J	0.22 U	0.21 U
Bis(2-Chloroethoxy)methane				0.055 U	0.22 U	0.21 U
Bis(2-Chloroethyl)ether				0.055 U	0.22 U	0.21 U
Bis(2-Chloroisopropyl)ether				0.055 U	0.22 U	0.21 U
Bis(2-Ethylhexyl)phthalate				0.49 J	0.27	0.72
Butylbenzylphthalate				0.055 U	0.22 U	0.21 U
Caprolactam				0.053 J	0.22 UJ	0.21 UJ
Carbazole				0.055 U	0.22 U	0.21 U
Chrysene				0.06	0.14 J	0.068 J
Dibenz(a,h)anthracene				0.031 J	0.22 U	0.21 U
Dibenzofuran				0.055 U	0.22 U	0.21 U
Diethylphthalate				0.055 U	0.22 U	0.21 U
Dimethylphthalate				0.055 U	0.22 U	0.21 U
Di-n-butylphthalate				0.055 U	0.22 UJ	0.21 U
Di-n-octylphthalate				0.055 U	0.22 U	0.21 U
Diphenyl ether				0.19	0.22 U	0.21 U
Diphenylamine				0.055 U	0.22 U	0.21 U
Diphenylmethanone				0.03 J	0.22 U	0.21 U
Fluoranthene				0.11	0.3	0.12 J
Fluorene				0.055 U	0.22 U	0.21 U
Hexachlorobenzene				0.055 U	0.22 U	0.21 U
Hexachlorobutadiene				0.055 U	0.22 U	0.21 U
Hexachlorocyclopentadiene				0.11 U	0.44 U	0.43 U
Hexachloroethane				0.055 U	0.22 U	0.21 U
Indeno(1,2,3-cd)pyrene				0.059	0.087 J	0.077 J
Isophorone				0.055 UJ	0.22 U	0.21 U
Naphthalene				0.13 U	0.53 U	0.51 U
Nitrobenzene				0.055 U	0.22 U	0.21 U

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD5-0.0/0.5 SD-SD5 11/11/2011 0-0.5 ft	OC-SD-SD5 SD-SD5 11/16/2012 0-0.5 ft	OC-SD-SD5 SD-SD5 11/21/2013 0-0.5 ft	OC-SD-SD-SD2-XXX SD-SD2 12/10/2010 0-0.5 ft	OC-SD-SD-SD3-XXX SD-SD3 12/9/2010 0-0.5 ft	OC-SD-SDSW-E-XXX SDSW-E 12/9/2010 0-0.5 ft
N-Nitrosodimethylamine				0.055 U	0.22 U	0.21 U
N-Nitrosodi-n-propylamine				0.055 U	0.22 U	0.21 U
N-Nitrosodiphenylamine				0.28	0.22 U	0.21 U
Pentachlorophenol				0.055 U	0.22 U	0.21 U
Phenanthrene				0.071	0.16 J	0.25 U
Phenol				1.1 J	0.92	0.22
Pyrene				0.11	0.25	0.12 J
Inorganics (mg/Kg)						
Aluminum	11000 J	11000 J	8600	11000	7600	4500
Antimony				0.91 UJ	0.69 UJ	0.68 UJ
Arsenic				11	5.3	3.2
Barium				45 J	33 J	14 J
Beryllium				0.36	0.3	0.21 J
Cadmium				0.31 J	0.25 J	0.16 J
Calcium				4700 J	2400 J	930 J
Chromium	59	460	99	240	130	100
Chromium, Hexavalent				3.3 U	2.6 U	2.6
Cobalt				5.3	3.9	4.4
Copper				24	21	19
Iron	15000 J	14000	11000	16000	11000	7000
Lead				35	31	20
Magnesium				2700 J	1900 J	1200 J
Manganese				280 J	250 J	80 J
Mercury				0.1 U	0.11 U	0.11 U
Nickel				11	9.3	8.4
Potassium				1000	910	680
Selenium				0.91 U	0.69 U	0.68 U
Silver				4.1	2	1.6
Sodium				100 J	82 J	65 J
Thallium				1.8 U	1.4 U	1.4 U
Tin				9.1 U	6.9 U	6.8 U
Vanadium				20	15	9.2
Zinc				65 J	60 J	35 J
Chloride				38	64	52
Nitrate as N				8 U	6.5 U	6.3 U
Nitrite as N				1.6 U	1.3 U	1.3 U
Nitrogen, as Ammonia				250 J	170 J	130 J
Oxidation Reduction Potential **(mV)**				100	150	280

Appendix F-11
Analytical Sediment Data - South Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD5-0.0/0.5 SD-SD5 11/11/2011 0-0.5 ft	OC-SD-SD5 SD-SD5 11/16/2012 0-0.5 ft	OC-SD-SD5 SD-SD5 11/21/2013 0-0.5 ft	OC-SD-SD-SD2-XXX SD-SD2 12/10/2010 0-0.5 ft	OC-SD-SD-SD3-XXX SD-SD3 12/9/2010 0-0.5 ft	OC-SD-SDSW-E-XXX SDSW-E 12/9/2010 0-0.5 ft
pH **(pH units)**				7.66 HF	7.51 HF	6.82 HF
Sulfate				700	360	210
Total Organic Carbon				30000	30000	7500
VPH (mg/Kg)						
C5-C8 Aliphatics				3.7 U	3.3 U	2.7 U
C9-C10 Aromatics				3.7 U	3.3 U	2.7 U
C9-C12 Aliphatics				3.7 U	3.3 U	2.7 U
Volatile Petroleum Hydrocarbons, Total				3.7 U	3.3 U	2.7 U
EPH (mg/Kg)						
C11-C22 Aromatics				17	24	11
C19-C36 Aliphatics				29	43	14
C9-C18 Aliphatics				5.4 U	4.4 U	4.2 U
Extractable Petroleum Hydrocarbons, Total				46	67	25
Specialty Compounds (mg/Kg)						
Hydrazine				0.00091 J	0.0029 U	0.0029 U
Monomethylhydrazine (MMH)				0.0073 UJ	0.0072 U	0.0071 U
UDMH				0.0073 U	0.0072 U	0.0071 U
Acetaldehyde				0.076 J	0.052 J	0.26 U
Formaldehyde				0.98 J	0.58	0.33
Dimethylformamide				0.3 J	0.11 U	0.12 U
Phthalic Acid/Phthalic anhydride				0.16 U	0.13 U	0.13 U

mg/Kg = milligram per kilogram
mV = millivolts
U = not detected, value is the reporting limit
J = value is estimated
JEB = value is estimated, analyte detected in an equipment blank
B = compound was found in the blank and sample
* = LCS or LCSD exceeds the control limits
^ = ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard:
Instrument related QC exceeds the control limits.
HF = holding time exceeded

Prepared by: LCG 11/24/2014
Checked by: BJR 12/8/2014

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-BD-C17 BD-C17 10/27/2000 0.2-0.2 ft	1120-BD-C27 BD-C27 10/27/2000 0.5-0.5 ft	1120-BD-C32 BD-C32 10/27/2000 0.6-0.6 ft	1120-WDW-10D (6-30) WDW-10 8/31/2000 0.9-2.9 ft	1120-WDW-10S (0-6) WDW-10 8/31/2000 0.4-0.9 ft	1120-WDW-12D (6-30) WDW-12 8/30/2000 0.5-2.5 ft	1120-WDW-12S (0-6) WDW-12 8/30/2000 0-0.5 ft	1120-WDW-13D (6-30) WDW-13 8/30/2000 0.5-2.5 ft	1120-WDW-13S (0-6) WDW-13 8/30/2000 0-0.5 ft	1120-WDW-14D (6-30) WDW-14 8/31/2000 0.5-2.5 ft
Volatile Organics (mg/Kg)										
1,1,1,2-Tetrachloroethane	0.98 U	0.88 U	0.77 U							1.9 U
1,1,1-Trichloroethane	0.98 U	0.88 U	0.77 U							1.9 U
1,1,2,2-Tetrachloroethane	0.98 U	0.88 U	0.77 U							1.9 U
1,1,2-Trichloroethane	0.98 U	0.88 U	0.77 U							1.9 U
1,1-Dichloroethane	0.98 U	0.88 U	0.77 U							1.9 U
1,1-Dichloroethene	0.98 U	0.88 U	0.77 U							1.9 U
1,1-Dichloropropene	0.98 U	0.88 U	0.77 U							1.9 U
1,2,3-Trichlorobenzene	0.98 U	0.88 U	0.77 U							1.9 U
1,2,3-Trichloropropane	0.98 U	0.88 U	0.77 U							1.9 U
1,2,4-Trichlorobenzene	0.98 U	0.88 U	0.77 U							1.9 U
1,2,4-Trimethylbenzene	0.98 U	0.88 U	0.77 U							1.9 U
1,2-Dibromo-3-chloropropane	0.98 U	0.88 U	0.77 U							1.9 U
1,2-Dibromoethane	0.98 U	0.88 U	0.77 U							1.9 U
1,2-Dichlorobenzene	0.98 U	0.88 U	0.77 U							1.9 U
1,2-Dichloroethane	0.98 U	0.88 U	0.77 U							1.9 U
1,2-Dichloropropane	0.98 U	0.88 U	0.77 U							1.9 U
1,3,5-Trimethylbenzene	0.98 U	0.88 U	0.77 U							1.9 U
1,3-Dichlorobenzene	0.98 U	0.88 U	0.77 U							1.9 U
1,3-Dichloropropane	0.98 U	0.88 U	0.77 U							1.9 U
1,4-Dichlorobenzene	0.98 U	0.88 U	0.77 U							1.9 U
2,2-Dichloropropane	0.98 U	0.88 U	0.77 U							1.9 U
2,4,4-Trimethyl-1-pentene	0.98 U	0.88 U	0.77 U							
2,4,4-Trimethyl-2-pentene	0.98 U	0.88 U	0.77 U							
2-Butanone	20 U	18 U	15 U							38 U
2-Chlorotoluene	0.98 U	0.88 U	0.77 U							1.9 U
2-Hexanone	3.9 U	3.5 U	3.1 U							7.6 U
4-Chlorotoluene	0.98 U	0.88 U	0.77 U							1.9 U
4-iso-Propyltoluene	0.98 U	0.88 U	0.77 U							1.9 U
4-Methyl-2-pentanone	3.9 U	3.5 U	3.1 U							7.6 U
Acetone	20 U	18 U	15 U							38 U
Benzene	0.98 U	0.88 U	0.77 U							1.9 U
Bromobenzene	0.98 U	0.88 U	0.77 U							1.9 U
Bromochloromethane	0.98 U	0.88 U	0.77 U							1.9 U
Bromodichloromethane	0.98 U	0.88 U	0.77 U							1.9 U
Bromoform	0.98 U	0.88 U	0.77 U							1.9 U
Bromomethane	2 U	1.8 U	1.5 U							3.8 U
Carbon disulfide										
Carbon tetrachloride	0.98 U	0.88 U	0.77 U							1.9 U
Chlorobenzene	0.98 U	0.88 U	0.77 U							1.9 U
Chlorodibromomethane	0.98 U	0.88 U	0.77 U							1.9 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-BD-C17 BD-C17 10/27/2000 0.2-0.2 ft	1120-BD-C27 BD-C27 10/27/2000 0.5-0.5 ft	1120-BD-C32 BD-C32 10/27/2000 0.6-0.6 ft	1120-WDW-10D (6-30) WDW-10 8/31/2000 0.9-2.9 ft	1120-WDW-10S (0-6) WDW-10 8/31/2000 0.4-0.9 ft	1120-WDW-12D (6-30) WDW-12 8/30/2000 0.5-2.5 ft	1120-WDW-12S (0-6) WDW-12 8/30/2000 0-0.5 ft	1120-WDW-13D (6-30) WDW-13 8/30/2000 0.5-2.5 ft	1120-WDW-13S (0-6) WDW-13 8/30/2000 0-0.5 ft	1120-WDW-14D (6-30) WDW-14 8/31/2000 0.5-2.5 ft
Chloroethane	2 U	1.8 U	1.5 U							3.8 U
Chloroform	0.98 U	0.88 U	0.77 U							1.9 U
Chloromethane	2 U	1.8 U	1.5 U							3.8 U
Cis-1,2-Dichloroethene	0.98 U	0.88 U	0.77 U							1.9 U
cis-1,3-Dichloropropene	0.98 U	0.88 U	0.77 U							1.9 U
Dibromomethane	0.98 U	0.88 U	0.77 U							1.9 U
Ethyl benzene	0.98 U	0.88 U	0.77 U							1.9 U
Hexachlorobutadiene	0.98 U	0.88 U	0.77 U							1.9 UB
Isopropylbenzene	0.98 U	0.88 U	0.77 U							1.9 U
Methyl Tertbutyl Ether	0.98 U	0.88 U	0.77 U							1.9 U
Methylene chloride	0.98 U	1.8 U	1.5 U							1.9 U
Naphthalene	9.8 U	8.8 U	7.7 U							19 U
n-Butylbenzene	0.98 U	0.88 U	0.77 U							1.9 U
Propylbenzene	0.98 U	0.88 U	0.77 U							1.9 U
sec-Butylbenzene	0.98 U	0.88 U	0.77 U							1.9 U
Styrene	0.98 U	0.88 U	0.77 U							1.9 U
tert-Butylbenzene	0.98 U	0.88 U	0.77 U							1.9 U
Tetrachloroethene	0.98 U	0.88 U	0.77 U							1.9 U
Toluene	0.98 U	0.88 U	0.77 U							1.9 U
trans-1,2-Dichloroethene	0.98 U	0.88 U	0.77 U							1.9 U
trans-1,3-Dichloropropene	0.98 U	0.88 U	0.77 U							1.9 U
Trichloroethene	0.98 U	0.88 U	0.77 U							1.9 U
Trichlorofluoromethane	0.98 U	0.88 U	0.77 U							1.9 U
Vinyl acetate										
Vinyl chloride	2 U	1.8 U	1.5 U							3.8 U
Xylene, o	0.98 U	0.88 U	0.77 U							1.9 U
Xylenes (m&p)	0.98 UK	0.88 U	0.77 U							1.9 U
Xylenes, Total										
Semivolatile Organics (mg/Kg)										
1,2,4-Trichlorobenzene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
1,2-Dichlorobenzene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
1,2-Diphenylhydrazine	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
1,3-Dichlorobenzene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
1,4-Dichlorobenzene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
2,2'-Dichlorodiisopropylether	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
2,4,5-Trichlorophenol	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
2,4,6-Trichlorophenol	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
2,4-Dichlorophenol	21 U	12 U	10 U	0.72 U	13 U	9 U	3.9 U	9.6 U	22 U	8.3 U
2,4-Dimethylphenol	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
2,4-Dinitrophenol	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
2,4-Dinitrotoluene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-BD-C17 BD-C17 10/27/2000 0.2-0.2 ft	1120-BD-C27 BD-C27 10/27/2000 0.5-0.5 ft	1120-BD-C32 BD-C32 10/27/2000 0.6-0.6 ft	1120-WDW-10D (6-30) WDW-10 8/31/2000 0.9-2.9 ft	1120-WDW-10S (0-6) WDW-10 8/31/2000 0.4-0.9 ft	1120-WDW-12D (6-30) WDW-12 8/30/2000 0.5-2.5 ft	1120-WDW-12S (0-6) WDW-12 8/30/2000 0-0.5 ft	1120-WDW-13D (6-30) WDW-13 8/30/2000 0.5-2.5 ft	1120-WDW-13S (0-6) WDW-13 8/30/2000 0-0.5 ft	1120-WDW-14D (6-30) WDW-14 8/31/2000 0.5-2.5 ft
2,6-Dinitrotoluene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
2-Chloronaphthalene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
2-Chlorophenol	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
2-Methylnaphthalene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
2-Methylphenol	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
2-Nitroaniline	100 U	61 U	52 U	1.8 U	31 U	23 U	9.8 U	24 U	55 U	21 U
2-Nitrophenol	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
3 & 4 Methylphenol	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
3,3'-Dichlorobenzidine	41 U	24 U	21 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
3-Nitroaniline	100 U	61 U	52 U	1.8 U	31 U	23 U	9.8 U	24 U	55 U	21 U
4,6-Dinitro-2-methylphenol	100 U	61 U	52 U	1.8 U	31 U	23 U	9.8 U	24 U	55 U	21 U
4-Bromophenyl phenyl ether	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
4-Chloro-3-methylphenol	41 U	24 U	21 U	0.72 U	13 U	9 U	3.9 U	9.6 U	22 U	8.3 U
4-Chloroaniline	41 U	24 U	21 U	0.72 U	13 U	9 U	3.9 U	9.6 U	22 U	8.3 U
4-Chlorophenyl phenyl ether	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
4-Methylphenol										
4-Nitroaniline	100 U	61 U	52 U	1.8 U	31 U	23 U	9.8 U	24 U	55 U	21 U
4-Nitrophenol	100 U	61 U	52 U	1.8 U	31 U	23 U	9.8 U	24 U	55 U	21 U
Acenaphthene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Acenaphthylene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Aniline	100 U	61 U	52 U	1.8 U	31 U	23 U	9.8 U	24 U	55 U	21 U
Anthracene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Benzo(a)anthracene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Benzo(a)pyrene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Benzo(b)fluoranthene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Benzo(ghi)perylene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Benzo(k)fluoranthene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Benzoic Acid	100 U	61 U	52 U	1.8 U	31 U	23 U	9.8 U	24 U	55 U	21 U
Benzyl alcohol	41 U	24 U	21 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Bis(2-Chloroethoxy)methane	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Bis(2-Chloroethyl)ether	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Bis(2-Ethylhexyl)phthalate	244	8.9 J	12	1.2 B	6.3 U	4.5 U	2 U	4.8 U	11 J	4.2 U
Butylbenzylphthalate	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Carbazole										
Chrysene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Dibenz(a,h)anthracene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Dibenzofuran	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Diethylphthalate	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Dimethylphthalate	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Di-n-butylphthalate	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Di-n-octylphthalate	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-BD-C17 BD-C17 10/27/2000 0.2-0.2 ft	1120-BD-C27 BD-C27 10/27/2000 0.5-0.5 ft	1120-BD-C32 BD-C32 10/27/2000 0.6-0.6 ft	1120-WDW-10D (6-30) WDW-10 8/31/2000 0.9-2.9 ft	1120-WDW-10S (0-6) WDW-10 8/31/2000 0.4-0.9 ft	1120-WDW-12D (6-30) WDW-12 8/30/2000 0.5-2.5 ft	1120-WDW-12S (0-6) WDW-12 8/30/2000 0-0.5 ft	1120-WDW-13D (6-30) WDW-13 8/30/2000 0.5-2.5 ft	1120-WDW-13S (0-6) WDW-13 8/30/2000 0-0.5 ft	1120-WDW-14D (6-30) WDW-14 8/31/2000 0.5-2.5 ft
Fluoranthene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Fluorene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Hexachlorobenzene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Hexachlorobutadiene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Hexachlorocyclopentadiene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Hexachloroethane	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Indeno(1,2,3-cd)pyrene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Isophorone	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Naphthalene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Nitrobenzene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
N-Nitrosodimethylamine										
N-Nitrosodi-n-propylamine	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
N-Nitrosodiphenylamine	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Pentachlorophenol	100 U	61 U	52 U	1.8 U	31 U	23 U	9.8 U	24 U	55 U	21 U
Phenanthrene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Phenol	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Pyrene	21 U	12 U	10 U	0.36 U	6.3 U	4.5 U	2 U	4.8 U	11 U	4.2 U
Pesticides (mg/Kg)										
4,4'-DDD	0.31 U	0.074 U	0.06 U							
4,4'-DDE	0.31 U	0.074 U	0.06 U							
4,4'-DDT	0.31 U	0.074 U	0.06 U							
Aldrin	0.31 U	0.074 U	0.06 U							
Alpha-BHC	0.31 U	0.074 U	0.06 U							
Beta-BHC	0.31 U	0.074 U	0.06 U							
Chlordane	1.5 U	0.37 U	0.3 U							
Delta-BHC	0.31 U	0.074 U	0.06 U							
Dieldrin	0.31 U	0.074 U	0.06 U							
Endosulfan I	0.31 U	0.074 U	0.06 U							
Endosulfan II	0.31 U	0.074 U	0.06 U							
Endosulfan sulfate	0.31 U	0.074 U	0.06 U							
Endrin	0.31 U	0.074 U	0.06 U							
Endrin aldehyde	0.31 U	0.074 U	0.06 U							
Gamma-BHC/Lindane	0.31 U	0.074 U	0.06 U							
Heptachlor	0.31 U	0.074 U	0.06 U							
Heptachlor epoxide	0.31 U	0.074 U	0.06 U							
Methoxychlor	0.61 U	0.15 U	0.12 U							
Toxaphene	3.1 U	0.74 U	0.6 U							
Inorganics (mg/Kg)										
Aluminum	1400 F	1200	1100	4200	3700					1600
Antimony										
Arsenic	7 U	8 U	7 U	4 U	7 U					8 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-BD-C17 BD-C17 10/27/2000 0.2-0.2 ft	1120-BD-C27 BD-C27 10/27/2000 0.5-0.5 ft	1120-BD-C32 BD-C32 10/27/2000 0.6-0.6 ft	1120-WDW-10D (6-30) WDW-10 8/31/2000 0.9-2.9 ft	1120-WDW-10S (0-6) WDW-10 8/31/2000 0.4-0.9 ft	1120-WDW-12D (6-30) WDW-12 8/30/2000 0.5-2.5 ft	1120-WDW-12S (0-6) WDW-12 8/30/2000 0-0.5 ft	1120-WDW-13D (6-30) WDW-13 8/30/2000 0.5-2.5 ft	1120-WDW-13S (0-6) WDW-13 8/30/2000 0-0.5 ft	1120-WDW-14D (6-30) WDW-14 8/31/2000 0.5-2.5 ft
Barium										
Beryllium										
Cadmium	1 U	2 U	1 U	0.8 U	1 U					2 U
Calcium										
Chromium	36	8 U	7 U	5.2	7 U	9 U	11	10 U	19	8 U
Cobalt										
Copper										
Iron	840 F	430	600	1100	3600					1700
Lead	7 U	8 U	7 U	10	22					8.2
Magnesium										
Manganese										
Mercury	0.3 U	0.3 U	0.3 U	0.1 U	0.2 U					0.3 U
Nickel										
Potassium										
Selenium	7 U	8 U	7 U	4 U	7 U					8 U
Silver										
Sodium										
Thallium										
Vanadium										
Zinc										
Total Organic Carbon										

mg/Kg = milligram per kilogram
U = not detected, value is the reporting limit
J = value is estimated
F = value is estimated, matrix spike recovery outside of control limits
K = value is estimated, blank spike compound recovery outside the control limits
B = analyte was detected in the sample and its associated blank
C = value is estimated, surrogate recovery outside of control limits

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-14S (0-6) WDW-14 8/31/2000 0-0.5 ft	1120-WDW-16D (6-30) WDW-16 8/31/2000 0.5-2.5 ft	1120-WDW-16S (0-6) WDW-16 8/31/2000 0-0.5 ft	1120-WDW-17D (6-30) WDW-17 8/30/2000 0.5-2.5 ft	1120-WDW-17S (0-6) WDW-17 8/30/2000 0-0.5 ft	1120-WDW-19D (6-30) WDW-19 8/30/2000 0.5-2.5 ft	1120-WDW-19S (0-6) WDW-19 8/30/2000 0-0.5 ft	1120-WDW-20D (6-30) WDW-20 8/31/2000 0.5-2.5 ft	1120-WDW-20S (0-6) WDW-20 8/31/2000 0-0.5 ft	1120-WDW-21AD (6-30) WDW-21A 8/30/2000 0.5-2.5 ft
Volatile Organics (mg/Kg)										
1,1,1,2-Tetrachloroethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,1,1-Trichloroethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,1,2,2-Tetrachloroethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,1,2-Trichloroethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,1-Dichloroethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,1-Dichloroethene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,1-Dichloropropene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,2,3-Trichlorobenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,2,3-Trichloropropane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,2,4-Trichlorobenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,2,4-Trimethylbenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,2-Dibromo-3-chloropropane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,2-Dibromoethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,2-Dichlorobenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,2-Dichloroethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,2-Dichloropropane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,3,5-Trimethylbenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,3-Dichlorobenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,3-Dichloropropane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
1,4-Dichlorobenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
2,2-Dichloropropane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
2,4,4-Trimethyl-1-pentene										
2,4,4-Trimethyl-2-pentene										
2-Butanone	15 U	36 U	16 U					29 U	31 U	
2-Chlorotoluene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
2-Hexanone	2.9 U	7.2 U	3.2 U					5.8 U	6.1 U	
4-Chlorotoluene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
4-iso-Propyltoluene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
4-Methyl-2-pentanone	2.9 U	7.2 U	3.2 U					5.8 U	6.1 U	
Acetone	15 U	36 U	16 U					29 U	31 U	
Benzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Bromobenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Bromochloromethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Bromodichloromethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Bromoform	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Bromomethane	1.5 U	3.6 U	1.6 U					2.9 U	3.1 U	
Carbon disulfide										
Carbon tetrachloride	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Chlorobenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Chlorodibromomethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-14S (0-6) WDW-14 8/31/2000 0-0.5 ft	1120-WDW-16D (6-30) WDW-16 8/31/2000 0.5-2.5 ft	1120-WDW-16S (0-6) WDW-16 8/31/2000 0-0.5 ft	1120-WDW-17D (6-30) WDW-17 8/30/2000 0.5-2.5 ft	1120-WDW-17S (0-6) WDW-17 8/30/2000 0-0.5 ft	1120-WDW-19D (6-30) WDW-19 8/30/2000 0.5-2.5 ft	1120-WDW-19S (0-6) WDW-19 8/30/2000 0-0.5 ft	1120-WDW-20D (6-30) WDW-20 8/31/2000 0.5-2.5 ft	1120-WDW-20S (0-6) WDW-20 8/31/2000 0-0.5 ft	1120-WDW-21AD (6-30) WDW-21A 8/30/2000 0.5-2.5 ft
Chloroethane	1.5 U	3.6 U	1.6 U					2.9 U	3.1 U	
Chloroform	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Chloromethane	1.5 U	3.6 U	1.6 U					2.9 U	3.1 U	
Cis-1,2-Dichloroethene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
cis-1,3-Dichloropropene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Dibromomethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Ethyl benzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Hexachlorobutadiene	0.73 UB	1.8 UB	0.8 UB					1.4 UB	1.5 UB	
Isopropylbenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Methyl Tertbutyl Ether	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Methylene chloride	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Naphthalene	7.3 U	18 U	8 U					14 U	15 U	
n-Butylbenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Propylbenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
sec-Butylbenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Styrene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
tert-Butylbenzene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Tetrachloroethene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Toluene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
trans-1,2-Dichloroethene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
trans-1,3-Dichloropropene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Trichloroethene	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Trichlorofluoromethane	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Vinyl acetate										
Vinyl chloride	1.5 U	3.6 U	1.6 U					2.9 U	3.1 U	
Xylene, o	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Xylenes (m&p)	0.73 U	1.8 U	0.8 U					1.4 U	1.5 U	
Xylenes, Total										
Semivolatile Organics (mg/Kg)										
1,2,4-Trichlorobenzene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
1,2-Dichlorobenzene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
1,2-Diphenylhydrazine	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
1,3-Dichlorobenzene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
1,4-Dichlorobenzene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
2,2'-Dichlorodiisopropylether	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
2,4,5-Trichlorophenol	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
2,4,6-Trichlorophenol	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
2,4-Dichlorophenol	11 U	12 U	10 U	18 U	9.8 U	7.5 U	23 U	6.8 U	8.3 U	7.2 U
2,4-Dimethylphenol	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
2,4-Dinitrophenol	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
2,4-Dinitrotoluene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-14S (0-6) WDW-14 8/31/2000 0-0.5 ft	1120-WDW-16D (6-30) WDW-16 8/31/2000 0.5-2.5 ft	1120-WDW-16S (0-6) WDW-16 8/31/2000 0-0.5 ft	1120-WDW-17D (6-30) WDW-17 8/30/2000 0.5-2.5 ft	1120-WDW-17S (0-6) WDW-17 8/30/2000 0-0.5 ft	1120-WDW-19D (6-30) WDW-19 8/30/2000 0.5-2.5 ft	1120-WDW-19S (0-6) WDW-19 8/30/2000 0-0.5 ft	1120-WDW-20D (6-30) WDW-20 8/31/2000 0.5-2.5 ft	1120-WDW-20S (0-6) WDW-20 8/31/2000 0-0.5 ft	1120-WDW-21AD (6-30) WDW-21A 8/30/2000 0.5-2.5 ft
2,6-Dinitrotoluene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
2-Chloronaphthalene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
2-Chlorophenol	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
2-Methylnaphthalene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
2-Methylphenol	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
2-Nitroaniline	26 U	29 U	26 U	44 U	24 U	19 U	58 U	17 U	21 U	18 U
2-Nitrophenol	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
3 & 4 Methylphenol	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
3,3'-Dichlorobenzidine	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
3-Nitroaniline	26 U	29 U	26 U	44 U	24 U	19 U	58 U	17 U	21 U	18 U
4,6-Dinitro-2-methylphenol	26 U	29 U	26 U	44 U	24 U	19 U	58 U	17 U	21 U	18 U
4-Bromophenyl phenyl ether	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
4-Chloro-3-methylphenol	11 U	12 U	10 U	18 U	9.8 U	7.5 U	23 U	6.8 U	8.3 U	7.2 U
4-Chloroaniline	11 U	12 U	10 U	18 U	9.8 U	7.5 U	23 U	6.8 U	8.3 U	7.2 U
4-Chlorophenyl phenyl ether	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
4-Methylphenol										
4-Nitroaniline	26 U	29 U	26 U	44 U	24 U	19 U	58 U	17 U	21 U	18 U
4-Nitrophenol	26 U	29 U	26 U	44 U	24 U	19 U	58 U	17 U	21 U	18 U
Acenaphthene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Acenaphthylene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Aniline	26 U	29 U	26 U	44 U	24 U	19 U	58 U	17 U	21 U	18 U
Anthracene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Benzo(a)anthracene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Benzo(a)pyrene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Benzo(b)fluoranthene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Benzo(ghi)perylene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Benzo(k)fluoranthene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Benzoic Acid	26 U	29 U	26 U	44 U	24 U	19 U	58 U	17 U	21 U	18 U
Benzyl alcohol	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Bis(2-Chloroethoxy)methane	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Bis(2-Chloroethyl)ether	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Bis(2-Ethylhexyl)phthalate	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 UB	3.4 U	4.2 UB	4
Butylbenzylphthalate	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Carbazole										
Chrysene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Dibenz(a,h)anthracene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Dibenzofuran	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Diethylphthalate	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Dimethylphthalate	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Di-n-butylphthalate	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Di-n-octylphthalate	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-14S (0-6) WDW-14 8/31/2000 0-0.5 ft	1120-WDW-16D (6-30) WDW-16 8/31/2000 0.5-2.5 ft	1120-WDW-16S (0-6) WDW-16 8/31/2000 0-0.5 ft	1120-WDW-17D (6-30) WDW-17 8/30/2000 0.5-2.5 ft	1120-WDW-17S (0-6) WDW-17 8/30/2000 0-0.5 ft	1120-WDW-19D (6-30) WDW-19 8/30/2000 0.5-2.5 ft	1120-WDW-19S (0-6) WDW-19 8/30/2000 0-0.5 ft	1120-WDW-20D (6-30) WDW-20 8/31/2000 0.5-2.5 ft	1120-WDW-20S (0-6) WDW-20 8/31/2000 0-0.5 ft	1120-WDW-21AD (6-30) WDW-21A 8/30/2000 0.5-2.5 ft
Fluoranthene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Fluorene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Hexachlorobenzene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Hexachlorobutadiene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Hexachlorocyclopentadiene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Hexachloroethane	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Indeno(1,2,3-cd)pyrene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Isophorone	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Naphthalene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Nitrobenzene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
N-Nitrosodimethylamine										
N-Nitrosodi-n-propylamine	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
N-Nitrosodiphenylamine	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Pentachlorophenol	26 U	29 U	26 U	44 U	24 U	19 U	58 U	17 U	21 U	18 U
Phenanthrene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Phenol	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Pyrene	5.3 U	5.8 U	5.2 U	8.9 U	4.9 U	3.7 U	12 U	3.4 U	4.2 U	3.6 U
Pesticides (mg/Kg)										
4,4'-DDD										
4,4'-DDE										
4,4'-DDT										
Aldrin										
Alpha-BHC										
Beta-BHC										
Chlordane										
Delta-BHC										
Dieldrin										
Endosulfan I										
Endosulfan II										
Endosulfan sulfate										
Endrin										
Endrin aldehyde										
Gamma-BHC/Lindane										
Heptachlor										
Heptachlor epoxide										
Methoxychlor										
Toxaphene										
Inorganics (mg/Kg)										
Aluminum	4100	1600	3700					3200	3100	
Antimony										
Arsenic	4 U	8 U	4 U					7 U	9 U	

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-14S (0-6) WDW-14 8/31/2000 0-0.5 ft	1120-WDW-16D (6-30) WDW-16 8/31/2000 0.5-2.5 ft	1120-WDW-16S (0-6) WDW-16 8/31/2000 0-0.5 ft	1120-WDW-17D (6-30) WDW-17 8/30/2000 0.5-2.5 ft	1120-WDW-17S (0-6) WDW-17 8/30/2000 0-0.5 ft	1120-WDW-19D (6-30) WDW-19 8/30/2000 0.5-2.5 ft	1120-WDW-19S (0-6) WDW-19 8/30/2000 0-0.5 ft	1120-WDW-20D (6-30) WDW-20 8/31/2000 0.5-2.5 ft	1120-WDW-20S (0-6) WDW-20 8/31/2000 0-0.5 ft	1120-WDW-21AD (6-30) WDW-21A 8/30/2000 0.5-2.5 ft
Barium										
Beryllium										
Cadmium	0.9 U	2 U	0.87					1 U	2 U	
Calcium										
Chromium	11	8 U	29	7 U	17	22	69	8.8	9 U	8.9
Cobalt										
Copper										
Iron	6600	1400	8000					4600	1300 F	
Lead	82	8.7	110					15	9 U	
Magnesium										
Manganese										
Mercury	0.28	0.2 U	0.37					0.2 U	0.3 U	
Nickel										
Potassium										
Selenium	4 U	8 U	4 U					7 U	9 U	
Silver										
Sodium										
Thallium										
Vanadium										
Zinc										
Total Organic Carbon										

mg/Kg = milligram per kilogram
U = not detected, value is the reporting limit
J = value is estimated
F = value is estimated, matrix spike recovery outside of control limits
K = value is estimated, blank spike compound recovery outside the control limits
B = analyte was detected in the sample and its associated blank
C = value is estimated, surrogate recovery outside of control limits

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-21AS (0-6) WDW-21A 8/30/2000 0-0.5 ft	1120-WDW-21BD (6-30) WDW-21B 8/30/2000 0.5-2.5 ft	1120-WDW-21BS (0-6) WDW-21B 8/30/2000 0-0.5 ft	1120-WDW-22D (6-30) WDW-22 8/30/2000 0.5-2.5 ft	1120-WDW-22S (0-6) WDW-22 8/30/2000 0-0.5 ft	1120-WDW-23D (6-30) WDW-23 8/31/2000 0.5-2.5 ft	1120-WDW-23S (0-6) WDW-23 8/31/2000 0-0.5 ft	1120-WDW-24D (6-24) WDW-24 8/30/2000 0.5-2 ft	1120-WDW-24S (0-6) WDW-24 8/30/2000 0-0.5 ft	1120-WDW-25D (6-30) WDW-25 8/30/2000 0.5-2.5 ft
Volatile Organics (mg/Kg)										
1,1,1,2-Tetrachloroethane						1 U	0.84 U			
1,1,1-Trichloroethane						1 U	0.84 U			
1,1,2,2-Tetrachloroethane						1 U	0.84 U			
1,1,2-Trichloroethane						1 U	0.84 U			
1,1-Dichloroethane						1 U	0.84 U			
1,1-Dichloroethene						1 U	0.84 U			
1,1-Dichloropropene						1 U	0.84 U			
1,2,3-Trichlorobenzene						1 U	0.84 U			
1,2,3-Trichloropropane						1 U	0.84 U			
1,2,4-Trichlorobenzene						1 U	0.84 U			
1,2,4-Trimethylbenzene						1 U	0.84 U			
1,2-Dibromo-3-chloropropane						1 U	0.84 U			
1,2-Dibromoethane						1 U	0.84 U			
1,2-Dichlorobenzene						1 U	0.84 U			
1,2-Dichloroethane						1 U	0.84 U			
1,2-Dichloropropane						1 U	0.84 U			
1,3,5-Trimethylbenzene						1 U	0.84 U			
1,3-Dichlorobenzene						1 U	0.84 U			
1,3-Dichloropropane						1 U	0.84 U			
1,4-Dichlorobenzene						1 U	0.84 U			
2,2-Dichloropropane						1 U	0.84 U			
2,4,4-Trimethyl-1-pentene										
2,4,4-Trimethyl-2-pentene										
2-Butanone						20 U	17 U			
2-Chlorotoluene						1 U	0.84 U			
2-Hexanone						4 U	3.4 U			
4-Chlorotoluene						1 U	0.84 U			
4-iso-Propyltoluene						1 U	0.84 U			
4-Methyl-2-pentanone						4 U	3.4 U			
Acetone						20 U	17 U			
Benzene						1 U	0.84 U			
Bromobenzene						1 U	0.84 U			
Bromochloromethane						1 U	0.84 U			
Bromodichloromethane						1 U	0.84 U			
Bromoform						1 U	0.84 U			
Bromomethane						2 U	1.7 U			
Carbon disulfide										
Carbon tetrachloride						1 U	0.84 U			
Chlorobenzene						1 U	0.84 U			
Chlorodibromomethane						1 U	0.84 U			

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-21AS (0-6) WDW-21A 8/30/2000 0-0.5 ft	1120-WDW-21BD (6-30) WDW-21B 8/30/2000 0.5-2.5 ft	1120-WDW-21BS (0-6) WDW-21B 8/30/2000 0-0.5 ft	1120-WDW-22D (6-30) WDW-22 8/30/2000 0.5-2.5 ft	1120-WDW-22S (0-6) WDW-22 8/30/2000 0-0.5 ft	1120-WDW-23D (6-30) WDW-23 8/31/2000 0.5-2.5 ft	1120-WDW-23S (0-6) WDW-23 8/31/2000 0-0.5 ft	1120-WDW-24D (6-24) WDW-24 8/30/2000 0.5-2 ft	1120-WDW-24S (0-6) WDW-24 8/30/2000 0-0.5 ft	1120-WDW-25D (6-30) WDW-25 8/30/2000 0.5-2.5 ft
Chloroethane						2 U	1.7 U			
Chloroform						1 U	0.84 U			
Chloromethane						2 U	1.7 U			
Cis-1,2-Dichloroethene						1 U	0.84 U			
cis-1,3-Dichloropropene						1 U	0.84 U			
Dibromomethane						1 U	0.84 U			
Ethyl benzene						1 U	0.84 U			
Hexachlorobutadiene						1 UB	0.84 UB			
Isopropylbenzene						1 U	0.84 U			
Methyl Tertbutyl Ether						1 U	0.84 U			
Methylene chloride						1 U	0.84 U			
Naphthalene						10 U	8.4 U			
n-Butylbenzene						1 U	0.84 U			
Propylbenzene						1 U	0.84 U			
sec-Butylbenzene						1 U	0.84 U			
Styrene						1 U	0.84 U			
tert-Butylbenzene						1 U	0.84 U			
Tetrachloroethene						1 U	0.84 U			
Toluene						1 U	0.84 U			
trans-1,2-Dichloroethene						1 U	0.84 U			
trans-1,3-Dichloropropene						1 U	0.84 U			
Trichloroethene						1 U	0.84 U			
Trichlorofluoromethane						1 U	0.84 U			
Vinyl acetate										
Vinyl chloride						2 U	1.7 U			
Xylene, o						1 U	0.84 U			
Xylenes (m&p)						1 U	0.84 U			
Xylenes, Total										
Semivolatile Organics (mg/Kg)										
1,2,4-Trichlorobenzene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
1,2-Dichlorobenzene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
1,2-Diphenylhydrazine	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
1,3-Dichlorobenzene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
1,4-Dichlorobenzene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
2,2'-Dichlorodiisopropylether	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
2,4,5-Trichlorophenol	2.2 U	1.9 U	4.6 U	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
2,4,6-Trichlorophenol	2.2 U	1.9 U	4.6 U	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
2,4-Dichlorophenol	4.4 U	3.8 U	9.1 UC	7.9 U	5.7 U	9.8 U	6.8 U	14 U	7.4 U	4.6 U
2,4-Dimethylphenol	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
2,4-Dinitrophenol	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
2,4-Dinitrotoluene	2.2 U	1.9 U	4.6 U	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-21AS (0-6) WDW-21A 8/30/2000 0-0.5 ft	1120-WDW-21BD (6-30) WDW-21B 8/30/2000 0.5-2.5 ft	1120-WDW-21BS (0-6) WDW-21B 8/30/2000 0-0.5 ft	1120-WDW-22D (6-30) WDW-22 8/30/2000 0.5-2.5 ft	1120-WDW-22S (0-6) WDW-22 8/30/2000 0-0.5 ft	1120-WDW-23D (6-30) WDW-23 8/31/2000 0.5-2.5 ft	1120-WDW-23S (0-6) WDW-23 8/31/2000 0-0.5 ft	1120-WDW-24D (6-24) WDW-24 8/30/2000 0.5-2 ft	1120-WDW-24S (0-6) WDW-24 8/30/2000 0-0.5 ft	1120-WDW-25D (6-30) WDW-25 8/30/2000 0.5-2.5 ft
2,6-Dinitrotoluene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
2-Chloronaphthalene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
2-Chlorophenol	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
2-Methylnaphthalene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
2-Methylphenol	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
2-Nitroaniline	11 U	9.5 U	23 UC	20 U	14 U	25 U	17 U	34 U	19 U	12 U
2-Nitrophenol	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
3 & 4 Methylphenol	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
3,3'-Dichlorobenzidine	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
3-Nitroaniline	11 U	9.5 U	23 UC	20 U	14 U	25 U	17 U	34 U	19 U	12 U
4,6-Dinitro-2-methylphenol	11 U	9.5 U	23 UC	20 U	14 U	25 U	17 U	34 U	19 U	12 U
4-Bromophenyl phenyl ether	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
4-Chloro-3-methylphenol	4.4 U	3.8 U	9.1 UC	7.9 U	5.7 U	9.8 U	6.8 U	14 U	7.4 U	4.6 U
4-Chloroaniline	4.4 U	3.8 U	9.1 UC	7.9 U	5.7 U	9.8 U	6.8 U	14 U	7.4 U	4.6 U
4-Chlorophenyl phenyl ether	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
4-Methylphenol										
4-Nitroaniline	11 U	9.5 U	23 UC	20 U	14 U	25 U	17 U	34 U	19 U	12 U
4-Nitrophenol	11 U	9.5 U	23 UC	20 U	14 U	25 U	17 U	34 U	19 U	12 U
Acenaphthene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Acenaphthylene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Aniline	11 U	9.5 U	23 UC	20 U	14 U	25 U	17 U	34 U	19 U	12 U
Anthracene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Benzo(a)anthracene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Benzo(a)pyrene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Benzo(b)fluoranthene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Benzo(ghi)perylene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Benzo(k)fluoranthene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Benzoic Acid	11 U	9.5 U	23 UC	20 U	14 U	25 U	17 U	34 U	19 U	12 U
Benzyl alcohol	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Bis(2-Chloroethoxy)methane	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Bis(2-Chloroethyl)ether	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Bis(2-Ethylhexyl)phthalate	2.2 U	1.9 U	4.6 UC	3.9 U	3.8	4.9 U	6.6	8	8.2	13
Butylbenzylphthalate	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Carbazole										
Chrysene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Dibenz(a,h)anthracene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Dibenzofuran	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Diethylphthalate	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Dimethylphthalate	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Di-n-butylphthalate	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Di-n-octylphthalate	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-21AS (0-6) WDW-21A 8/30/2000 0-0.5 ft	1120-WDW-21BD (6-30) WDW-21B 8/30/2000 0.5-2.5 ft	1120-WDW-21BS (0-6) WDW-21B 8/30/2000 0-0.5 ft	1120-WDW-22D (6-30) WDW-22 8/30/2000 0.5-2.5 ft	1120-WDW-22S (0-6) WDW-22 8/30/2000 0-0.5 ft	1120-WDW-23D (6-30) WDW-23 8/31/2000 0.5-2.5 ft	1120-WDW-23S (0-6) WDW-23 8/31/2000 0-0.5 ft	1120-WDW-24D (6-24) WDW-24 8/30/2000 0.5-2 ft	1120-WDW-24S (0-6) WDW-24 8/30/2000 0-0.5 ft	1120-WDW-25D (6-30) WDW-25 8/30/2000 0.5-2.5 ft
Fluoranthene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Fluorene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Hexachlorobenzene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Hexachlorobutadiene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Hexachlorocyclopentadiene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Hexachloroethane	2.2 U	1.9 U	4.6 U	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Indeno(1,2,3-cd)pyrene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Isophorone	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Naphthalene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Nitrobenzene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
N-Nitrosodimethylamine										
N-Nitrosodi-n-propylamine	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
N-Nitrosodiphenylamine	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Pentachlorophenol	11 U	9.5 U	23 U	20 U	14 U	25 U	17 U	34 U	19 U	12 U
Phenanthrene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Phenol	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Pyrene	2.2 U	1.9 U	4.6 UC	3.9 U	2.9 U	4.9 U	3.4 U	6.8 U	3.7 U	2.3 U
Pesticides (mg/Kg)										
4,4'-DDD										
4,4'-DDE										
4,4'-DDT										
Aldrin										
Alpha-BHC										
Beta-BHC										
Chlordane										
Delta-BHC										
Dieldrin										
Endosulfan I										
Endosulfan II										
Endosulfan sulfate										
Endrin										
Endrin aldehyde										
Gamma-BHC/Lindane										
Heptachlor										
Heptachlor epoxide										
Methoxychlor										
Toxaphene										
Inorganics (mg/Kg)										
Aluminum						2000	2800			
Antimony										
Arsenic						4 U	5 U			

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-21AS (0-6) WDW-21A 8/30/2000 0-0.5 ft	1120-WDW-21BD (6-30) WDW-21B 8/30/2000 0.5-2.5 ft	1120-WDW-21BS (0-6) WDW-21B 8/30/2000 0-0.5 ft	1120-WDW-22D (6-30) WDW-22 8/30/2000 0.5-2.5 ft	1120-WDW-22S (0-6) WDW-22 8/30/2000 0-0.5 ft	1120-WDW-23D (6-30) WDW-23 8/31/2000 0.5-2.5 ft	1120-WDW-23S (0-6) WDW-23 8/31/2000 0-0.5 ft	1120-WDW-24D (6-24) WDW-24 8/30/2000 0.5-2 ft	1120-WDW-24S (0-6) WDW-24 8/30/2000 0-0.5 ft	1120-WDW-25D (6-30) WDW-25 8/30/2000 0.5-2.5 ft
Barium										
Beryllium										
Cadmium						0.8 U	1 U			
Calcium										
Chromium	22	7 U	42	6.4	21	4.8	22	12 U	48	11 U
Cobalt										
Copper										
Iron						1300	5100			
Lead						4 U	44			
Magnesium										
Manganese										
Mercury						0.2 U	0.23			
Nickel										
Potassium										
Selenium						4 U	5 U			
Silver										
Sodium										
Thallium										
Vanadium										
Zinc										
Total Organic Carbon										

mg/Kg = milligram per kilogram
U = not detected, value is the reporting limit
J = value is estimated
F = value is estimated, matrix spike recovery outside of control limits
K = value is estimated, blank spike compound recovery outside the control limits
B = analyte was detected in the sample and its associated blank
C = value is estimated, surrogate recovery outside of control limits

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-25S (0-6) WDW-25 8/30/2000 0-0.5 ft	1120-WDW-26D (6-24) WDW-26 8/30/2000 0.5-2 ft	1120-WDW-26S (0-6) WDW-26 8/30/2000 0-0.5 ft	1120-WDW-27D (6-30) WDW-27 8/31/2000 0.5-2.5 ft	1120-WDW-27S (0-6) WDW-27 8/31/2000 0-0.5 ft	1120-WDW-28D (6-24) WDW-28 8/30/2000 0.5-2 ft	1120-WDW-28S (0-6) WDW-28 8/30/2000 0-0.5 ft	1120-WDW-29D (6-30) WDW-29 8/30/2000 0.5-2.5 ft	1120-WDW-29S (0-6) WDW-29 8/30/2000 0-0.5 ft	1120-WDW-30D WDW-30 8/30/2000 0.5-2.5 ft
Volatile Organics (mg/Kg)										
1,1,1,2-Tetrachloroethane				1.2 U	1.3 U					
1,1,1-Trichloroethane				1.2 U	1.3 U					
1,1,2,2-Tetrachloroethane				1.2 U	1.3 U					
1,1,2-Trichloroethane				1.2 U	1.3 U					
1,1-Dichloroethane				1.2 U	1.3 U					
1,1-Dichloroethene				1.2 U	1.3 U					
1,1-Dichloropropene				1.2 U	1.3 U					
1,2,3-Trichlorobenzene				1.2 U	1.3 U					
1,2,3-Trichloropropane				1.2 U	1.3 U					
1,2,4-Trichlorobenzene				1.2 U	1.3 U					
1,2,4-Trimethylbenzene				1.2 U	1.3 U					
1,2-Dibromo-3-chloropropane				1.2 U	1.3 U					
1,2-Dibromoethane				1.2 U	1.3 U					
1,2-Dichlorobenzene				1.2 U	1.3 U					
1,2-Dichloroethane				1.2 U	1.3 U					
1,2-Dichloropropane				1.2 U	1.3 U					
1,3,5-Trimethylbenzene				1.2 U	1.3 U					
1,3-Dichlorobenzene				1.2 U	1.3 U					
1,3-Dichloropropane				1.2 U	1.3 U					
1,4-Dichlorobenzene				1.2 U	1.3 U					
2,2-Dichloropropane				1.2 U	1.3 U					
2,4,4-Trimethyl-1-pentene										
2,4,4-Trimethyl-2-pentene										
2-Butanone				23 U	25 U					
2-Chlorotoluene				1.2 U	1.3 U					
2-Hexanone				4.6 U	5 U					
4-Chlorotoluene				1.2 U	1.3 U					
4-iso-Propyltoluene				1.2 U	1.3 U					
4-Methyl-2-pentanone				4.6 U	5 U					
Acetone				23 U	25 U					
Benzene				1.2 U	1.3 U					
Bromobenzene				1.2 U	1.3 U					
Bromochloromethane				1.2 U	1.3 U					
Bromodichloromethane				1.2 U	1.3 U					
Bromoform				1.2 U	1.3 U					
Bromomethane				2.3 U	2.5 U					
Carbon disulfide										
Carbon tetrachloride				1.2 U	1.3 U					
Chlorobenzene				1.2 U	1.3 U					
Chlorodibromomethane				1.2 U	1.3 U					

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-25S (0-6) WDW-25 8/30/2000 0-0.5 ft	1120-WDW-26D (6-24) WDW-26 8/30/2000 0.5-2 ft	1120-WDW-26S (0-6) WDW-26 8/30/2000 0-0.5 ft	1120-WDW-27D (6-30) WDW-27 8/31/2000 0.5-2.5 ft	1120-WDW-27S (0-6) WDW-27 8/31/2000 0-0.5 ft	1120-WDW-28D (6-24) WDW-28 8/30/2000 0.5-2 ft	1120-WDW-28S (0-6) WDW-28 8/30/2000 0-0.5 ft	1120-WDW-29D (6-30) WDW-29 8/30/2000 0.5-2.5 ft	1120-WDW-29S (0-6) WDW-29 8/30/2000 0-0.5 ft	1120-WDW-30D WDW-30 8/30/2000 0.5-2.5 ft
Chloroethane				2.3 U	2.5 U					
Chloroform				1.2 U	1.3 U					
Chloromethane				2.3 U	2.5 U					
Cis-1,2-Dichloroethene				1.2 U	1.3 U					
cis-1,3-Dichloropropene				1.2 U	1.3 U					
Dibromomethane				1.2 U	1.3 U					
Ethyl benzene				1.2 U	1.3 U					
Hexachlorobutadiene				1.2 UB	1.3 UB					
Isopropylbenzene				1.2 U	1.3 U					
Methyl Tertbutyl Ether				1.2 U	1.3 U					
Methylene chloride				1.2 U	1.3 U					
Naphthalene				12 U	13 U					
n-Butylbenzene				1.2 U	1.3 U					
Propylbenzene				1.2 U	1.3 U					
sec-Butylbenzene				1.2 U	1.3 U					
Styrene				1.2 U	1.3 U					
tert-Butylbenzene				1.2 U	1.3 U					
Tetrachloroethene				1.2 U	1.3 U					
Toluene				1.2 U	1.3 U					
trans-1,2-Dichloroethene				1.2 U	1.3 U					
trans-1,3-Dichloropropene				1.2 U	1.3 U					
Trichloroethene				1.2 U	1.3 U					
Trichlorofluoromethane				1.2 U	1.3 U					
Vinyl acetate										
Vinyl chloride				2.3 U	2.5 U					
Xylene, o				1.2 U	1.3 U					
Xylenes (m&p)				1.2 U	1.3 U					
Xylenes, Total										
Semivolatile Organics (mg/Kg)										
1,2,4-Trichlorobenzene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
1,2-Dichlorobenzene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
1,2-Diphenylhydrazine	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
1,3-Dichlorobenzene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
1,4-Dichlorobenzene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
2,2'-Dichlorodiisopropylether	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
2,4,5-Trichlorophenol	2.2 U	2.7 U	2.1 U	7.7 U	5.6 U	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
2,4,6-Trichlorophenol	2.2 U	2.7 U	2.1 U	7.7 U	5.6 U	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
2,4-Dichlorophenol	4.4 U	5.5 U	4.2 U	15 U	11 UC	2.4 U	4.3 U	15 U	9.2 U	3.6 U
2,4-Dimethylphenol	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
2,4-Dinitrophenol	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
2,4-Dinitrotoluene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 U	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-25S (0-6) WDW-25 8/30/2000 0-0.5 ft	1120-WDW-26D (6-24) WDW-26 8/30/2000 0.5-2 ft	1120-WDW-26S (0-6) WDW-26 8/30/2000 0-0.5 ft	1120-WDW-27D (6-30) WDW-27 8/31/2000 0.5-2.5 ft	1120-WDW-27S (0-6) WDW-27 8/31/2000 0-0.5 ft	1120-WDW-28D (6-24) WDW-28 8/30/2000 0.5-2 ft	1120-WDW-28S (0-6) WDW-28 8/30/2000 0-0.5 ft	1120-WDW-29D (6-30) WDW-29 8/30/2000 0.5-2.5 ft	1120-WDW-29S (0-6) WDW-29 8/30/2000 0-0.5 ft	1120-WDW-30D WDW-30 8/30/2000 0.5-2.5 ft
2,6-Dinitrotoluene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
2-Chloronaphthalene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
2-Chlorophenol	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
2-Methylnaphthalene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
2-Methylphenol	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
2-Nitroaniline	11 U	14 U	10 U	38 U	28 UC	6.1 U	11 U	37 U	23 U	8.9 U
2-Nitrophenol	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
3 & 4 Methylphenol	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
3,3'-Dichlorobenzidine	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
3-Nitroaniline	11 U	14 U	10 U	38 U	28 UC	6.1 U	11 U	37 U	23 U	8.9 U
4,6-Dinitro-2-methylphenol	11 U	14 U	10 U	38 U	28 UC	6.1 U	11 U	37 U	23 U	8.9 U
4-Bromophenyl phenyl ether	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
4-Chloro-3-methylphenol	4.4 U	5.5 U	4.2 U	15 U	11 UC	2.4 U	4.3 U	15 U	9.2 U	3.6 U
4-Chloroaniline	4.4 U	5.5 U	4.2 U	15 U	11 UC	2.4 U	4.3 U	15 U	9.2 U	3.6 U
4-Chlorophenyl phenyl ether	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
4-Methylphenol										
4-Nitroaniline	11 U	14 U	10 U	38 U	28 UC	6.1 U	11 U	37 U	23 U	8.9 U
4-Nitrophenol	11 U	14 U	10 U	38 U	28 UC	6.1 U	11 U	37 U	23 U	8.9 U
Acenaphthene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Acenaphthylene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Aniline	11 U	14 U	10 U	38 U	28 UC	6.1 U	11 U	37 U	23 U	8.9 U
Anthracene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Benzo(a)anthracene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Benzo(a)pyrene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Benzo(b)fluoranthene	2.2 U	2.7 U	2.1 U	7.7 U	3 JC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Benzo(ghi)perylene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Benzo(k)fluoranthene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Benzoic Acid	11 U	14 U	10 U	38 U	28 UC	6.1 U	11 U	37 U	23 U	8.9 U
Benzyl alcohol	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Bis(2-Chloroethoxy)methane	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Bis(2-Chloroethyl)ether	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Bis(2-Ethylhexyl)phthalate	2.2 U	4.8	9.3	7.7 U	5.6 UC	1.2 U	2.9	11	4.9	1.8 U
Butylbenzylphthalate	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Carbazole										
Chrysene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Dibenz(a,h)anthracene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Dibenzofuran	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Diethylphthalate	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Dimethylphthalate	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Di-n-butylphthalate	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Di-n-octylphthalate	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-25S (0-6) WDW-25 8/30/2000 0-0.5 ft	1120-WDW-26D (6-24) WDW-26 8/30/2000 0.5-2 ft	1120-WDW-26S (0-6) WDW-26 8/30/2000 0-0.5 ft	1120-WDW-27D (6-30) WDW-27 8/31/2000 0.5-2.5 ft	1120-WDW-27S (0-6) WDW-27 8/31/2000 0-0.5 ft	1120-WDW-28D (6-24) WDW-28 8/30/2000 0.5-2 ft	1120-WDW-28S (0-6) WDW-28 8/30/2000 0-0.5 ft	1120-WDW-29D (6-30) WDW-29 8/30/2000 0.5-2.5 ft	1120-WDW-29S (0-6) WDW-29 8/30/2000 0-0.5 ft	1120-WDW-30D WDW-30 8/30/2000 0.5-2.5 ft
Fluoranthene	2.2 U	2.7 U	2.1 U	7.7 U	6.1 C	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Fluorene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Hexachlorobenzene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Hexachlorobutadiene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Hexachlorocyclopentadiene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Hexachloroethane	2.2 U	2.7 U	2.1 U	7.7 U	5.6 U	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Indeno(1,2,3-cd)pyrene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Isophorone	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Naphthalene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Nitrobenzene	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
N-Nitrosodimethylamine										
N-Nitrosodi-n-propylamine	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
N-Nitrosodiphenylamine	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Pentachlorophenol	11 U	14 U	10 U	38 U	28 U	6.1 U	11 U	37 U	23 U	8.9 U
Phenanthrene	2.2 U	2.7 U	2.1 U	7.7 U	3.2 JC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Phenol	2.2 U	2.7 U	2.1 U	7.7 U	5.6 UC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Pyrene	2.2 U	2.7 U	2.1 U	7.7 U	4.2 JC	1.2 U	2.2 U	7.4 U	4.6 U	1.8 U
Pesticides (mg/Kg)										
4,4'-DDD										
4,4'-DDE										
4,4'-DDT										
Aldrin										
Alpha-BHC										
Beta-BHC										
Chlordane										
Delta-BHC										
Dieldrin										
Endosulfan I										
Endosulfan II										
Endosulfan sulfate										
Endrin										
Endrin aldehyde										
Gamma-BHC/Lindane										
Heptachlor										
Heptachlor epoxide										
Methoxychlor										
Toxaphene										
Inorganics (mg/Kg)										
Aluminum				3300	3800					
Antimony										
Arsenic				6 U	5 U					

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-25S (0-6) WDW-25 8/30/2000 0-0.5 ft	1120-WDW-26D (6-24) WDW-26 8/30/2000 0.5-2 ft	1120-WDW-26S (0-6) WDW-26 8/30/2000 0-0.5 ft	1120-WDW-27D (6-30) WDW-27 8/31/2000 0.5-2.5 ft	1120-WDW-27S (0-6) WDW-27 8/31/2000 0-0.5 ft	1120-WDW-28D (6-24) WDW-28 8/30/2000 0.5-2 ft	1120-WDW-28S (0-6) WDW-28 8/30/2000 0-0.5 ft	1120-WDW-29D (6-30) WDW-29 8/30/2000 0.5-2.5 ft	1120-WDW-29S (0-6) WDW-29 8/30/2000 0-0.5 ft	1120-WDW-30D WDW-30 8/30/2000 0.5-2.5 ft
Barium										
Beryllium										
Cadmium				1 U	1.2					
Calcium										
Chromium	19	14 U	10 U	7.1	42	6 U	15	19 U	28	6 U
Cobalt										
Copper										
Iron				1700	5000					
Lead				6 U	66					
Magnesium										
Manganese										
Mercury				0.08 U	0.44					
Nickel										
Potassium										
Selenium				6 U	5 U					
Silver										
Sodium										
Thallium										
Vanadium										
Zinc										
Total Organic Carbon										

mg/Kg = milligram per kilogram
U = not detected, value is the reporting limit
J = value is estimated
F = value is estimated, matrix spike recovery outside of control limits
K = value is estimated, blank spike compound recovery outside the control limits
B = analyte was detected in the sample and its associated blank
C = value is estimated, surrogate recovery outside of control limits

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-30S WDW-30 8/30/2000 0-0.5 ft	1120-WDW-31D WDW-31 8/30/2000 0.5-2.5 ft	1120-WDW-31S WDW-31 8/30/2000 0-0.5 ft	1120-WDW-32D (6-30) WDW-32 8/31/2000 0.5-2.5 ft	1120-WDW-32S (0-6) WDW-32 8/31/2000 0-0.5 ft	1140-WDW-11D WDW-11 8/25/2000 0.5-2.1 ft	1140-WDW-11S WDW-11 8/25/2000 0-0.5 ft	1140-WDW-C1 WDW-C1 10/18/2000 0.5-0.5 ft	1140-WDW-C11 WDW-C11 10/18/2000 2.2-2.2 ft	1140-WDW-C12 WDW-C12 10/11/2000 2.1-2.1 ft
Volatile Organics (mg/Kg)										
1,1,1,2-Tetrachloroethane				0.36 U	0.87 U				0.66 U	
1,1,1-Trichloroethane				0.36 U	0.87 U				0.66 U	
1,1,2,2-Tetrachloroethane				0.36 U	0.87 U				0.66 U	
1,1,2-Trichloroethane				0.36 U	0.87 U				0.66 U	
1,1-Dichloroethane				0.36 U	0.87 U				0.66 U	
1,1-Dichloroethene				0.36 U	0.87 U				0.66 U	
1,1-Dichloropropene				0.36 U	0.87 U				0.66 U	
1,2,3-Trichlorobenzene				0.36 U	0.87 U				0.66 U	
1,2,3-Trichloropropane				0.36 U	0.87 U				0.66 U	
1,2,4-Trichlorobenzene				0.36 U	0.87 U				0.66 U	
1,2,4-Trimethylbenzene				0.36 U	0.87 U				0.66 U	
1,2-Dibromo-3-chloropropane				0.36 U	0.87 U				0.66 U	
1,2-Dibromoethane				0.36 U	0.87 U				0.66 U	
1,2-Dichlorobenzene				0.36 U	0.87 U				0.66 U	
1,2-Dichloroethane				0.36 U	0.87 U				0.66 U	
1,2-Dichloropropane				0.36 U	0.87 U				0.66 U	
1,3,5-Trimethylbenzene				0.36 U	0.87 U				0.66 U	
1,3-Dichlorobenzene				0.36 U	0.87 U				0.66 U	
1,3-Dichloropropane				0.36 U	0.87 U				0.66 U	
1,4-Dichlorobenzene				0.36 U	0.87 U				0.66 U	
2,2-Dichloropropane				0.36 U	0.87 U				0.66 U	
2,4,4-Trimethyl-1-pentene									0.66 U	
2,4,4-Trimethyl-2-pentene									0.66 U	
2-Butanone				7.1 U	17 U				13 U	
2-Chlorotoluene				0.36 U	0.87 U				0.66 U	
2-Hexanone				1.4 U	3.5 U				2.6 U	
4-Chlorotoluene				0.36 U	0.87 U				0.66 U	
4-iso-Propyltoluene				0.36 U	0.87 U				0.66 U	
4-Methyl-2-pentanone				1.4 U	3.5 U				2.6 U	
Acetone				7.1 U	17 U				13 U	
Benzene				0.36 U	0.87 U				0.66 U	
Bromobenzene				0.36 U	0.87 U				0.66 U	
Bromochloromethane				0.36 U	0.87 U				0.66 U	
Bromodichloromethane				0.36 U	0.87 U				0.66 U	
Bromoform				0.36 U	0.87 U				0.66 U	
Bromomethane				0.71 U	1.7 U				1.3 U	
Carbon disulfide										
Carbon tetrachloride				0.36 U	0.87 U				0.66 U	
Chlorobenzene				0.36 U	0.87 U				0.66 U	
Chlorodibromomethane				0.36 U	0.87 U				0.66 U	

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-30S WDW-30 8/30/2000 0-0.5 ft	1120-WDW-31D WDW-31 8/30/2000 0.5-2.5 ft	1120-WDW-31S WDW-31 8/30/2000 0-0.5 ft	1120-WDW-32D (6-30) WDW-32 8/31/2000 0.5-2.5 ft	1120-WDW-32S (0-6) WDW-32 8/31/2000 0-0.5 ft	1140-WDW-11D WDW-11 8/25/2000 0.5-2.1 ft	1140-WDW-11S WDW-11 8/25/2000 0-0.5 ft	1140-WDW-C1 WDW-C1 10/18/2000 0.5-0.5 ft	1140-WDW-C11 WDW-C11 10/18/2000 2.2-2.2 ft	1140-WDW-C12 WDW-C12 10/11/2000 2.1-2.1 ft
Chloroethane				0.71 U	1.7 U				1.3 U	
Chloroform				0.36 U	0.87 U				0.66 U	
Chloromethane				0.71 U	1.7 U				1.3 U	
Cis-1,2-Dichloroethene				0.36 U	0.87 U				0.66 U	
cis-1,3-Dichloropropene				0.36 U	0.87 U				0.66 U	
Dibromomethane				0.36 U	0.87 U				0.66 U	
Ethyl benzene				0.36 U	0.87 U				0.66 U	
Hexachlorobutadiene				0.36 UB	0.87 UB				0.66 U	
Isopropylbenzene				0.36 U	0.87 U				0.66 U	
Methyl Tertbutyl Ether				0.36 U	0.87 U				0.66 U	
Methylene chloride				0.36 U	0.87 U				0.66 JB	
Naphthalene				3.6 U	8.7 U				6.6 U	
n-Butylbenzene				0.36 U	0.87 U				0.66 U	
Propylbenzene				0.36 U	0.87 U				0.66 U	
sec-Butylbenzene				0.36 U	0.87 U				0.66 U	
Styrene				0.36 U	0.87 U				0.66 U	
tert-Butylbenzene				0.36 U	0.87 U				0.66 U	
Tetrachloroethene				0.36 U	0.87 U				0.66 U	
Toluene				0.36 U	0.87 U				0.66 U	
trans-1,2-Dichloroethene				0.36 U	0.87 U				0.66 U	
trans-1,3-Dichloropropene				0.36 U	0.87 U				0.66 U	
Trichloroethene				0.36 U	0.87 U				0.66 U	
Trichlorofluoromethane				0.36 U	0.87 U				0.66 U	
Vinyl acetate										
Vinyl chloride				0.71 U	1.7 U				1.3 U	
Xylene, o				0.36 U	0.87 U				0.66 U	
Xylenes (m&p)				0.36 U	0.87 U				0.66 U	
Xylenes, Total										
Semivolatile Organics (mg/Kg)										
1,2,4-Trichlorobenzene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
1,2-Dichlorobenzene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
1,2-Diphenylhydrazine	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
1,3-Dichlorobenzene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
1,4-Dichlorobenzene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
2,2'-Dichlorodiisopropylether	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
2,4,5-Trichlorophenol	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
2,4,6-Trichlorophenol	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
2,4-Dichlorophenol	8.2 U	5.3 U	7.5 U	2.2 U	9.7 U	16 U	6.3 U	8.2 U	1.8 U	3 U
2,4-Dimethylphenol	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
2,4-Dinitrophenol	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
2,4-Dinitrotoluene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-30S WDW-30 8/30/2000 0-0.5 ft	1120-WDW-31D WDW-31 8/30/2000 0.5-2.5 ft	1120-WDW-31S WDW-31 8/30/2000 0-0.5 ft	1120-WDW-32D (6-30) WDW-32 8/31/2000 0.5-2.5 ft	1120-WDW-32S (0-6) WDW-32 8/31/2000 0-0.5 ft	1140-WDW-11D WDW-11 8/25/2000 0.5-2.1 ft	1140-WDW-11S WDW-11 8/25/2000 0-0.5 ft	1140-WDW-C1 WDW-C1 10/18/2000 0.5-0.5 ft	1140-WDW-C11 WDW-C11 10/18/2000 2.2-2.2 ft	1140-WDW-C12 WDW-C12 10/11/2000 2.1-2.1 ft
2,6-Dinitrotoluene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
2-Chloronaphthalene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
2-Chlorophenol	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
2-Methylnaphthalene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
2-Methylphenol	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
2-Nitroaniline	20 U	13 U	19 U	5.5 U	24 U	41 U	16 U	41 U	9.1 U	15 U
2-Nitrophenol	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
3 & 4 Methylphenol	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
3,3'-Dichlorobenzidine	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	16 U	3.6 U	6 U
3-Nitroaniline	20 U	13 U	19 U	5.5 U	24 U	41 U	16 U	41 U	9.1 U	15 U
4,6-Dinitro-2-methylphenol	20 U	13 U	19 U	5.5 U	24 U	41 U	16 U	41 U	9.1 U	15 U
4-Bromophenyl phenyl ether	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
4-Chloro-3-methylphenol	8.2 U	5.3 U	7.5 U	2.2 U	9.7 U	16 U	6.3 U	16 U	3.6 U	6 U
4-Chloroaniline	8.2 U	5.3 U	7.5 U	2.2 U	9.7 U	16 U	6.3 U	16 U	3.6 U	6 U
4-Chlorophenyl phenyl ether	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
4-Methylphenol										
4-Nitroaniline	20 U	13 U	19 U	5.5 U	24 U	41 U	16 U	41 U	9.1 U	15 U
4-Nitrophenol	20 U	13 U	19 U	5.5 U	24 U	41 U	16 U	41 U	9.1 U	15 U
Acenaphthene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Acenaphthylene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Aniline	20 U	13 U	19 U	5.5 U	24 U	41 U	16 U	41 U	9.1 U	15 U
Anthracene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Benzo(a)anthracene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Benzo(a)pyrene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Benzo(b)fluoranthene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Benzo(ghi)perylene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Benzo(k)fluoranthene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Benzoic Acid	20 U	13 U	19 U	5.5 U	24 U	41 U	16 U	41 U	9.1 U	15 U
Benzyl alcohol	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	16 U	3.6 U	6 U
Bis(2-Chloroethoxy)methane	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Bis(2-Chloroethyl)ether	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Bis(2-Ethylhexyl)phthalate	4.1 U	4.7	3.7 U	1.1 U	4.8 UB	8.1 UB	3.1 UB	8.2 U	1.5 J	2.6 J
Butylbenzylphthalate	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Carbazole										
Chrysene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Dibenz(a,h)anthracene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Dibenzofuran	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Diethylphthalate	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Dimethylphthalate	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Di-n-butylphthalate	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Di-n-octylphthalate	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-30S WDW-30 8/30/2000 0-0.5 ft	1120-WDW-31D WDW-31 8/30/2000 0.5-2.5 ft	1120-WDW-31S WDW-31 8/30/2000 0-0.5 ft	1120-WDW-32D (6-30) WDW-32 8/31/2000 0.5-2.5 ft	1120-WDW-32S (0-6) WDW-32 8/31/2000 0-0.5 ft	1140-WDW-11D WDW-11 8/25/2000 0.5-2.1 ft	1140-WDW-11S WDW-11 8/25/2000 0-0.5 ft	1140-WDW-C1 WDW-C1 10/18/2000 0.5-0.5 ft	1140-WDW-C11 WDW-C11 10/18/2000 2.2-2.2 ft	1140-WDW-C12 WDW-C12 10/11/2000 2.1-2.1 ft
Fluoranthene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Fluorene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Hexachlorobenzene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Hexachlorobutadiene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Hexachlorocyclopentadiene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Hexachloroethane	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Indeno(1,2,3-cd)pyrene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Isophorone	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Naphthalene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Nitrobenzene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
N-Nitrosodimethylamine										
N-Nitrosodi-n-propylamine	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
N-Nitrosodiphenylamine	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Pentachlorophenol	20 U	13 U	19 U	5.5 U	24 U	41 U	16 U	41 U	9.1 U	15 U
Phenanthrene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Phenol	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Pyrene	4.1 U	2.6 U	3.7 U	1.1 U	4.8 U	8.1 U	3.1 U	8.2 U	1.8 U	3 U
Pesticides (mg/Kg)										
4,4'-DDD									0.54 U	
4,4'-DDE									0.54 U	
4,4'-DDT									0.54 U	
Aldrin									0.54 U	
Alpha-BHC									0.54 U	
Beta-BHC									0.54 U	
Chlordane									2.7 U	
Delta-BHC									0.54 U	
Dieldrin									0.54 U	
Endosulfan I									0.54 U	
Endosulfan II									0.54 U	
Endosulfan sulfate									0.54 U	
Endrin									0.54 U	
Endrin aldehyde									0.54 U	
Gamma-BHC/Lindane									0.54 U	
Heptachlor									0.54 U	
Heptachlor epoxide									0.54 U	
Methoxychlor									1.1 U	
Toxaphene									5.4 U	
Inorganics (mg/Kg)										
Aluminum				5000	7300				1400	
Antimony										
Arsenic				2 U	4 U				6 U	

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1120-WDW-30S WDW-30 8/30/2000 0-0.5 ft	1120-WDW-31D WDW-31 8/30/2000 0.5-2.5 ft	1120-WDW-31S WDW-31 8/30/2000 0-0.5 ft	1120-WDW-32D (6-30) WDW-32 8/31/2000 0.5-2.5 ft	1120-WDW-32S (0-6) WDW-32 8/31/2000 0-0.5 ft	1140-WDW-11D WDW-11 8/25/2000 0.5-2.1 ft	1140-WDW-11S WDW-11 8/25/2000 0-0.5 ft	1140-WDW-C1 WDW-C1 10/18/2000 0.5-0.5 ft	1140-WDW-C11 WDW-C11 10/18/2000 2.2-2.2 ft	1140-WDW-C12 WDW-C12 10/11/2000 2.1-2.1 ft
Barium										
Beryllium										
Cadmium				0.4 U	0.7 U				1 U	
Calcium										
Chromium	10	40	29	6.3	19	8 U	13	19	10	19
Cobalt										
Copper										
Iron				910	2800				4200	
Lead				12	100				6 U	
Magnesium										
Manganese										
Mercury				0.07 U	0.25				0.2 U	
Nickel										
Potassium										
Selenium				2 U	4 U				6 U	
Silver										
Sodium										
Thallium										
Vanadium										
Zinc										
Total Organic Carbon										

mg/Kg = milligram per kilogram
U = not detected, value is the reporting limit
J = value is estimated
F = value is estimated, matrix spike recovery outside of control limits
K = value is estimated, blank spike compound recovery outside the control limits
B = analyte was detected in the sample and its associated blank
C = value is estimated, surrogate recovery outside of control limits

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1140-WDW-C13 WDW-C13 10/18/2000 0.5-0.5 ft	1140-WDW-C14 WDW-C14 10/18/2000 0.5-0.5 ft	1140-WDW-C15 WDW-C15 10/11/2000 1.5-1.5 ft	1140-WDW-C16 WDW-C16 10/18/2000 0.5-0.5 ft	1140-WDW-C17 WDW-C17 11/1/2000 0.5-0.5 ft	1140-WDW-C18 WDW-C18 11/2/2000 2.7-2.7 ft	1140-WDW-C19 WDW-C19 11/1/2000 0.5-0.5 ft	1140-WDW-C2 WDW-C2 10/18/2000 0.5-0.5 ft	1140-WDW-C20 WDW-C20 11/2/2000 3.1-3.1 ft	1140-WDW-C23 WDW-C23 11/2/2000 3-3 ft
Volatile Organics (mg/Kg)										
1,1,1,2-Tetrachloroethane						0.18 U			0.14 U	
1,1,1-Trichloroethane						0.18 U			0.14 U	
1,1,2,2-Tetrachloroethane						0.18 U			0.14 U	
1,1,2-Trichloroethane						0.18 U			0.14 U	
1,1-Dichloroethane						0.18 U			0.14 U	
1,1-Dichloroethene						0.18 U			0.14 U	
1,1-Dichloropropene						0.18 U			0.14 U	
1,2,3-Trichlorobenzene						0.18 U			0.14 U	
1,2,3-Trichloropropane						0.18 U			0.14 U	
1,2,4-Trichlorobenzene						0.18 U			0.14 U	
1,2,4-Trimethylbenzene						0.18 U			0.14 U	
1,2-Dibromo-3-chloropropane						0.18 U			0.14 U	
1,2-Dibromoethane						0.18 U			0.14 U	
1,2-Dichlorobenzene						0.18 U			0.14 U	
1,2-Dichloroethane						0.18 U			0.14 U	
1,2-Dichloropropane						0.18 U			0.14 U	
1,3,5-Trimethylbenzene						0.18 U			0.14 U	
1,3-Dichlorobenzene						0.18 U			0.14 U	
1,3-Dichloropropane						0.18 U			0.14 U	
1,4-Dichlorobenzene						0.18 U			0.14 U	
2,2-Dichloropropane						0.18 U			0.14 U	
2,4,4-Trimethyl-1-pentene						5.4			1.3	
2,4,4-Trimethyl-2-pentene						2.3			0.59	
2-Butanone						3.6 U			2.9 U	
2-Chlorotoluene						0.18 U			0.14 U	
2-Hexanone						0.72 U			0.58 U	
4-Chlorotoluene						0.18 U			0.14 U	
4-iso-Propyltoluene						0.18 U			0.14 U	
4-Methyl-2-pentanone						0.72 U			0.58 U	
Acetone						3.6 U			2.9 U	
Benzene						0.18 U			0.14 U	
Bromobenzene						0.18 U			0.14 U	
Bromochloromethane						0.18 U			0.14 U	
Bromodichloromethane						0.18 U			0.14 U	
Bromoform						0.18 U			0.14 U	
Bromomethane						0.36 U			0.29 U	
Carbon disulfide										
Carbon tetrachloride						0.18 U			0.14 U	
Chlorobenzene						0.18 U			0.14 U	
Chlorodibromomethane						0.18 U			0.14 U	

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1140-WDW-C13 WDW-C13 10/18/2000 0.5-0.5 ft	1140-WDW-C14 WDW-C14 10/18/2000 0.5-0.5 ft	1140-WDW-C15 WDW-C15 10/11/2000 1.5-1.5 ft	1140-WDW-C16 WDW-C16 10/18/2000 0.5-0.5 ft	1140-WDW-C17 WDW-C17 11/1/2000 0.5-0.5 ft	1140-WDW-C18 WDW-C18 11/2/2000 2.7-2.7 ft	1140-WDW-C19 WDW-C19 11/1/2000 0.5-0.5 ft	1140-WDW-C2 WDW-C2 10/18/2000 0.5-0.5 ft	1140-WDW-C20 WDW-C20 11/2/2000 3.1-3.1 ft	1140-WDW-C23 WDW-C23 11/2/2000 3-3 ft
Chloroethane						0.36 U			0.29 U	
Chloroform						0.18 U			0.14 U	
Chloromethane						0.36 U			0.29 U	
Cis-1,2-Dichloroethene						0.18 U			0.14 U	
cis-1,3-Dichloropropene						0.18 U			0.14 U	
Dibromomethane						0.18 U			0.14 U	
Ethyl benzene						0.54			0.14 U	
Hexachlorobutadiene						0.18 U			0.14 U	
Isopropylbenzene						0.18 U			0.14 U	
Methyl Tertbutyl Ether						0.18 U			0.14 U	
Methylene chloride						0.18 U			0.14 U	
Naphthalene						1.8 U			1.4 U	
n-Butylbenzene						0.18 U			0.14 U	
Propylbenzene						0.18 U			0.14 U	
sec-Butylbenzene						0.18 U			0.14 U	
Styrene						0.18 U			0.14 U	
tert-Butylbenzene						0.18 U			0.14 U	
Tetrachloroethene						0.18 U			0.14 U	
Toluene						0.18 U			0.14 U	
trans-1,2-Dichloroethene						0.18 U			0.14 U	
trans-1,3-Dichloropropene						0.18 U			0.14 U	
Trichloroethene						0.18 U			0.14 U	
Trichlorofluoromethane						0.18 U			0.14 U	
Vinyl acetate										
Vinyl chloride						0.36 U			0.29 U	
Xylene, o						0.18 U			0.14 U	
Xylenes (m&p)						0.58			0.14 U	
Xylenes, Total										
Semivolatile Organics (mg/Kg)										
1,2,4-Trichlorobenzene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
1,2-Dichlorobenzene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
1,2-Diphenylhydrazine	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
1,3-Dichlorobenzene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
1,4-Dichlorobenzene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
2,2'-Dichlorodiisopropylether	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
2,4,5-Trichlorophenol	0.8 U	3.3 U	2.9 U	2 U	54 U	53 U	4.1 U	5.1 U	41 U	440 U
2,4,6-Trichlorophenol	0.8 U	3.3 U	2.9 U	2 U	54 U	53 U	4.1 U	5.1 U	41 U	440 U
2,4-Dichlorophenol	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
2,4-Dimethylphenol	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
2,4-Dinitrophenol	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
2,4-Dinitrotoluene	0.8 U	3.3 U	2.9 U	2 U	54 U	53 U	4.1 U	5.1 U	41 U	440 U

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1140-WDW-C13 WDW-C13 10/18/2000 0.5-0.5 ft	1140-WDW-C14 WDW-C14 10/18/2000 0.5-0.5 ft	1140-WDW-C15 WDW-C15 10/11/2000 1.5-1.5 ft	1140-WDW-C16 WDW-C16 10/18/2000 0.5-0.5 ft	1140-WDW-C17 WDW-C17 11/1/2000 0.5-0.5 ft	1140-WDW-C18 WDW-C18 11/2/2000 2.7-2.7 ft	1140-WDW-C19 WDW-C19 11/1/2000 0.5-0.5 ft	1140-WDW-C2 WDW-C2 10/18/2000 0.5-0.5 ft	1140-WDW-C20 WDW-C20 11/2/2000 3.1-3.1 ft	1140-WDW-C23 WDW-C23 11/2/2000 3-3 ft
2,6-Dinitrotoluene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
2-Chloronaphthalene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
2-Chlorophenol	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
2-Methylnaphthalene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
2-Methylphenol	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
2-Nitroaniline	4 U	17 U	15 U	9.9 U	270 UC	260 UC	20 UC	26 U	200 UC	2200 UC
2-Nitrophenol	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
3 & 4 Methylphenol	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
3,3'-Dichlorobenzidine	1.6 U	6.6 U	5.9 U	3.9 U	110 UC	110 UC	8.2 UC	10 U	81 UC	890 UC
3-Nitroaniline	4 U	17 U	15 U	9.9 U	270 UC	260 UC	20 UC	26 U	200 UC	2200 UC
4,6-Dinitro-2-methylphenol	4 U	17 U	15 U	9.9 U	270 UC	260 UC	20 UC	26 U	200 UC	2200 UC
4-Bromophenyl phenyl ether	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
4-Chloro-3-methylphenol	1.6 U	6.6 U	5.9 U	3.9 U	110 UC	110 UC	8.2 UC	10 U	81 UC	890 UC
4-Chloroaniline	1.6 U	6.6 U	5.9 U	3.9 U	110 UC	110 UC	8.2 UC	10 U	81 UC	890 UC
4-Chlorophenyl phenyl ether	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
4-Methylphenol										
4-Nitroaniline	4 U	17 U	15 U	9.9 U	270 UC	260 UC	20 UC	26 U	200 UC	2200 UC
4-Nitrophenol	4 U	17 U	15 U	9.9 U	270 UC	260 UC	20 UC	26 U	200 UC	2200 UC
Acenaphthene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Acenaphthylene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Aniline	4 U	17 U	15 U	9.9 U	270 UC	260 UC	20 UC	26 U	200 UC	2200 UC
Anthracene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Benzo(a)anthracene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Benzo(a)pyrene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Benzo(b)fluoranthene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Benzo(ghi)perylene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Benzo(k)fluoranthene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Benzoic Acid	4 U	17 U	15 U	9.9 U	270 UC	260 UC	20 UC	26 U	200 UC	2200 UC
Benzyl alcohol	1.6 U	6.6 U	5.9 U	3.9 U	110 UC	110 UC	8.2 UC	10 U	81 UC	890 UC
Bis(2-Chloroethoxy)methane	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Bis(2-Chloroethyl)ether	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Bis(2-Ethylhexyl)phthalate	2.3	3.3 U	14	6	54 UC	116 C	6.4 C	13	147 C	871 C
Butylbenzylphthalate	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Carbazole										
Chrysene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Dibenz(a,h)anthracene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Dibenzofuran	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Diethylphthalate	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Dimethylphthalate	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Di-n-butylphthalate	0.45 J	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	263 JC
Di-n-octylphthalate	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1140-WDW-C13 WDW-C13 10/18/2000 0.5-0.5 ft	1140-WDW-C14 WDW-C14 10/18/2000 0.5-0.5 ft	1140-WDW-C15 WDW-C15 10/11/2000 1.5-1.5 ft	1140-WDW-C16 WDW-C16 10/18/2000 0.5-0.5 ft	1140-WDW-C17 WDW-C17 11/1/2000 0.5-0.5 ft	1140-WDW-C18 WDW-C18 11/2/2000 2.7-2.7 ft	1140-WDW-C19 WDW-C19 11/1/2000 0.5-0.5 ft	1140-WDW-C2 WDW-C2 10/18/2000 0.5-0.5 ft	1140-WDW-C20 WDW-C20 11/2/2000 3.1-3.1 ft	1140-WDW-C23 WDW-C23 11/2/2000 3-3 ft
Fluoranthene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Fluorene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Hexachlorobenzene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Hexachlorobutadiene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Hexachlorocyclopentadiene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Hexachloroethane	0.8 U	3.3 U	2.9 U	2 U	54 U	53 U	4.1 U	5.1 U	41 U	440 U
Indeno(1,2,3-cd)pyrene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Isophorone	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Naphthalene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Nitrobenzene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
N-Nitrosodimethylamine										
N-Nitrosodi-n-propylamine	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
N-Nitrosodiphenylamine	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	2.6 JC	5.1 U	41 UC	440 UC
Pentachlorophenol	4 U	17 U	15 U	9.9 U	270 U	260 U	20 U	26 U	200 U	2200 U
Phenanthrene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Phenol	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Pyrene	0.8 U	3.3 U	2.9 U	2 U	54 UC	53 UC	4.1 UC	5.1 U	41 UC	440 UC
Pesticides (mg/Kg)										
4,4'-DDD						0.075 U			0.06 U	
4,4'-DDE						0.075 U			0.06 U	
4,4'-DDT						0.075 U			0.06 U	
Aldrin						0.075 U			0.06 U	
Alpha-BHC						0.075 U			0.06 U	
Beta-BHC						0.075 U			0.06 U	
Chlordane						0.37 U			0.3 U	
Delta-BHC						0.075 U			0.06 U	
Dieldrin						0.075 U			0.06 U	
Endosulfan I						0.075 U			0.06 U	
Endosulfan II						0.075 U			0.06 U	
Endosulfan sulfate						0.075 U			0.06 U	
Endrin						0.075 U			0.06 U	
Endrin aldehyde						0.075 U			0.06 U	
Gamma-BHC/Lindane						0.075 U			0.06 U	
Heptachlor						0.075 U			0.06 U	
Heptachlor epoxide						0.075 U			0.06 U	
Methoxychlor						0.15 U			0.12 U	
Toxaphene						0.75 U			0.6 U	
Inorganics (mg/Kg)										
Aluminum						2300			6600	
Antimony										
Arsenic						2 U			3.9	

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1140-WDW-C13 WDW-C13 10/18/2000 0.5-0.5 ft	1140-WDW-C14 WDW-C14 10/18/2000 0.5-0.5 ft	1140-WDW-C15 WDW-C15 10/11/2000 1.5-1.5 ft	1140-WDW-C16 WDW-C16 10/18/2000 0.5-0.5 ft	1140-WDW-C17 WDW-C17 11/1/2000 0.5-0.5 ft	1140-WDW-C18 WDW-C18 11/2/2000 2.7-2.7 ft	1140-WDW-C19 WDW-C19 11/1/2000 0.5-0.5 ft	1140-WDW-C2 WDW-C2 10/18/2000 0.5-0.5 ft	1140-WDW-C20 WDW-C20 11/2/2000 3.1-3.1 ft	1140-WDW-C23 WDW-C23 11/2/2000 3-3 ft
Barium										
Beryllium										
Cadmium						0.3 U			0.3 U	
Calcium										
Chromium	260	12	11 U	350	16	68	20	21	41	410
Cobalt										
Copper										
Iron						630			6900	
Lead						2.5			4	
Magnesium										
Manganese										
Mercury						0.07 U			0.06 U	
Nickel										
Potassium										
Selenium						2 U			1 U	
Silver										
Sodium										
Thallium										
Vanadium										
Zinc										
Total Organic Carbon										

mg/Kg = milligram
U = not detected, value is the reporting limit
J = value is estimated
F = value is estimated, matrix spike recovery outside of control limits
K = value is estimated, blank spike compound recovery outside the control limits
B = analyte was detected in the sample and its associated blank
C = value is estimated, surrogate recovery outside of control limits

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1140-WDW-C24 WDW-C24 11/2/2000 1.5-1.5 ft	1140-WDW-C3 WDW-C3 10/11/2000 2.5-2.5 ft	1140-WDW-C4 WDW-C4 10/18/2000 0.4-0.4 ft	1140-WDW-C5 WDW-C5 10/18/2000 0.7-0.7 ft	1140-WDW-C6 WDW-C6 10/11/2000 2.5-2.5 ft	1140-WDW-C7 WDW-C7 10/18/2000 2.7-2.7 ft	1140-WDW-C8 WDW-C8 10/18/2000 0.2-0.2 ft	1140-WDW-C9 WDW-C9 10/11/2000 3.5-3.5 ft	OC-SD-SD1 SD-SD1 11/16/2007 0-0.25 ft	OC-SD-SD1 SD-SD1 11/19/2008 0-0.3 ft
Volatile Organics (mg/Kg)										
1,1,1,2-Tetrachloroethane			0.65 U	0.72 U						
1,1,1-Trichloroethane			0.65 U	0.72 U						
1,1,2,2-Tetrachloroethane			0.65 U	0.72 U						
1,1,2-Trichloroethane			0.65 U	0.72 U						
1,1-Dichloroethane			0.65 U	0.72 U						
1,1-Dichloroethene			0.65 U	0.72 U						
1,1-Dichloropropene			0.65 U	0.72 U						
1,2,3-Trichlorobenzene			0.65 U	0.72 U						
1,2,3-Trichloropropane			0.65 U	0.72 U						
1,2,4-Trichlorobenzene			0.65 U	0.72 U						
1,2,4-Trimethylbenzene			0.65 U	0.72 U						
1,2-Dibromo-3-chloropropane			0.65 U	0.72 U						
1,2-Dibromoethane			0.65 U	0.72 U						
1,2-Dichlorobenzene			0.65 U	0.72 U						
1,2-Dichloroethane			0.65 U	0.72 U						
1,2-Dichloropropane			0.65 U	0.72 U						
1,3,5-Trimethylbenzene			0.65 U	0.72 U						
1,3-Dichlorobenzene			0.65 U	0.72 U						
1,3-Dichloropropane			0.65 U	0.72 U						
1,4-Dichlorobenzene			0.65 U	0.72 U						
2,2-Dichloropropane			0.65 U	0.72 U						
2,4,4-Trimethyl-1-pentene			0.65 U	0.72 U						
2,4,4-Trimethyl-2-pentene			0.65 U	0.72 U						
2-Butanone			13 U	14 U						
2-Chlorotoluene			0.65 U	0.72 U						
2-Hexanone			2.6 U	2.9 U						
4-Chlorotoluene			0.65 U	0.72 U						
4-iso-Propyltoluene			0.65 U	0.72 U						
4-Methyl-2-pentanone			2.6 U	2.9 U						
Acetone			13 U	14 U						
Benzene			0.65 U	0.72 U						
Bromobenzene			0.65 U	0.72 U						
Bromochloromethane			0.65 U	0.72 U						
Bromodichloromethane			0.65 U	0.72 U						
Bromoform			0.65 U	0.72 U						
Bromomethane			1.3 U	1.4 U						
Carbon disulfide										
Carbon tetrachloride			0.65 U	0.72 U						
Chlorobenzene			0.65 U	0.72 U						
Chlorodibromomethane			0.65 U	0.72 U						

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1140-WDW-C24 WDW-C24 11/2/2000 1.5-1.5 ft	1140-WDW-C3 WDW-C3 10/11/2000 2.5-2.5 ft	1140-WDW-C4 WDW-C4 10/18/2000 0.4-0.4 ft	1140-WDW-C5 WDW-C5 10/18/2000 0.7-0.7 ft	1140-WDW-C6 WDW-C6 10/11/2000 2.5-2.5 ft	1140-WDW-C7 WDW-C7 10/18/2000 2.7-2.7 ft	1140-WDW-C8 WDW-C8 10/18/2000 0.2-0.2 ft	1140-WDW-C9 WDW-C9 10/11/2000 3.5-3.5 ft	OC-SD-SD1 SD-SD1 11/16/2007 0-0.25 ft	OC-SD-SD1 SD-SD1 11/19/2008 0-0.3 ft
Chloroethane			1.3 U	1.4 U						
Chloroform			0.65 U	0.72 U						
Chloromethane			1.3 U	1.4 U						
Cis-1,2-Dichloroethene			0.65 U	0.72 U						
cis-1,3-Dichloropropene			0.65 U	0.72 U						
Dibromomethane			0.65 U	0.72 U						
Ethyl benzene			0.65 U	0.72 U						
Hexachlorobutadiene			0.65 U	0.72 U						
Isopropylbenzene			0.65 U	0.72 U						
Methyl Tertbutyl Ether			0.65 U	0.72 U						
Methylene chloride			0.87 B	1.1 B						
Naphthalene			6.5 U	7.2 U						
n-Butylbenzene			0.65 U	0.72 U						
Propylbenzene			0.65 U	0.72 U						
sec-Butylbenzene			0.65 U	0.72 U						
Styrene			0.65 U	0.72 U						
tert-Butylbenzene			0.65 U	0.72 U						
Tetrachloroethene			0.65 U	0.72 U						
Toluene			0.65 U	0.72 U						
trans-1,2-Dichloroethene			0.65 U	0.72 U						
trans-1,3-Dichloropropene			0.65 U	0.72 U						
Trichloroethene			0.65 U	0.72 U						
Trichlorofluoromethane			0.65 U	0.72 U						
Vinyl acetate										
Vinyl chloride			1.3 U	1.4 U						
Xylene, o			0.65 U	0.72 U						
Xylenes (m&p)			0.65 U	0.72 U						
Xylenes, Total										
Semivolatile Organics (mg/Kg)										
1,2,4-Trichlorobenzene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
1,2-Dichlorobenzene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
1,2-Diphenylhydrazine	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
1,3-Dichlorobenzene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
1,4-Dichlorobenzene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2,2'-Dichlorodiisopropylether	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2,4,5-Trichlorophenol	46 U	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2,4,6-Trichlorophenol	46 U	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2,4-Dichlorophenol	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2,4-Dimethylphenol	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2,4-Dinitrophenol	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2,4-Dinitrotoluene	46 U	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1140-WDW-C24 WDW-C24 11/2/2000 1.5-1.5 ft	1140-WDW-C3 WDW-C3 10/11/2000 2.5-2.5 ft	1140-WDW-C4 WDW-C4 10/18/2000 0.4-0.4 ft	1140-WDW-C5 WDW-C5 10/18/2000 0.7-0.7 ft	1140-WDW-C6 WDW-C6 10/11/2000 2.5-2.5 ft	1140-WDW-C7 WDW-C7 10/18/2000 2.7-2.7 ft	1140-WDW-C8 WDW-C8 10/18/2000 0.2-0.2 ft	1140-WDW-C9 WDW-C9 10/11/2000 3.5-3.5 ft	OC-SD-SD1 SD-SD1 11/16/2007 0-0.25 ft	OC-SD-SD1 SD-SD1 11/19/2008 0-0.3 ft
2,6-Dinitrotoluene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2-Chloronaphthalene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2-Chlorophenol	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2-Methylnaphthalene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2-Methylphenol	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
2-Nitroaniline	230 UC	4.9 U	7.7 U	28 U	2.3 U	23 U	31 U	13 U		
2-Nitrophenol	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
3 & 4 Methylphenol	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
3,3'-Dichlorobenzidine	91 UC	2 U	3.1 U	11 U	0.92 U	9.1 U	12 U	5 U		
3-Nitroaniline	230 UC	4.9 U	7.7 U	28 U	2.3 U	23 U	31 U	13 U		
4,6-Dinitro-2-methylphenol	230 UC	4.9 U	7.7 U	28 U	2.3 U	23 U	31 U	13 U		
4-Bromophenyl phenyl ether	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
4-Chloro-3-methylphenol	91 UC	2 U	3.1 U	11 U	0.92 U	9.1 U	12 U	5 U		
4-Chloroaniline	91 UC	2 U	3.1 U	11 U	0.92 U	9.1 U	12 U	5 U		
4-Chlorophenyl phenyl ether	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
4-Methylphenol										
4-Nitroaniline	230 UC	4.9 U	7.7 U	28 U	2.3 U	23 U	31 U	13 U		
4-Nitrophenol	230 UC	4.9 U	7.7 UF	28 U	2.3 U	23 U	31 U	13 U		
Acenaphthene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Acenaphthylene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Aniline	230 UC	4.9 U	7.7 U	28 U	2.3 U	23 U	31 U	13 U		
Anthracene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Benzo(a)anthracene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Benzo(a)pyrene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Benzo(b)fluoranthene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Benzo(ghi)perylene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Benzo(k)fluoranthene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Benzoic Acid	230 UC	4.9 U	7.7 U	28 U	2.3 U	23 U	31 U	13 U		
Benzyl alcohol	91 UC	2 U	3.1 U	11 U	0.92 U	9.1 U	12 U	5 U		
Bis(2-Chloroethoxy)methane	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Bis(2-Chloroethyl)ether	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Bis(2-Ethylhexyl)phthalate	208 C	1.1	1.8	3.2 J	2.8	6.7	3.5 J	2.4 J		
Butylbenzylphthalate	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Carbazole										
Chrysene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Dibenz(a,h)anthracene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Dibenzofuran	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Diethylphthalate	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Dimethylphthalate	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Di-n-butylphthalate	26 JC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	4.1 J	2.5 U		
Di-n-octylphthalate	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1140-WDW-C24 WDW-C24 11/2/2000 1.5-1.5 ft	1140-WDW-C3 WDW-C3 10/11/2000 2.5-2.5 ft	1140-WDW-C4 WDW-C4 10/18/2000 0.4-0.4 ft	1140-WDW-C5 WDW-C5 10/18/2000 0.7-0.7 ft	1140-WDW-C6 WDW-C6 10/11/2000 2.5-2.5 ft	1140-WDW-C7 WDW-C7 10/18/2000 2.7-2.7 ft	1140-WDW-C8 WDW-C8 10/18/2000 0.2-0.2 ft	1140-WDW-C9 WDW-C9 10/11/2000 3.5-3.5 ft	OC-SD-SD1 SD-SD1 11/16/2007 0-0.25 ft	OC-SD-SD1 SD-SD1 11/19/2008 0-0.3 ft
Fluoranthene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Fluorene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Hexachlorobenzene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Hexachlorobutadiene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Hexachlorocyclopentadiene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Hexachloroethane	46 U	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Indeno(1,2,3-cd)pyrene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Isophorone	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Naphthalene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Nitrobenzene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
N-Nitrosodimethylamine										
N-Nitrosodi-n-propylamine	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
N-Nitrosodiphenylamine	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Pentachlorophenol	230 U	4.9 U	7.7 U	28 U	2.3 U	23 U	31 U	13 U		
Phenanthrene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Phenol	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Pyrene	46 UC	0.99 U	1.5 U	5.5 U	0.46 U	4.6 U	6.2 U	2.5 U		
Pesticides (mg/Kg)										
4,4'-DDD			0.44 U	0.39 U						
4,4'-DDE			0.44 U	0.39 U						
4,4'-DDT			0.44 U	0.39 U						
Aldrin			0.44 U	0.39 U						
Alpha-BHC			0.44 U	0.39 U						
Beta-BHC			0.44 U	0.39 U						
Chlordane			2.2 U	1.9 U						
Delta-BHC			0.44 U	0.39 U						
Dieldrin			0.44 U	0.39 U						
Endosulfan I			0.44 U	0.39 U						
Endosulfan II			0.44 U	0.39 U						
Endosulfan sulfate			0.44 U	0.39 U						
Endrin			0.44 U	0.39 U						
Endrin aldehyde			0.44 U	0.39 U						
Gamma-BHC/Lindane			0.44 U	0.39 U						
Heptachlor			0.44 U	0.39 U						
Heptachlor epoxide			0.44 U	0.39 U						
Methoxychlor			0.87 U	0.78 U						
Toxaphene			4.4 U	3.9 U						
Inorganics (mg/Kg)										
Aluminum			3000	3000					8500	11000
Antimony										
Arsenic			6 U	5 U						

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	1140-WDW-C24 WDW-C24 11/2/2000 1.5-1.5 ft	1140-WDW-C3 WDW-C3 10/11/2000 2.5-2.5 ft	1140-WDW-C4 WDW-C4 10/18/2000 0.4-0.4 ft	1140-WDW-C5 WDW-C5 10/18/2000 0.7-0.7 ft	1140-WDW-C6 WDW-C6 10/11/2000 2.5-2.5 ft	1140-WDW-C7 WDW-C7 10/18/2000 2.7-2.7 ft	1140-WDW-C8 WDW-C8 10/18/2000 0.2-0.2 ft	1140-WDW-C9 WDW-C9 10/11/2000 3.5-3.5 ft	OC-SD-SD1 SD-SD1 11/16/2007 0-0.25 ft	OC-SD-SD1 SD-SD1 11/19/2008 0-0.3 ft
Barium										
Beryllium										
Cadmium			1 U	1 U						
Calcium										
Chromium	110	170	24	37	31	64	31	180	20	29 J
Cobalt										
Copper										
Iron			3700	7800					10000	14000
Lead			13	31						
Magnesium										
Manganese										
Mercury			0.2 U	0.2 U						
Nickel										
Potassium										
Selenium			6 U	5 U						
Silver										
Sodium										
Thallium										
Vanadium										
Zinc										
Total Organic Carbon										

mg/Kg = milligram per kilogram
U = not detected, value is the reporting limit
J = value is estimated
F = value is estimated, matrix spike recovery outside of control limits
K = value is estimated, blank spike compound recovery outside the control limits
B = analyte was detected in the sample and its associated blank
C = value is estimated, surrogate recovery outside of control limits

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD-SD1-0.0/0.5 SD-SD1 11/11/2009 0-0.5 ft	OC-SD-SD1-0.0/0.5 SD-SD1 11/15/2010 0-0.5 ft	OC-SD-SD1-0.0/0.5 SD-SD1 11/11/2011 0-0.5 ft	OC-SD-SD1 SD-SD1 11/16/2012 0-0.5 ft	OC-SD-SD1 SD-SD1 11/21/2013 0-0.5 ft	RSD-01 RSD-01 1/18/2000	RSD-02 RSD-02 1/18/2000	RSD-16 RSD-16 5/23/2000 1.5-1.5 ft	RSD-17 RSD-17 5/23/2000 1.3-1.3 ft	RSD-18 RSD-18 5/23/2000 1.4-1.4 ft
Volatile Organics (mg/Kg)										
1,1,1,2-Tetrachloroethane										
1,1,1-Trichloroethane						0.018 U	0.043 U			
1,1,2,2-Tetrachloroethane						0.018 U	0.043 U			
1,1,2-Trichloroethane						0.018 U	0.043 U			
1,1-Dichloroethane						0.018 U	0.043 U			
1,1-Dichloroethene						0.018 U	0.043 U			
1,1-Dichloropropene										
1,2,3-Trichlorobenzene										
1,2,3-Trichloropropane										
1,2,4-Trichlorobenzene										
1,2,4-Trimethylbenzene										
1,2-Dibromo-3-chloropropane										
1,2-Dibromoethane										
1,2-Dichlorobenzene										
1,2-Dichloroethane						0.018 U	0.043 U			
1,2-Dichloropropane						0.018 U	0.043 U			
1,3,5-Trimethylbenzene										
1,3-Dichlorobenzene										
1,3-Dichloropropane										
1,4-Dichlorobenzene										
2,2-Dichloropropane										
2,4,4-Trimethyl-1-pentene						0.018 U	0.043 U			
2,4,4-Trimethyl-2-pentene						0.018 U	0.043 U			
2-Butanone						0.036 U	0.085 U			
2-Chlorotoluene										
2-Hexanone						0.036 UJ	0.085 UJ			
4-Chlorotoluene										
4-iso-Propyltoluene										
4-Methyl-2-pentanone						0.036 U	0.085 U			
Acetone						0.095	0.34			
Benzene						0.018 U	4.4 J			
Bromobenzene										
Bromochloromethane										
Bromodichloromethane						0.018 U	0.043 U			
Bromoform						0.018 U	0.043 U			
Bromomethane						0.036 U	0.085 U			
Carbon disulfide						0.018 U	0.043 U			
Carbon tetrachloride						0.018 U	0.043 U			
Chlorobenzene						0.018 UJ	0.11 J			
Chlorodibromomethane						0.018 U	0.043 U			

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD-SD1-0.0/0.5 SD-SD1 11/11/2009 0-0.5 ft	OC-SD-SD1-0.0/0.5 SD-SD1 11/15/2010 0-0.5 ft	OC-SD-SD1-0.0/0.5 SD-SD1 11/11/2011 0-0.5 ft	OC-SD-SD1 SD-SD1 11/16/2012 0-0.5 ft	OC-SD-SD1 SD-SD1 11/21/2013 0-0.5 ft	RSD-01 RSD-01 1/18/2000	RSD-02 RSD-02 1/18/2000	RSD-16 RSD-16 5/23/2000 1.5-1.5 ft	RSD-17 RSD-17 5/23/2000 1.3-1.3 ft	RSD-18 RSD-18 5/23/2000 1.4-1.4 ft
Chloroethane						0.036 U	0.085 U			
Chloroform						0.018 U	0.043 U			
Chloromethane						0.036 U	0.085 U			
Cis-1,2-Dichloroethene						0.018 U	0.043 U			
cis-1,3-Dichloropropene						0.018 U	0.043 U			
Dibromomethane										
Ethyl benzene						0.018 U	0.043 U			
Hexachlorobutadiene										
Isopropylbenzene										
Methyl Tertbutyl Ether										
Methylene chloride						0.018 U	0.043 U			
Naphthalene										
n-Butylbenzene										
Propylbenzene										
sec-Butylbenzene										
Styrene						0.018 U	0.043 U			
tert-Butylbenzene										
Tetrachloroethene						0.018 U	0.043 U			
Toluene						0.018 U	0.043 U			
trans-1,2-Dichloroethene						0.018 U	0.043 U			
trans-1,3-Dichloropropene						0.018 U	0.043 U			
Trichloroethene						0.018 U	0.043 U			
Trichlorofluoromethane										
Vinyl acetate						0.036 U	0.085 U			
Vinyl chloride						0.036 U	0.085 U			
Xylene, o										
Xylenes (m&p)										
Xylenes, Total						0.018 U	0.043 U			
Semivolatile Organics (mg/Kg)										
1,2,4-Trichlorobenzene						2.3 U	1.6 U			
1,2-Dichlorobenzene						2.3 U	1.6 U			
1,2-Diphenylhydrazine										
1,3-Dichlorobenzene						2.3 U	1.6 U			
1,4-Dichlorobenzene						2.3 U	1.6 U			
2,2'-Dichlorodiisopropylether						2.3 U	1.6 U			
2,4,5-Trichlorophenol						11 U	7.6 U			
2,4,6-Trichlorophenol						2.3 U	1.6 U			
2,4-Dichlorophenol						2.3 U	1.6 U			
2,4-Dimethylphenol						2.3 U	1.6 U			
2,4-Dinitrophenol						11 U	7.6 U			
2,4-Dinitrotoluene						2.3 U	1.6 U			

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD-SD1-0.0/0.5 SD-SD1 11/11/2009 0-0.5 ft	OC-SD-SD1-0.0/0.5 SD-SD1 11/15/2010 0-0.5 ft	OC-SD-SD1-0.0/0.5 SD-SD1 11/11/2011 0-0.5 ft	OC-SD-SD1 SD-SD1 11/16/2012 0-0.5 ft	OC-SD-SD1 SD-SD1 11/21/2013 0-0.5 ft	RSD-01 RSD-01 1/18/2000	RSD-02 RSD-02 1/18/2000	RSD-16 RSD-16 5/23/2000 1.5-1.5 ft	RSD-17 RSD-17 5/23/2000 1.3-1.3 ft	RSD-18 RSD-18 5/23/2000 1.4-1.4 ft
2,6-Dinitrotoluene						2.3 U	1.6 U			
2-Chloronaphthalene						2.3 U	1.6 U			
2-Chlorophenol						2.3 U	1.6 U			
2-Methylnaphthalene						2.3 U	1.6 U			
2-Methylphenol						2.3 U	1.6 U			
2-Nitroaniline						11 U	7.6 U			
2-Nitrophenol						2.3 U	1.6 U			
3 & 4 Methylphenol										
3,3'-Dichlorobenzidine						4.6 U	3.1 U			
3-Nitroaniline						11 U	7.6 U			
4,6-Dinitro-2-methylphenol						11 U	7.6 U			
4-Bromophenyl phenyl ether						2.3 U	1.6 U			
4-Chloro-3-methylphenol						2.3 U	1.6 U			
4-Chloroaniline						2.3 U	1.6 U			
4-Chlorophenyl phenyl ether						2.3 U	1.6 U			
4-Methylphenol						0.22 U	1.6 U			
4-Nitroaniline						11 U	7.6 U			
4-Nitrophenol						11 U	7.6 U			
Acenaphthene						2.3 U	1.6 U			
Acenaphthylene						2.3 U	1.6 U			
Aniline										
Anthracene						2.3 U	1.6 U			
Benzo(a)anthracene						2.3 U	1.6 U			
Benzo(a)pyrene						2.3 U	1.6 U			
Benzo(b)fluoranthene						2.3 U	1.6 U			
Benzo(ghi)perylene						2.3 U	1.6 U			
Benzo(k)fluoranthene						2.3 U	1.6 U			
Benzoic Acid						11 U	7.6 U			
Benzyl alcohol						2.3 U	1.6 U			
Bis(2-Chloroethoxy)methane						2.3 U	1.6 U			
Bis(2-Chloroethyl)ether						2.3 U	1.6 U			
Bis(2-Ethylhexyl)phthalate						14	4			
Butylbenzylphthalate						2.3 U	1.6 U			
Carbazole						2.3 U	1.6 U			
Chrysene						2.3 U	1.6 U			
Dibenz(a,h)anthracene						2.3 U	1.6 U			
Dibenzofuran						2.3 U	1.6 U			
Diethylphthalate						2.3 U	1.6 U			
Dimethylphthalate						2.3 U	1.6 U			
Di-n-butylphthalate						2.3 U	1.6 U			
Di-n-octylphthalate						2.3 U	1.6 U			

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD-SD1-0.0/0.5 SD-SD1 11/11/2009 0-0.5 ft	OC-SD-SD1-0.0/0.5 SD-SD1 11/15/2010 0-0.5 ft	OC-SD-SD1-0.0/0.5 SD-SD1 11/11/2011 0-0.5 ft	OC-SD-SD1 SD-SD1 11/16/2012 0-0.5 ft	OC-SD-SD1 SD-SD1 11/21/2013 0-0.5 ft	RSD-01 RSD-01 1/18/2000	RSD-02 RSD-02 1/18/2000	RSD-16 RSD-16 5/23/2000 1.5-1.5 ft	RSD-17 RSD-17 5/23/2000 1.3-1.3 ft	RSD-18 RSD-18 5/23/2000 1.4-1.4 ft
Fluoranthene						2.3 U	1.6 U			
Fluorene						2.3 U	1.6 U			
Hexachlorobenzene						2.3 U	1.6 U			
Hexachlorobutadiene						2.3 U	1.6 U			
Hexachlorocyclopentadiene						2.3 U	1.6 U			
Hexachloroethane						2.3 U	1.6 U			
Indeno(1,2,3-cd)pyrene						2.3 U	1.6 U			
Isophorone						2.3 U	1.6 U			
Naphthalene						2.3 U	1.6 U			
Nitrobenzene						2.3 U	1.6 U			
N-Nitrosodimethylamine										
N-Nitrosodi-n-propylamine						2.3 U	1.6 U			
N-Nitrosodiphenylamine						2.3 U	1.6 U			
Pentachlorophenol						11 U	7.6 U			
Phenanthrene						2.3 U	1.6 U			
Phenol						2.3 U	1.6 U			
Pyrene						2.3 U	1.6 U			
Pesticides (mg/Kg)										
4,4'-DDD										
4,4'-DDE										
4,4'-DDT										
Aldrin										
Alpha-BHC										
Beta-BHC										
Chlordane										
Delta-BHC										
Dieldrin										
Endosulfan I										
Endosulfan II										
Endosulfan sulfate										
Endrin										
Endrin aldehyde										
Gamma-BHC/Lindane										
Heptachlor										
Heptachlor epoxide										
Methoxychlor										
Toxaphene										
Inorganics (mg/Kg)										
Aluminum	9200	9300	11000 J	7100 J	9800 J	3600	14000			
Antimony						2 U	4 U			
Arsenic										

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD-SD1-0.0/0.5 SD-SD1 11/11/2009 0-0.5 ft	OC-SD-SD1-0.0/0.5 SD-SD1 11/15/2010 0-0.5 ft	OC-SD-SD1-0.0/0.5 SD-SD1 11/11/2011 0-0.5 ft	OC-SD-SD1 SD-SD1 11/16/2012 0-0.5 ft	OC-SD-SD1 SD-SD1 11/21/2013 0-0.5 ft	RSD-01 RSD-01 1/18/2000	RSD-02 RSD-02 1/18/2000	RSD-16 RSD-16 5/23/2000 1.5-1.5 ft	RSD-17 RSD-17 5/23/2000 1.3-1.3 ft	RSD-18 RSD-18 5/23/2000 1.4-1.4 ft
Barium						3.4	13			
Beryllium						0.1 U	0.61			
Cadmium						0.2 U	0.47			
Calcium						200	900			
Chromium	21	21	30	67	24	4.5	13	430 J	12	33
Cobalt						1 U	2 U			
Copper						2.1	17			
Iron	11000	11000	13000 J	9000	12000	270	2100			
Lead						4.6	7.3			
Magnesium						88	180			
Manganese						4	22			
Mercury						0.06 U	0.2 U			
Nickel						2 U	6.7			
Potassium						99 U	200 U			
Selenium						1 U	2 U			
Silver						1 U	2 U			
Sodium						99 U	3200			
Thallium						2 U	4 U			
Vanadium						3	27			
Zinc						5.2	14			
Total Organic Carbon										

mg/Kg = milligram
U = not detected, value is the reporting limit
J = value is estimated
F = value is estimated, matrix spike recovery outside of control limits
K = value is estimated, blank spike compound recovery outside the control limits
B = analyte was detected in the sample and its associated blank
C = value is estimated, surrogate recovery outside of control limits

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	RSD-19 RSD-19 5/23/2000 1.3-1.3 ft	SD-SD1-(15)-03 SD-SD1 5/19/2005 0.25-1.25 ft	SD-SD1-03-01 SD-SD1 6/17/2003 0-0.25 ft	SD-SD1-03-02 SD-SD1 8/10/2004 0-0.25 ft	SD-SD1-03-03 SD-SD1 5/19/2005 0-0.25 ft	SD-SD1-15-01 SD-SD1 6/17/2003 0.25-1.25 ft	SD-SD1-15-02 SD-SD1 8/10/2004 0.25-1.25 ft
Volatile Organics (mg/Kg)							
1,1,1,2-Tetrachloroethane							
1,1,1-Trichloroethane							
1,1,2,2-Tetrachloroethane							
1,1,2-Trichloroethane							
1,1-Dichloroethane							
1,1-Dichloroethene							
1,1-Dichloropropene							
1,2,3-Trichlorobenzene							
1,2,3-Trichloropropane							
1,2,4-Trichlorobenzene							
1,2,4-Trimethylbenzene							
1,2-Dibromo-3-chloropropane							
1,2-Dibromoethane							
1,2-Dichlorobenzene							
1,2-Dichloroethane							
1,2-Dichloropropane							
1,3,5-Trimethylbenzene							
1,3-Dichlorobenzene							
1,3-Dichloropropane							
1,4-Dichlorobenzene							
2,2-Dichloropropane							
2,4,4-Trimethyl-1-pentene							
2,4,4-Trimethyl-2-pentene							
2-Butanone							
2-Chlorotoluene							
2-Hexanone							
4-Chlorotoluene							
4-iso-Propyltoluene							
4-Methyl-2-pentanone							
Acetone							
Benzene							
Bromobenzene							
Bromochloromethane							
Bromodichloromethane							
Bromoform							
Bromomethane							
Carbon disulfide							
Carbon tetrachloride							
Chlorobenzene							
Chlorodibromomethane							

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	RSD-19 RSD-19 5/23/2000 1.3-1.3 ft	SD-SD1-(15)-03 SD-SD1 5/19/2005 0.25-1.25 ft	SD-SD1-03-01 SD-SD1 6/17/2003 0-0.25 ft	SD-SD1-03-02 SD-SD1 8/10/2004 0-0.25 ft	SD-SD1-03-03 SD-SD1 5/19/2005 0-0.25 ft	SD-SD1-15-01 SD-SD1 6/17/2003 0.25-1.25 ft	SD-SD1-15-02 SD-SD1 8/10/2004 0.25-1.25 ft
Chloroethane							
Chloroform							
Chloromethane							
Cis-1,2-Dichloroethene							
cis-1,3-Dichloropropene							
Dibromomethane							
Ethyl benzene							
Hexachlorobutadiene							
Isopropylbenzene							
Methyl Tertbutyl Ether							
Methylene chloride							
Naphthalene							
n-Butylbenzene							
Propylbenzene							
sec-Butylbenzene							
Styrene							
tert-Butylbenzene							
Tetrachloroethene							
Toluene							
trans-1,2-Dichloroethene							
trans-1,3-Dichloropropene							
Trichloroethene							
Trichlorofluoromethane							
Vinyl acetate							
Vinyl chloride							
Xylene, o							
Xylenes (m&p)							
Xylenes, Total							
Semivolatile Organics (mg/Kg)							
1,2,4-Trichlorobenzene							
1,2-Dichlorobenzene							
1,2-Diphenylhydrazine							
1,3-Dichlorobenzene							
1,4-Dichlorobenzene							
2,2'-Dichlorodiisopropylether							
2,4,5-Trichlorophenol							
2,4,6-Trichlorophenol							
2,4-Dichlorophenol							
2,4-Dimethylphenol							
2,4-Dinitrophenol							
2,4-Dinitrotoluene							

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	RSD-19 RSD-19 5/23/2000 1.3-1.3 ft	SD-SD1-(15)-03 SD-SD1 5/19/2005 0.25-1.25 ft	SD-SD1-03-01 SD-SD1 6/17/2003 0-0.25 ft	SD-SD1-03-02 SD-SD1 8/10/2004 0-0.25 ft	SD-SD1-03-03 SD-SD1 5/19/2005 0-0.25 ft	SD-SD1-15-01 SD-SD1 6/17/2003 0.25-1.25 ft	SD-SD1-15-02 SD-SD1 8/10/2004 0.25-1.25 ft
2,6-Dinitrotoluene							
2-Chloronaphthalene							
2-Chlorophenol							
2-Methylnaphthalene							
2-Methylphenol							
2-Nitroaniline							
2-Nitrophenol							
3 & 4 Methylphenol							
3,3'-Dichlorobenzidine							
3-Nitroaniline							
4,6-Dinitro-2-methylphenol							
4-Bromophenyl phenyl ether							
4-Chloro-3-methylphenol							
4-Chloroaniline							
4-Chlorophenyl phenyl ether							
4-Methylphenol							
4-Nitroaniline							
4-Nitrophenol							
Acenaphthene							
Acenaphthylene							
Aniline							
Anthracene							
Benzo(a)anthracene							
Benzo(a)pyrene							
Benzo(b)fluoranthene							
Benzo(ghi)perylene							
Benzo(k)fluoranthene							
Benzoic Acid							
Benzyl alcohol							
Bis(2-Chloroethoxy)methane							
Bis(2-Chloroethyl)ether							
Bis(2-Ethylhexyl)phthalate							
Butylbenzylphthalate							
Carbazole							
Chrysene							
Dibenz(a,h)anthracene							
Dibenzofuran							
Diethylphthalate							
Dimethylphthalate							
Di-n-butylphthalate							
Di-n-octylphthalate							

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	RSD-19 RSD-19 5/23/2000 1.3-1.3 ft	SD-SD1-(15)-03 SD-SD1 5/19/2005 0.25-1.25 ft	SD-SD1-03-01 SD-SD1 6/17/2003 0-0.25 ft	SD-SD1-03-02 SD-SD1 8/10/2004 0-0.25 ft	SD-SD1-03-03 SD-SD1 5/19/2005 0-0.25 ft	SD-SD1-15-01 SD-SD1 6/17/2003 0.25-1.25 ft	SD-SD1-15-02 SD-SD1 8/10/2004 0.25-1.25 ft
Fluoranthene							
Fluorene							
Hexachlorobenzene							
Hexachlorobutadiene							
Hexachlorocyclopentadiene							
Hexachloroethane							
Indeno(1,2,3-cd)pyrene							
Isophorone							
Naphthalene							
Nitrobenzene							
N-Nitrosodimethylamine			0.007 U			0.006 U	
N-Nitrosodi-n-propylamine							
N-Nitrosodiphenylamine							
Pentachlorophenol							
Phenanthrene							
Phenol							
Pyrene							
Pesticides (mg/Kg)							
4,4'-DDD							
4,4'-DDE							
4,4'-DDT							
Aldrin							
Alpha-BHC							
Beta-BHC							
Chlordane							
Delta-BHC							
Dieldrin							
Endosulfan I							
Endosulfan II							
Endosulfan sulfate							
Endrin							
Endrin aldehyde							
Gamma-BHC/Lindane							
Heptachlor							
Heptachlor epoxide							
Methoxychlor							
Toxaphene							
Inorganics (mg/Kg)							
Aluminum		7700	9750	6200	11000	7360	7100
Antimony			0.821 UJ			0.73 UJ	
Arsenic			7.77			6.82	

Appendix F-12
Analytical Sediment Data - On-Property West Ditch and West Ditch Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	RSD-19 RSD-19 5/23/2000 1.3-1.3 ft	SD-SD1-(15)-03 SD-SD1 5/19/2005 0.25-1.25 ft	SD-SD1-03-01 SD-SD1 6/17/2003 0-0.25 ft	SD-SD1-03-02 SD-SD1 8/10/2004 0-0.25 ft	SD-SD1-03-03 SD-SD1 5/19/2005 0-0.25 ft	SD-SD1-15-01 SD-SD1 6/17/2003 0.25-1.25 ft	SD-SD1-15-02 SD-SD1 8/10/2004 0.25-1.25 ft
Barium			37.6			41.1	
Beryllium			0.164 U			0.146 U	
Cadmium			0.229			0.261	
Calcium							
Chromium	16	17	17.9	19	39	23.9	15
Cobalt							
Copper							
Iron		9600	12200	12000	17000	8840	10000
Lead			28.8			25.8	
Magnesium							
Manganese							
Mercury							
Nickel			9.31			11.4	
Potassium							
Selenium			0.821 U			0.73 U	
Silver			0.821 U			0.73 U	
Sodium							
Thallium			0.821 U			0.73 U	
Vanadium			17			20.5	
Zinc			47.4			46.8	
Total Organic Carbon				1.6			2

mg/Kg = milligram per kilogram
U = not detected, value is the reporting limit
J = value is estimated
F = value is estimated, matrix spike recovery outside of control limits
K = value is estimated, blank spike compound recovery outside the control limits
B = analyte was detected in the sample and its associated blank
C = value is estimated, surrogate recovery outside of control limits

Prepared by: LCG 11/24/2014
Checked by: BJR 12/8/2014

Appendix F-13
Analytical Sediment Data - Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD4-0.0/0.5 SD-SD4 11/11/2011 0-0.5 ft	OC-SD-SD4 SD-SD4 11/16/2012 0-0.5 ft	OC-SD-SD4 SD-SD4 11/21/2013 0-0.5 ft	OC-SD-SD-501-XXX SD-501 12/17/2012	OC-SD-SD-502-XXX SD-502 12/17/2012
Volatile Organics (mg/Kg)					
1,1,1,2-Tetrachloroethane				0.0025 U	0.0029 U
1,1,1-Trichloroethane				0.0025 U	0.0029 U
1,1,2,2-Tetrachloroethane				0.0025 U	0.0029 U
1,1,2-Trichloro-1,2,2-Trifluoroethane				0.0025 U	0.0029 U
1,1,2-Trichloroethane				0.0025 U	0.0029 U
1,1-Dichloroethane				0.0025 U	0.0029 U
1,1-Dichloroethene				0.0025 U	0.0029 U
1,1-Dichloropropene				0.0025 U	0.0029 U
1,2,3-Trichlorobenzene				0.0025 U	0.0029 U
1,2,3-Trichloropropane				0.0025 U	0.0029 U
1,2,4-Trichlorobenzene				0.0025 U	0.0029 U
1,2,4-Trimethylbenzene				0.0025 U	0.0029 U
1,2-Dibromo-3-chloropropane				0.025 U	0.029 U
1,2-Dibromoethane				0.0025 U	0.0029 U
1,2-Dichlorobenzene				0.0025 U	0.0029 U
1,2-Dichloroethane				0.0025 U	0.0029 U
1,2-Dichloropropane				0.0025 U	0.0029 U
1,3,5-Trimethylbenzene				0.0025 U	0.0029 U
1,3-Dichlorobenzene				0.0025 U	0.0029 U
1,3-Dichloropropane				0.0025 U	0.0029 U
1,4-Dichlorobenzene				0.0025 U	0.0029 U
1,4-Dioxane				0.25 UJ	0.29 UJ
2,2-Dichloropropane				0.0025 U	0.0029 U
2,4,4-Trimethyl-1-pentene				0.0051 U	0.011
2,4,4-Trimethyl-2-pentene				0.0051 U	0.0088
2-Butanone				0.027	0.025 J
2-Chlorotoluene				0.0025 U	0.0029 U
2-Hexanone				0.025 U	0.029 U
4-Chlorotoluene				0.0025 U	0.0029 U
4-iso-Propyltoluene				0.0025 U	0.0029 U
4-Methyl-2-pentanone				0.025 U	0.029 U
Acetic acid, methyl ester				0.051 U	0.058 U
Acetone				0.12 J	0.11 J
Benzene				0.0025 U	0.0029 U
Bromobenzene				0.0025 U	0.0029 U
Bromochloromethane				0.0025 U	0.0029 U
Bromodichloromethane				0.0025 U	0.0029 U
Bromoform				0.0025 U	0.0029 U
Bromomethane				0.0051 UJ	0.0058 UJ

Appendix F-13
Analytical Sediment Data - Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD4-0.0/0.5 SD-SD4 11/11/2011 0-0.5 ft	OC-SD-SD4 SD-SD4 11/16/2012 0-0.5 ft	OC-SD-SD4 SD-SD4 11/21/2013 0-0.5 ft	OC-SD-SD-501-XXX SD-501 12/17/2012	OC-SD-SD-502-XXX SD-502 12/17/2012
Butane, 2-methoxy-2-methyl-				0.0025 U	0.0029 U
Carbon disulfide				0.0025 U	0.0029 U
Carbon tetrachloride				0.0025 U	0.0029 U
Chlorobenzene				0.0025 U	0.0029 U
Chlorodibromomethane				0.0025 U	0.0029 U
Chloroethane				0.0051 U	0.0058 U
Chloroform				0.0025 U	0.0029 U
Chloromethane				0.0051 U	0.0058 U
Cis-1,2-Dichloroethene				0.0025 U	0.0029 U
cis-1,3-Dichloropropene				0.0025 U	0.0029 U
Cyclohexane				0.025 U	0.029 U
Dibromomethane				0.0025 U	0.0029 U
Dichlorodifluoromethane				0.0051 U	0.0058 U
Diethyl ether				0.0025 U	0.0029 U
Ethyl benzene				0.0025 U	0.0029 U
Ethyl-t-Butyl Ether				0.0025 U	0.0029 U
Hexachlorobutadiene				0.0025 U	0.0029 U
Isopropyl ether				0.0025 U	0.0029 U
Isopropylbenzene				0.0025 U	0.0029 U
Methyl cyclohexane				0.0025 U	0.0029 U
Methyl Tertbutyl Ether				0.0017 J	0.0029 U
Methylene chloride				0.0025 U	0.0029 U
Naphthalene				0.025 U	0.029 U
n-Butylbenzene				0.0025 U	0.0029 U
Propylbenzene				0.0025 U	0.0029 U
sec-Butylbenzene				0.0025 U	0.0029 U
Styrene				0.0025 U	0.0029 U
tert-Butylbenzene				0.0025 U	0.0029 U
Tetrachloroethene				0.0025 U	0.0029 U
Tetrahydrofuran				0.051 U	0.058 U
Toluene				0.00098 J	0.0029 U
trans-1,2-Dichloroethene				0.0025 U	0.0029 U
trans-1,3-Dichloropropene				0.0025 U	0.0029 U
Trichloroethene				0.0025 U	0.0029 U
Trichlorofluoromethane				0.0051 U	0.0058 U
Vinyl chloride				0.0025 U	0.0029 U
Xylene, o				0.0025 U	0.0029 U
Xylenes (m&p)				0.0051 U	0.0058 U
Semivolatile Organics (mg/Kg)					
1,2,4,5-Tetrachlorobenzene				0.46 U	0.48 U

Appendix F-13
Analytical Sediment Data - Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD4-0.0/0.5 SD-SD4 11/11/2011 0-0.5 ft	OC-SD-SD4 SD-SD4 11/16/2012 0-0.5 ft	OC-SD-SD4 SD-SD4 11/21/2013 0-0.5 ft	OC-SD-SD-501-XXX SD-501 12/17/2012	OC-SD-SD-502-XXX SD-502 12/17/2012
1,2,4-Trichlorobenzene				0.46 U	0.48 U
1-Methylnaphthalene				0.46 U	0.48 U
2,3,4,6-Tetrachlorophenol				0.46 U	0.48 U
2,4,5-Trichlorophenol				0.46 U	0.48 U
2,4,6-Trichlorophenol				0.46 U	0.48 U
2,4-Dichlorophenol				0.46 U	0.48 U
2,4-Dimethylphenol				0.46 U	0.48 U
2,4-Dinitrophenol				0.46 UJ	0.48 UJ
2,4-Dinitrotoluene				0.46 U	0.48 U
2,6-Dinitrotoluene				0.46 U	0.48 U
2-Chloronaphthalene				0.46 U	0.48 U
2-Chlorophenol				0.46 U	0.48 U
2-Methylnaphthalene				0.46 U	0.48 U
2-Methylphenol				0.46 U	0.48 U
2-Nitroaniline				2.3 U	2.4 U
2-Nitrophenol				0.46 U	0.48 U
3 & 4 Methylphenol				4.3	6.1
3,3'-Dichlorobenzidine				0.91 U	0.95 U
3-Nitroaniline				2.3 U	2.4 U
4,6-Dinitro-2-methylphenol				2.3 U	2.4 U
4-Bromophenyl phenyl ether				0.46 U	0.48 U
4-Chloro-3-methylphenol				0.91 U	0.95 U
4-Chloroaniline				0.91 U	0.95 U
4-Chlorophenyl phenyl ether				0.46 U	0.48 U
4-Nitroaniline				2.3 U	2.4 U
4-Nitrophenol				2.3 UJ	2.4 UJ
Acenaphthene				0.46 U	0.48 U
Acenaphthylene				0.46 U	0.48 U
Acetophenone				0.15 J	0.26 J
Aniline				0.46 U	0.48 U
Anthracene				0.46 U	0.48 U
Atrazine				0.46 U	0.48 U
Azobenzene				0.46 U	0.48 U
Benzaldehyde				1.4	1.9
Benzo(a)anthracene				0.46 U	0.48 U
Benzo(a)pyrene				0.46 U	0.48 U
Benzo(b)fluoranthene				0.46 U	0.14 J
Benzo(ghi)perylene				0.46 U	0.48 U
Benzo(k)fluoranthene				0.46 U	0.48 U
Benzoic Acid				2.3 U	2.4 U

Appendix F-13
Analytical Sediment Data - Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD4-0.0/0.5 SD-SD4 11/11/2011 0-0.5 ft	OC-SD-SD4 SD-SD4 11/16/2012 0-0.5 ft	OC-SD-SD4 SD-SD4 11/21/2013 0-0.5 ft	OC-SD-SD-501-XXX SD-501 12/17/2012	OC-SD-SD-502-XXX SD-502 12/17/2012
Benzyl alcohol				0.91 U	0.95 U
Biphenyl				0.46 U	0.48 U
Bis(2-Chloroethoxy)methane				0.46 U	0.48 U
Bis(2-Chloroethyl)ether				0.46 U	0.48 U
Bis(2-Chloroisopropyl)ether				0.46 U	0.48 U
Bis(2-Ethylhexyl)phthalate				2.3 U	2.4 U
Butylbenzylphthalate				0.46 U	0.48 U
Caprolactam				0.46 U	0.48 U
Carbazole				0.46 U	0.48 U
Chrysene				0.46 U	0.48 U
Dibenz(a,h)anthracene				0.46 U	0.48 U
Dibenzofuran				0.46 U	0.48 U
Diethylphthalate				0.46 U	0.48 U
Dimethylphthalate				0.46 U	0.48 U
Di-n-butylphthalate				2.3 U	2.4 U
Di-n-octylphthalate				0.46 U	0.48 U
Diphenyl ether				0.46 U	0.48 U
Diphenylmethanone				0.46 U	0.48 U
Fluoranthene				0.21 J	0.29 J
Fluorene				0.46 U	0.48 U
Hexachlorobenzene				0.46 U	0.48 U
Hexachlorocyclopentadiene				0.91 U	0.95 U
Hexachloroethane				0.46 U	0.48 U
Indeno(1,2,3-cd)pyrene				0.46 U	0.48 U
Isophorone				0.46 U	0.48 U
Nitrobenzene				0.46 U	0.48 U
N-Nitrosodimethylamine				0.0069 UJ	0.007 UJ
N-Nitrosodi-n-propylamine				0.46 U	0.48 U
N-Nitrosodiphenylamine				0.46 U	0.48 U
Pentachlorophenol				0.46 U	0.48 U
Phenanthrene				0.46 U	0.21 J
Phenol				1.7	2.2

Appendix F-13
Analytical Sediment Data - Central Pond
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Chemical Name	OC-SD-SD4-0.0/0.5 SD-SD4 11/11/2011 0-0.5 ft	OC-SD-SD4 SD-SD4 11/16/2012 0-0.5 ft	OC-SD-SD4 SD-SD4 11/21/2013 0-0.5 ft	OC-SD-SD-501-XXX SD-501 12/17/2012	OC-SD-SD-502-XXX SD-502 12/17/2012
Pyrene				0.18 J	0.23 J
Inorganics (mg/Kg)					
Aluminum	9900 J	7700 J	7300	6500 J	6500 J
Antimony				0.68 U	0.72 U
Arsenic				6.2	8.1
Barium				45	46
Beryllium				0.094 J	0.09 J
Cadmium				0.21 J	0.26 J
Calcium				3900	3800
Chromium	140	24	15	19	27
Chromium, Hexavalent				0.21 J	0.27 J
Cobalt				4	3.9
Copper				21	21
Iron	17000 J	9900	9300	9500 J	9200 J
Lead				51	50
Magnesium				2000	1800
Manganese				590	440
Mercury				0.07 J	0.057 J
Nickel				8.7	8.7
Potassium				790	730
Selenium				0.7 J	0.72 UJ
Silver				0.68 UJ	0.72 UJ
Sodium				140 J	150 J
Thallium				1.4 U	1.4 U
Tin				2.1 J	2.2 J
Vanadium				17	16
Zinc				65	65
Chloride				24	18
Nitrogen, as Ammonia				17	35
Oxidation Reduction Potential **(mV)**				-31	-32
pH **(pH units)**				7.32	7.23
Sulfate				510	1200
Total Organic Carbon				90	80

mg/Kg = milligram per kilogram
mV = millivolts
U = not detected,
value is the reporting limit
J = value is estimated

Prepared by / Date: LCG 11/21/2014
Checked by / Date: BJR 12/8/2014

Appendix F-14
Analytical Sediment Data - Detention Basin
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-SD-503-XXX SD-503 12/17/2012	OC-SD-SD-504-XXX SD-504 12/17/2012
Volatile Organics (mg/Kg)		
1,1,1,2-Tetrachloroethane	0.0034 U	0.0038 U
1,1,1-Trichloroethane	0.0034 U	0.0038 U
1,1,2,2-Tetrachloroethane	0.0034 U	0.0038 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.0034 U	0.0038 U
1,1,2-Trichloroethane	0.0034 U	0.0038 U
1,1-Dichloroethane	0.0034 U	0.0038 U
1,1-Dichloroethene	0.0034 U	0.0038 U
1,1-Dichloropropene	0.0034 U	0.0038 U
1,2,3-Trichlorobenzene	0.0034 U	0.0038 U
1,2,3-Trichloropropane	0.0034 U	0.0038 U
1,2,4-Trichlorobenzene	0.0034 U	0.0038 U
1,2,4-Trimethylbenzene	0.0034 U	0.0038 U
1,2-Dibromo-3-chloropropane	0.034 U	0.038 U
1,2-Dibromoethane	0.0034 U	0.0038 U
1,2-Dichlorobenzene	0.0034 U	0.0038 U
1,2-Dichloroethane	0.0034 U	0.0038 U
1,2-Dichloropropane	0.0034 U	0.0038 U
1,3,5-Trimethylbenzene	0.0034 U	0.0038 U
1,3-Dichlorobenzene	0.0034 U	0.0038 U
1,3-Dichloropropane	0.0034 U	0.0038 U
1,4-Dichlorobenzene	0.0034 U	0.0038 U
1,4-Dioxane	0.34 UJ	0.38 UJ
2,2-Dichloropropane	0.0034 U	0.0038 U
2,4,4-Trimethyl-1-pentene	0.0024 J	0.0078
2,4,4-Trimethyl-2-pentene	0.0014 J	0.0039 J
2-Butanone	0.035	0.033 J
2-Chlorotoluene	0.0034 U	0.0038 U
2-Hexanone	0.034 U	0.038 U
4-Chlorotoluene	0.0034 U	0.0038 U
4-iso-Propyltoluene	0.0034 U	0.0038 U
4-Methyl-2-pentanone	0.034 U	0.038 U
Acetic acid, methyl ester	0.068 U	0.075 U
Acetone	0.15 J	0.13 J
Benzene	0.0034 U	0.0038 U
Bromobenzene	0.0034 U	0.0038 U
Bromochloromethane	0.0034 U	0.0038 U
Bromodichloromethane	0.0034 U	0.0038 U
Bromoform	0.0034 U	0.0038 U
Bromomethane	0.0068 UJ	0.0075 UJ

Appendix F-14
Analytical Sediment Data - Detention Basin
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-SD-503-XXX SD-503 12/17/2012	OC-SD-SD-504-XXX SD-504 12/17/2012
Butane, 2-methoxy-2-methyl-	0.0034 U	0.0038 U
Carbon disulfide	0.0034 U	0.0038 U
Carbon tetrachloride	0.0034 U	0.0038 U
Chlorobenzene	0.0034 U	0.0038 U
Chlorodibromomethane	0.0034 U	0.0038 U
Chloroethane	0.0068 U	0.0075 U
Chloroform	0.0034 U	0.0038 U
Chloromethane	0.0068 U	0.0075 U
Cis-1,2-Dichloroethene	0.0034 U	0.0038 U
cis-1,3-Dichloropropene	0.0034 U	0.0038 U
Cyclohexane	0.034 U	0.038 U
Dibromomethane	0.0034 U	0.0038 U
Dichlorodifluoromethane	0.0068 U	0.0075 U
Diethyl ether	0.0034 U	0.0038 U
Ethyl benzene	0.0034 U	0.0038 U
Ethyl-t-Butyl Ether	0.0034 U	0.0038 U
Hexachlorobutadiene	0.0034 U	0.0038 U
Isopropyl ether	0.0034 U	0.0038 U
Isopropylbenzene	0.0034 U	0.0038 U
Methyl cyclohexane	0.0034 U	0.0038 U
Methyl Tertbutyl Ether	0.0034 U	0.0038 U
Methylene chloride	0.0034 U	0.0038 U
Naphthalene	0.034 U	0.038 U
n-Butylbenzene	0.0034 U	0.0038 U
Propylbenzene	0.0034 U	0.0038 U
sec-Butylbenzene	0.0034 U	0.0038 U
Styrene	0.0034 U	0.0038 U
tert-Butylbenzene	0.0034 U	0.0038 U
Tetrachloroethene	0.0034 U	0.0038 U
Tetrahydrofuran	0.068 U	0.075 U
Toluene	0.0034 U	0.0038 U
trans-1,2-Dichloroethene	0.0034 U	0.0038 U
trans-1,3-Dichloropropene	0.0034 U	0.0038 U
Trichloroethene	0.0034 U	0.0038 U
Trichlorofluoromethane	0.0068 U	0.0075 U
Vinyl chloride	0.0034 U	0.0038 U
Xylene, o	0.0034 U	0.0038 U
Xylenes (m&p)	0.0068 U	0.0075 U
Semivolatile Organics (mg/Kg)		
1,2,4,5-Tetrachlorobenzene	0.52 U	0.58 U

Appendix F-14
Analytical Sediment Data - Detention Basin
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-SD-503-XXX SD-503 12/17/2012	OC-SD-SD-504-XXX SD-504 12/17/2012
1,2,4-Trichlorobenzene	0.52 U	0.58 U
1-Methylnaphthalene	0.52 U	0.58 U
2,3,4,6-Tetrachlorophenol	0.52 U	0.58 U
2,4,5-Trichlorophenol	0.52 U	0.58 U
2,4,6-Trichlorophenol	0.52 U	0.58 U
2,4-Dichlorophenol	0.52 U	0.58 U
2,4-Dimethylphenol	0.52 U	0.58 U
2,4-Dinitrophenol	0.52 UJ	0.58 UJ
2,4-Dinitrotoluene	0.52 U	0.58 U
2,6-Dinitrotoluene	0.52 U	0.58 U
2-Chloronaphthalene	0.52 U	0.58 U
2-Chlorophenol	0.52 U	0.58 U
2-Methylnaphthalene	0.52 U	0.58 U
2-Methylphenol	0.52 U	0.58 U
2-Nitroaniline	2.6 U	2.9 U
2-Nitrophenol	0.52 U	0.58 U
3 & 4 Methylphenol	4	1.8
3,3'-Dichlorobenzidine	1 U	1.2 U
3-Nitroaniline	2.6 U	2.9 U
4,6-Dinitro-2-methylphenol	2.6 U	2.9 U
4-Bromophenyl phenyl ether	0.52 U	0.58 U
4-Chloro-3-methylphenol	1 U	1.2 U
4-Chloroaniline	1 U	1.2 U
4-Chlorophenyl phenyl ether	0.52 U	0.58 U
4-Nitroaniline	2.6 U	2.9 U
4-Nitrophenol	2.6 UJ	2.9 UJ
Acenaphthene	0.52 U	0.58 U
Acenaphthylene	0.52 U	0.58 U
Acetophenone	0.16 J	0.58 U
Aniline	0.52 U	0.58 U
Anthracene	0.52 U	0.58 U
Atrazine	0.52 U	0.58 U
Azobenzene	0.52 U	0.58 U
Benzaldehyde	1.3	0.62
Benzo(a)anthracene	0.52 U	0.58 U
Benzo(a)pyrene	0.52 U	0.22 J
Benzo(b)fluoranthene	0.52 U	0.58 U
Benzo(ghi)perylene	0.52 U	0.58 U
Benzo(k)fluoranthene	0.52 U	0.58 U
Benzoic Acid	2.6 U	2.9 U

Appendix F-14
Analytical Sediment Data - Detention Basin
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-SD-503-XXX SD-503 12/17/2012	OC-SD-SD-504-XXX SD-504 12/17/2012
Benzyl alcohol	1 U	1.2 U
Biphenyl	0.52 U	0.58 U
Bis(2-Chloroethoxy)methane	0.52 U	0.58 U
Bis(2-Chloroethyl)ether	0.52 U	0.58 U
Bis(2-Chloroisopropyl)ether	0.52 U	0.58 U
Bis(2-Ethylhexyl)phthalate	3.1	2.9 U
Butylbenzylphthalate	0.52 U	0.58 U
Caprolactam	0.52 U	0.58 U
Carbazole	0.52 U	0.58 U
Chrysene	0.52 U	0.58 U
Dibenz(a,h)anthracene	0.52 U	0.58 U
Dibenzofuran	0.52 U	0.58 U
Diethylphthalate	0.52 U	0.58 U
Dimethylphthalate	0.52 U	0.58 U
Di-n-butylphthalate	2.6 U	2.9 U
Di-n-octylphthalate	0.52 U	0.58 U
Diphenyl ether	0.52 U	0.58 U
Diphenylmethanone	0.52 U	0.58 U
Fluoranthene	0.52 U	0.58 U
Fluorene	0.52 U	0.58 U
Hexachlorobenzene	0.52 U	0.58 U
Hexachlorocyclopentadiene	1 U	1.2 U
Hexachloroethane	0.52 U	0.58 U
Indeno(1,2,3-cd)pyrene	0.52 U	0.58 U
Isophorone	0.52 U	0.58 U
Nitrobenzene	0.52 U	0.58 U
N-Nitrosodimethylamine	0.0076 UJ	0.0091 UJ
N-Nitrosodi-n-propylamine	0.52 U	0.58 U
N-Nitrosodiphenylamine	0.33 J	0.58 U
Pentachlorophenol	0.52 U	0.58 U
Phenanthrene	0.52 U	0.58 U
Phenol	1.9	1.4
Pyrene	0.52 U	0.58 U
Inorganics (mg/Kg)		
Aluminum	9100 J	7800 J
Antimony	0.69 U	0.79 U
Arsenic	12	9.4
Barium	48	51
Beryllium	0.12 J	0.089 J
Cadmium	0.55	0.56

Appendix F-14
Analytical Sediment Data - Detention Basin
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-SD-503-XXX SD-503 12/17/2012	OC-SD-SD-504-XXX SD-504 12/17/2012
Calcium	4700	4800
Chromium	50	33
Chromium, Hexavalent	0.31 UJ	0.36 UJ
Cobalt	4.8	4.5
Copper	19	25
Iron	12000 J	11000 J
Lead	26	23
Magnesium	2300	2000
Manganese	400	440
Mercury	0.075 J	0.062 J
Nickel	11	9.9
Potassium	1100	740
Selenium	0.69 UJ	0.79 UJ
Silver	0.69 UJ	0.79 UJ
Sodium	110 J	150 J
Thallium	1.4 U	1.6 U
Tin	2.2 J	2.3 J
Vanadium	22	19
Zinc	55	73
Chloride	6.3 J	13
Nitrogen, as Ammonia	14	22
Oxidation Reduction Potential **(mV)**	-32	-31
pH **(pH units)**	6.98	6.99
Sulfate	900	1900
Total Organic Carbon	110	60

mg/Kg = milligram per kilogram
mV = millivolts
U = not detected,
value is the reporting limit
J = value is estimated

Prepared by / Date: KJC 03/28/13
Checked by / Date: BJR 12/8/14

Appendix F-15
Analytical Surface Water Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-OPWD-1-XXX OPWD-1 12/10/2010		OC-SW-OPWD-1-XXX OPWD-1 6/7/2011		OC-SW-OPWD-2-XXX OPWD-2 12/10/2010		OC-SW-OPWD-2-XXX OPWD-2 6/7/2011		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 12/10/2010		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 6/7/2011	
Volatile Organics (mg/L)												
1,1,1,2-Tetrachloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,1-Trichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,2,2-Tetrachloroethane	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,2-Trichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloropropene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dibromo-3-chloropropane	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,2-Dibromoethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3,5-Trimethylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dioxane		R	0.05	U		R	0.05	U		R	0.05	U
2,2-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2,4,4-Trimethyl-1-pentene	0.001	U	0.001	UJ	0.0025		0.0071	J	0.00071	J	0.001	UJ
2,4,4-Trimethyl-2-pentene	0.001	U	0.001	U	0.001	U	0.0019		0.001	U	0.001	U
2-Butanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
2-Chlorotoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Hexanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
4-Chlorotoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
4-iso-Propyltoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
4-Methyl-2-pentanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Acetic acid, methyl ester	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Acetone	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Benzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromochloromethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromodichloromethane	0.001	U	0.0005	U	0.001	U	0.0005	U	0.001	U	0.0005	U
Bromoform	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ

Appendix F-15
Analytical Surface Water Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-OPWD-1-XXX OPWD-1 12/10/2010		OC-SW-OPWD-1-XXX OPWD-1 6/7/2011		OC-SW-OPWD-2-XXX OPWD-2 12/10/2010		OC-SW-OPWD-2-XXX OPWD-2 6/7/2011		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 12/10/2010		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 6/7/2011	
Bromomethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Butane, 2-methoxy-2-methyl-	0.005	U	0.005	UJ	0.005	U	0.005	UJ	0.005	U	0.005	UJ
Carbon disulfide	0.001	J	0.01	UJ	0.01	U	0.0025	J	0.0011	J	0.01	UJ
Carbon tetrachloride	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ
Chlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chlorodibromomethane	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
Chloroethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Chloroform	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloromethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Cis-1,2-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
cis-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Cyclohexane	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Dibromomethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Dichlorodifluoromethane	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	U
Diethyl ether	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Ethyl benzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Ethyl-t-Butyl Ether	0.005	U	0.005	UJ	0.005	U	0.005	UJ	0.005	U	0.005	UJ
Hexachlorobutadiene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Isopropyl ether	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Isopropylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Methyl cyclohexane	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Methyl Tertbutyl Ether	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ
Methylene chloride	0.002	U	0.002	UJ	0.002	U	0.002	UJ	0.002	U	0.002	UJ
Naphthalene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
n-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Propylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
sec-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Styrene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
tert-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Tetrachloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Tetrahydrofuran	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Toluene	0.001	U	0.001	U	0.001	U	0.0005	J	0.001	U	0.001	U
trans-1,2-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
trans-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Trichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Trichlorofluoromethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Vinyl chloride	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
Xylene, o	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Xylenes (m&p)	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U

Appendix F-15
Analytical Surface Water Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-OPWD-1-XXX OPWD-1 12/10/2010		OC-SW-OPWD-1-XXX OPWD-1 6/7/2011		OC-SW-OPWD-2-XXX OPWD-2 12/10/2010		OC-SW-OPWD-2-XXX OPWD-2 6/7/2011		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 12/10/2010		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 6/7/2011	
Semivolatile Organics (mg/L)												
1,2,4,5-Tetrachlorobenzene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
1-Methylnaphthalene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2,3,4,6-Tetrachlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2,4,5-Trichlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2,4,6-Trichlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2,4-Dichlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2,4-Dimethylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2,4-Dinitrophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2,4-Dinitrotoluene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2,6-Dinitrotoluene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2-Chloronaphthalene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2-Chlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2-Methylnaphthalene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.001	U
2-Methylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2-Nitroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
2-Nitrophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
3 & 4 Methylphenol	0.00073	J	0.0045	U	0.0045	U	0.00076	J	0.0045	U	0.005	U
3,3'-Dichlorobenzidine	0.0045	U	0.0045	U	0.0045	UJ	0.0045	U	0.0045	U	0.005	U
3-Nitroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
4,6-Dinitro-2-methylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
4-Bromophenyl phenyl ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
4-Chloro-3-methylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
4-Chloroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
4-Chlorophenyl phenyl ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
4-Nitroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
4-Nitrophenol	0.0045	UJ	0.0045	U	0.0045	UJ	0.0045	U	0.00075	J	0.005	U
Acenaphthene	0.00091	U	0.00091	U	0.000047	J	0.00091	U	0.00091	U	0.001	U
Acenaphthylene	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.0003	U
Acetophenone	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Aniline	0.0045	UJ	0.0045	U	0.0045	UJ	0.0045	U	0.0045	UJ	0.005	U
Anthracene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.001	U
Atrazine	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Azobenzene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Benzaldehyde	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Benzo(a)anthracene	0.00027	U	0.00027	U	0.002	J	0.00024	J	0.00027	U	0.0003	U
Benzo(a)pyrene	0.00012	J	0.00022		0.0042	J	0.00059		0.00018	U	0.0002	U
Benzo(b)fluoranthene	0.00019	J	0.00029		0.0077	J	0.0011		0.00027	U	0.0003	U
Benzo(ghi)perylene	0.00011	J	0.00045	U	0.0046	J	0.00054		0.00045	U	0.0005	U

Appendix F-15
Analytical Surface Water Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-OPWD-1-XXX OPWD-1 12/10/2010		OC-SW-OPWD-1-XXX OPWD-1 6/7/2011		OC-SW-OPWD-2-XXX OPWD-2 12/10/2010		OC-SW-OPWD-2-XXX OPWD-2 6/7/2011		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 12/10/2010		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 6/7/2011	
Benzo(k)fluoranthene	0.00027	U	0.00027	U	0.0026	J	0.0005		0.00027	U	0.0003	U
Benzoic Acid	0.0021	J	0.0019	J	0.0042	J	0.0021	J	0.0045	UJ	0.0021	J
Benzyl alcohol	0.0091	U	0.0091	U	0.0091	U	0.0091	U	0.0091	U	0.01	U
Biphenyl	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Bis(2-Chloroethoxy)methane	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Bis(2-Chloroethyl)ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Bis(2-Chloroisopropyl)ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Bis(2-Ethylhexyl)phthalate	0.01	U	0.0018	U	0.044	UJ	0.0018	U	0.0088	U	0.002	U
Butylbenzylphthalate	0.0045	U	0.0045	U	0.0045	UJ	0.0045	U	0.0045	U	0.005	U
Caprolactam	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.005	UJ
Carbazole	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Chrysene	0.00018	J	0.00018	J	0.0053	J	0.00067	J	0.00091	U	0.001	U
Dibenz(a,h)anthracene	0.00045	U	0.00045	U	0.0012	J	0.00045	U	0.00045	U	0.0005	U
Dibenzofuran	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Diethylphthalate	0.0049	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Dimethylphthalate	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Di-n-butylphthalate	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Di-n-octylphthalate	0.00087	J	0.0045	U	0.00081	J	0.0045	U	0.0045	U	0.005	U
Diphenyl ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Diphenylmethanone	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Fluoranthene	0.00023	J	0.00024	J	0.0051		0.00092		0.00091	U	0.001	U
Fluorene	0.00091	U	0.00091	U	0.000056	J	0.00091	U	0.00091	U	0.001	U
Hexachlorobenzene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.001	U
Hexachlorocyclopentadiene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Hexachloroethane	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.003	U
Indeno(1,2,3-cd)pyrene	0.000098	J	0.00045	U	0.004	J	0.00049		0.00045	U	0.0005	U
Isophorone	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Nitrobenzene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
N-Nitrosodimethylamine	0.00011		0.00006		0.0000056		0.000038	UJ	0.000076		0.000023	
N-Nitrosodi-n-propylamine	0.0000019	U	0.000019	U	0.0000019	U	0.000038	U	0.0000019	U	0.00002	U
N-Nitrosodiphenylamine	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.005	U
Pentachlorophenol	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.001	U
Phenanthrene	0.000081	J	0.0001	J	0.0025		0.00032		0.00018	U	0.0002	U
Phenol	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.00051	J	0.0045	UJ	0.005	UJ
Pyrene	0.00022	J	0.00028	J	0.012	J	0.0011	J	0.0045	U	0.005	U
Metals, Total (mg/L)												
Aluminum	1.1		0.83		0.96		1.6		0.33		0.1	
Antimony	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U
Arsenic	0.01	U	0.0038	J	0.01	U	0.012		0.01	U	0.01	U

Appendix F-15
Analytical Surface Water Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-OPWD-1-XXX OPWD-1 12/10/2010		OC-SW-OPWD-1-XXX OPWD-1 6/7/2011		OC-SW-OPWD-2-XXX OPWD-2 12/10/2010		OC-SW-OPWD-2-XXX OPWD-2 6/7/2011		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 12/10/2010		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 6/7/2011	
Barium	0.032		0.042		0.026		0.046		0.033		0.028	
Beryllium	0.00026	J	0.00019	J	0.001	U	0.00017	J	0.001	U	0.001	U
Cadmium	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Calcium	21		26		6.1		6.8		28		24	
Chromium	0.13		0.099		0.0061		0.013		0.037		0.012	
Chromium, Hexavalent									0.001	U	0.001	U
Cobalt	0.018		0.017		0.0034	J	0.0033	J	0.011		0.0056	J
Copper	0.0058	J	0.0034		0.0061	J	0.0039		0.0041	J	0.00079	
Iron	17		29		8.8		30		8.3		5	
Lead	0.0025		0.002		0.0058		0.0041		0.00083	J	0.00082	J
Magnesium	4.7		5.4		1.2		1.2		4.2		4.2	
Manganese	1.3		1.5		0.27		0.27		0.98		0.8	
Mercury	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
Nickel	0.018		0.012		0.005	J	0.0051	J	0.0096	J	0.0041	J
Potassium	1.6	J	2.3	J	4	U	4	U	2.1	J	2.2	J
Selenium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Silver	0.001	UJ	0.0002	U	0.001	UJ	0.0005	U	0.001	UJ	0.0001	U
Sodium	100		120		41		42		89		94	
Thallium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Tin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Vanadium	0.0026	J	0.0031	J	0.0062	J	0.012		0.01	UJ	0.01	U
Zinc	0.019	J	0.019	J	0.04	J	0.12		0.018	J	0.009	J
Inorganics (mg/L)												
Bromide	0.21		0.2		0.1	U	0.1		0.19		0.14	
Chloride	170		180		94		82		180		130	
Hardness	72		87		20		22		87		77	
Nitrate as N	0.05	U	0.05	U	0.05	U	0.05	U	0.069		0.05	U
Nitrite as N	0.01	U	0.1	U	0.02		0.01	U	0.01	U	0.1	U
Nitrogen, as Ammonia	66		63		17		36		48		37	
Sulfate	360		320		66		69		290		160	
Total Organic Carbon	11		5.9		13		17		9.3		5	
Total Suspended Solids	62		77		190		250		28		11	
Specialty Compounds (mg/L)												
Hydrazine	0.0001	U	0.0001	U	0.0001	U	0.0001	U				
Monomethylhydrazine (MMH)	0.0005	U	0.0005	U	0.0005	U	0.0005	U				
UDMH	0.0005	U	0.0005	U	0.0005	U	0.0005	U				
Acetaldehyde	0.03	U	0.03	U	0.03	U	0.03	U				
Formaldehyde	0.02	J	0.03	U	0.0099	J	0.0064	J				
Perchlorate	0.01	U			0.001	U			0.01	U		

Appendix F-15
Analytical Surface Water Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-OPWD-1-XXX OPWD-1 12/10/2010		OC-SW-OPWD-1-XXX OPWD-1 6/7/2011		OC-SW-OPWD-2-XXX OPWD-2 12/10/2010		OC-SW-OPWD-2-XXX OPWD-2 6/7/2011		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 12/10/2010		OC-SW-OPWD-SD/SO/SW-S-XXX OPWD-SW-S 6/7/2011	
Kempore (Azodicarbonamide)	1	U	1	U	1	U	1	U	1	U	1	U
OPEX	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ

mg/L = milligram per liter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected

Prepared by / Date: LCG 11/24/2014
Checked by / Date: BJR 12/8/2014

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW0-XXX EDSD/SW0 12/13/2010		OC-SW-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-EDSD/SW1 (EDBS5)-XXX EDSD/SW1 (EDBS5) 12/13/2010		OC-SW-EDSD/SW1(EDBS5) XXX (EDBS5) EDSD/SW1 6/8/2011		OC-SW-EDSD/SW2 (EDBS6) XXX (EDBS6) EDSD/SW2 12/13/2010	
Volatile Organics (mg/L)										
1,1,1,2-Tetrachloroethane	0.001	U			0.001	U	0.001	U	0.001	U
1,1,1-Trichloroethane	0.001	U			0.001		0.0018		0.001	U
1,1,2,2-Tetrachloroethane	0.0005	U			0.0005	U	0.0005	U	0.0005	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	U			0.0013		0.0011		0.001	U
1,1,2-Trichloroethane	0.001	U			0.001	U	0.001	U	0.001	U
1,1-Dichloroethane	0.001	U			0.001	U	0.00033	J	0.001	U
1,1-Dichloroethene	0.001	U			0.001	U	0.00078	J	0.001	U
1,1-Dichloropropene	0.001	U			0.001	U	0.001	U	0.001	U
1,2,3-Trichlorobenzene	0.001	U			0.001	U	0.001	U	0.001	U
1,2,3-Trichloropropane	0.001	U			0.001	U	0.001	U	0.001	U
1,2,4-Trichlorobenzene	0.001	U			0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene	0.001	U			0.001	U	0.001	U	0.001	U
1,2-Dibromo-3-chloropropane	0.005	U			0.005	U	0.005	U	0.005	U
1,2-Dibromoethane	0.001	U			0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	0.001	U			0.001	U	0.001	U	0.001	U
1,2-Dichloroethane	0.001	U			0.001	U	0.001	U	0.001	U
1,2-Dichloropropane	0.001	U			0.001	U	0.001	U	0.001	U
1,3,5-Trimethylbenzene	0.001	U			0.001	U	0.001	U	0.001	U
1,3-Dichlorobenzene	0.001	U			0.001	U	0.001	U	0.001	U
1,3-Dichloropropane	0.001	U			0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	0.001	U			0.001	U	0.001	U	0.001	U
1,4-Dioxane		R				R	0.05	U		R
2,2-Dichloropropane	0.001	U			0.001	U	0.001	U	0.001	U
2,4,4-Trimethyl-1-pentene	0.001	U			0.001	U	0.001	UJ	0.0044	
2,4,4-Trimethyl-2-pentene	0.001	U			0.001	U	0.001	U	0.001	U
2-Butanone	0.01	U			0.01	U	0.0029	J	0.01	U
2-Chlorotoluene	0.001	U			0.001	U	0.001	U	0.001	U
2-Hexanone	0.01	U			0.01	U	0.01	U	0.01	U
4-Chlorotoluene	0.001	U			0.001	U	0.001	U	0.001	U
4-iso-Propyltoluene	0.001	U			0.001	U	0.001	U	0.001	U
4-Methyl-2-pentanone	0.01	U			0.01	U	0.01	U	0.01	U
Acetic acid, methyl ester	0.02	U			0.02	U	0.02	U	0.02	U
Acetone	0.05	UJ			0.05	UJ	0.05	U	0.05	UJ
Benzene	0.001	U			0.001	U	0.001	U	0.001	U
Bromobenzene	0.001	U			0.001	U	0.001	U	0.001	U
Bromochloromethane	0.001	U			0.001	U	0.001	U	0.001	U
Bromodichloromethane	0.001	U			0.001	U	0.0005	U	0.001	U
Bromoform	0.001	U			0.001	U	0.001	UJ	0.001	U

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW0-XXX EDSD/SW0 12/13/2010		OC-SW-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-EDSD/SW1 (EDBS5)-XXX EDSD/SW1 (EDBS5) 12/13/2010		OC-SW-EDSD/SW1(EDBS5) XXX (EDBS5) EDSD/SW1 6/8/2011		OC-SW-EDSD/SW2 (EDBS6) XXX (EDBS6) EDSD/SW2 12/13/2010	
Bromomethane	0.002	U			0.002	U	0.002	U	0.002	U
Butane, 2-methoxy-2-methyl-	0.005	U			0.005	U	0.005	UJ	0.005	U
Carbon disulfide	0.01	U			0.01	U	0.01	U	0.01	U
Carbon tetrachloride	0.001	UJ			0.001	UJ	0.001	UJ	0.001	UJ
Chlorobenzene	0.001	U			0.001	U	0.001	U	0.001	U
Chlorodibromomethane	0.0005	U			0.0005	U	0.0005	U	0.0005	U
Chloroethane	0.002	U			0.002	U	0.0026		0.002	U
Chloroform	0.001	U			0.001	U	0.001	U	0.001	U
Chloromethane	0.002	U			0.002	U	0.002	U	0.002	U
Cis-1,2-Dichloroethene	0.001	U			0.001	U	0.001	U	0.001	U
cis-1,3-Dichloropropene	0.0004	U			0.0004	U	0.0004	U	0.0004	U
Cyclohexane	0.01	U			0.01	U	0.01	U	0.01	U
Dibromomethane	0.001	U			0.001	U	0.001	U	0.001	U
Dichlorodifluoromethane	0.001	UJ			0.001	UJ	0.001	U	0.001	UJ
Diethyl ether	0.01	U			0.01	U	0.01	U	0.01	U
Ethyl benzene	0.001	U			0.001	U	0.001	U	0.001	U
Ethyl-t-Butyl Ether	0.005	U			0.005	U	0.005	UJ	0.005	U
Hexachlorobutadiene	0.0004	U			0.0004	U	0.0004	U	0.0004	U
Isopropyl ether	0.01	U			0.01	U	0.01	U	0.01	U
Isopropylbenzene	0.001	U			0.001	U	0.001	U	0.001	U
Methyl cyclohexane	0.01	U			0.01	U	0.01	U	0.01	U
Methyl Tertbutyl Ether	0.001	U			0.001	U	0.00022	J	0.001	U
Methylene chloride	0.002	U			0.002	U	0.002	U	0.002	U
Naphthalene	0.005	U			0.005	U	0.005	U	0.005	U
n-Butylbenzene	0.001	U			0.001	U	0.001	U	0.001	U
Propylbenzene	0.001	U			0.001	U	0.001	U	0.001	U
sec-Butylbenzene	0.001	U			0.001	U	0.001	U	0.001	U
Styrene	0.001	U			0.001	U	0.001	U	0.001	U
tert-Butylbenzene	0.001	U			0.001	U	0.001	U	0.001	U
Tetrachloroethene	0.001	U			0.001	U	0.001	U	0.001	U
Tetrahydrofuran	0.01	U			0.01	U	0.01	U	0.01	U
Toluene	0.001	U			0.0085		0.001		0.0021	
trans-1,2-Dichloroethene	0.001	U			0.001	U	0.001	U	0.001	U
trans-1,3-Dichloropropene	0.0004	U			0.0004	U	0.0004	U	0.0004	U
Trichloroethene	0.001	U			0.00047	J	0.00048	J	0.001	U
Trichlorofluoromethane	0.001	U			0.001	U	0.001	U	0.001	U
Vinyl chloride	0.0005	U			0.0005	U	0.0005	U	0.0005	U
Xylene, o	0.001	U			0.001	U	0.00024	J	0.001	U
Xylenes (m&p)	0.002	U			0.002	U	0.00052	J	0.002	U

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW0-XXX EDSD/SW0 12/13/2010		OC-SW-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-EDSD/SW1 (EDBS5)-XXX EDSD/SW1 (EDBS5) 12/13/2010		OC-SW-EDSD/SW1(EDBS5) XXX (EDBS5) EDSD/SW1 6/8/2011		OC-SW-EDSD/SW2 (EDBS6) XXX (EDBS6) EDSD/SW2 12/13/2010	
Semivolatile Organics (mg/L)										
1,2,4,5-Tetrachlorobenzene	0.0045	U			0.0045	U	0.0048	U	0.0045	U
1-Methylnaphthalene	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2,3,4,6-Tetrachlorophenol	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2,4,5-Trichlorophenol	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2,4,6-Trichlorophenol	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2,4-Dichlorophenol	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2,4-Dimethylphenol	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2,4-Dinitrophenol	0.0045	UJ			0.0045	UJ	0.0048	U	0.0045	UJ
2,4-Dinitrotoluene	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2,6-Dinitrotoluene	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2-Chloronaphthalene	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2-Chlorophenol	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2-Methylnaphthalene	0.00091	U			0.00091	U	0.00095	U	0.00091	U
2-Methylphenol	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2-Nitroaniline	0.0045	U			0.0045	U	0.0048	U	0.0045	U
2-Nitrophenol	0.0045	UJ			0.0045	UJ	0.0048	U	0.0045	UJ
3 & 4 Methylphenol	0.0045	U			0.0045	U	0.0048	U	0.0045	U
3,3'-Dichlorobenzidine	0.0045	U			0.0045	U	0.0048	U	0.0045	U
3-Nitroaniline	0.0045	U			0.0045	U	0.0048	U	0.0045	U
4,6-Dinitro-2-methylphenol	0.0045	U			0.0045	U	0.0048	U	0.0045	U
4-Bromophenyl phenyl ether	0.0045	U			0.0045	U	0.0048	U	0.0045	U
4-Chloro-3-methylphenol	0.0045	U			0.0045	U	0.0048	U	0.0045	U
4-Chloroaniline	0.0045	U			0.0045	U	0.0048	U	0.0045	U
4-Chlorophenyl phenyl ether	0.0045	U			0.0045	U	0.0048	U	0.0045	U
4-Nitroaniline	0.0045	U			0.0045	U	0.0048	U	0.0045	U
4-Nitrophenol	0.0045	UJ			0.0045	UJ	0.0048	U	0.0045	UJ
Acenaphthene	0.00091	U			0.00091	U	0.00095	U	0.00091	U
Acenaphthylene	0.00027	U			0.00027	U	0.00029	U	0.00027	U
Acetophenone	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Aniline	0.0045	UJ			0.0045	UJ	0.0048	U	0.0045	UJ
Anthracene	0.00091	U			0.00091	U	0.00095	U	0.00091	U
Atrazine	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Azobenzene	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Benzaldehyde	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Benzo(a)anthracene	0.00027	U			0.00027	U	0.00029	U	0.00027	U
Benzo(a)pyrene	0.00018	U			0.00018	U	0.00019	U	0.00018	U
Benzo(b)fluoranthene	0.00027	U			0.00027	U	0.00029	U	0.00027	U
Benzo(ghi)perylene	0.00012	J			0.00018	J	0.00048	U	0.00015	J

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW0-XXX EDSD/SW0 12/13/2010		OC-SW-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-EDSD/SW1 (EDBS5)-XXX EDSD/SW1 (EDBS5) 12/13/2010		OC-SW-EDSD/SW1(EDBS5) XXX (EDBS5) EDSD/SW1 6/8/2011		OC-SW-EDSD/SW2 (EDBS6) XXX (EDBS6) EDSD/SW2 12/13/2010	
Benzo(k)fluoranthene	0.00027	U			0.00027	U	0.00029	U	0.00027	U
Benzoic Acid		R				R	0.0019	J		R
Benzyl alcohol	0.0091	U			0.0091	U	0.0095	U	0.0091	U
Biphenyl	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Bis(2-Chloroethoxy)methane	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Bis(2-Chloroethyl)ether	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Bis(2-Chloroisopropyl)ether	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Bis(2-Ethylhexyl)phthalate	0.0018	U			0.0018	U	0.0019	U	0.0015	J
Butylbenzylphthalate	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Caprolactam		R				R	0.0048	UJ		R
Carbazole	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Chrysene	0.00091	U			0.00091	U	0.00095	U	0.00091	U
Dibenz(a,h)anthracene	0.00013	J			0.00018	J	0.00048	U	0.00013	J
Dibenzofuran	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Diethylphthalate	0.0045	U			0.0045	U	0.0048	U	0.0062	U
Dimethylphthalate	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Di-n-butylphthalate	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Di-n-octylphthalate	0.0045	UJ			0.0045	UJ	0.0048	U	0.0045	UJ
Diphenyl ether	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Diphenylmethanone	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Fluoranthene	0.00091	U			0.00091	U	0.00095	U	0.00091	U
Fluorene	0.00091	U			0.00091	U	0.00095	U	0.00091	U
Hexachlorobenzene	0.00091	U			0.00091	U	0.00095	U	0.00091	U
Hexachlorocyclopentadiene	0.0045	UJ			0.0045	UJ	0.0048	U	0.0045	UJ
Hexachloroethane	0.0027	U			0.0027	U	0.0029	U	0.0027	U
Indeno(1,2,3-cd)pyrene	0.00013	J			0.00017	J	0.00048	U	0.00016	J
Isophorone	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Nitrobenzene	0.0045	U			0.0045	U	0.0048	U	0.0045	U
N-Nitrosodimethylamine	0.000002	U			0.0000033		0.0000019	U	0.0000063	
N-Nitrosodi-n-propylamine	0.000002	U			0.000002	U	0.0000019	U	0.0000022	U
N-Nitrosodiphenylamine	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Pentachlorophenol		R				R	0.00095	U		R
Phenanthrene	0.00018	U			0.00018	U	0.00019	U	0.00018	U
Phenol	0.0045	UJ			0.0045	UJ	0.0048	UJ	0.0045	UJ
Pyrene	0.0045	U			0.0045	U	0.0048	U	0.0045	U
Metals, Total (mg/L)										
Aluminum	0.071	J			0.039	J	0.1	U	0.068	J
Antimony	0.006	U			0.006	U	0.006	U	0.006	U
Arsenic	0.01	U			0.01	U	0.01	U	0.01	U

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW0-XXX EDSD/SW0 12/13/2010		OC-SW-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-EDSD/SW1 (EDBS5)-XXX EDSD/SW1 (EDBS5) 12/13/2010		OC-SW-EDSD/SW1(EDBS5) XXX (EDBS5) EDSD/SW1 6/8/2011		OC-SW-EDSD/SW2 (EDBS6) XXX (EDBS6) EDSD/SW2 12/13/2010	
Barium	0.028				0.032		0.057		0.026	
Beryllium	0.001	U			0.001	U	0.001	U	0.001	U
Cadmium	0.001	U			0.001	U	0.001	U	0.001	U
Calcium	18				27		45		22	
Chromium	0.005	U			0.005	U	0.005	U	0.005	U
Chromium, Hexavalent									0.001	UJ
Cobalt	0.01	U			0.01	U	0.01	U	0.01	U
Copper	0.0055	NJ			0.0034	NJ	0.00072		0.0033	NJ
Iron	0.17				0.87		0.89		0.73	
Lead	0.00035	J			0.001	U	0.0001	U	0.00067	J
Magnesium	1.8				3.6		6.6		3	
Manganese	0.016				0.17		0.27		0.25	
Mercury	0.0002	U			0.0002	U	0.0002	U	0.0002	U
Nickel	0.01	U			0.01	U	0.01	U	0.01	U
Potassium	1.6	J			2	J	2.7	J	1.7	J
Selenium	0.01	U			0.01	U	0.01	U	0.01	U
Silver	0.001	U			0.001	U	0.0001	U	0.001	U
Sodium	76				55		78		46	
Thallium	0.01	U			0.01	U	0.0052	J	0.01	U
Tin	0.05	U			0.05	U	0.05	U	0.05	U
Vanadium	0.01	UJ			0.01	UJ	0.01	U	0.01	UJ
Zinc	0.053				0.025	J	0.05	U	0.016	J
Metals, Filtered (mg/L)										
Aluminum										
Chromium										
Sodium										
Inorganics (mg/L)										
Bromide	0.1	U			0.1	U	0.1	U	0.1	U
Chloride	140				100		190		93	
Hardness	52				83		140		68	
Lab Specific Conductance **(mS/cm)**										
Nitrate as N	1.8				1		0.68		0.73	
Nitrite as N	0.01	U			0.01	U	0.1	U	0.01	U
Nitrogen, as Ammonia	0.1	U			0.11		0.1	U	0.26	
Sulfate	14				17		20		15	
Total Organic Carbon	3				2.9		2.1		2.6	
Total Suspended Solids	2	U			2	U	5	U	2	

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW0-XXX EDSD/SW0 12/13/2010		OC-SW-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-EDSD/SW1 (EDBS5)-XXX EDSD/SW1 (EDBS5) 12/13/2010		OC-SW-EDSD/SW1(EDBS5) XXX (EDBS5) EDSD/SW1 6/8/2011		OC-SW-EDSD/SW2 (EDBS6) XXX (EDBS6) EDSD/SW2 12/13/2010	
Specialty Compounds (mg/L)										
Kempore (Azodicarbonamide)	1	U	3	U	1	U	1	U	1	U
OPEX	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW2(EDBS6)-XXX (EDBS6) EDSD/SW2 6/8/2011		OC-SW-EDSD/SW5 (EDBS11)-XXX EDSD/SW5 (EDBS11) 12/13/2010		OC-SW-EDSD/SW5(EDBS11)-XXX EDSD/SW5 (EDBS11) 6/8/2011		OC-SW-EDSD/SW7-XXX EDSD/SW7 11/6/2012		OC-SW-EDSD/SW7-XXX EDSD/SW7 6/18/2012	
Volatile Organics (mg/L)										
1,1,1,2-Tetrachloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,1-Trichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,2,2-Tetrachloroethane	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	U	0.0015		0.0031		0.0013		0.001	U
1,1,2-Trichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloropropene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	UJ
1,2,4-Trichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dibromo-3-chloropropane	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,2-Dibromoethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3,5-Trimethylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dioxane	0.05	U		R	0.05	U	0.05	UJ	0.05	U
2,2-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2,4,4-Trimethyl-1-pentene	0.0039	J	0.001	U	0.001	UJ	0.001	U	0.001	U
2,4,4-Trimethyl-2-pentene	0.00057	J	0.001	U	0.001	U	0.001	UJ	0.001	U
2-Butanone	0.01	U	0.01	U	0.0013	J	0.01	U	0.01	U
2-Chlorotoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Hexanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
4-Chlorotoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
4-iso-Propyltoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
4-Methyl-2-pentanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Acetic acid, methyl ester	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Acetone	0.05	U	0.05	UJ	0.05	U	0.0039	J	0.05	U
Benzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromochloromethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromodichloromethane	0.0005	U	0.001	U	0.0005	U	0.0005	U	0.0005	U
Bromoform	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	U

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW2(EDBS6)-XXX (EDBS6) EDSD/SW2 6/8/2011		OC-SW-EDSD/SW5 (EDBS11)-XXX EDSD/SW5 (EDBS11) 12/13/2010		OC-SW-EDSD/SW5(EDBS11)-XXX EDSD/SW5 (EDBS11) 6/8/2011		OC-SW-EDSD/SW7-XXX EDSD/SW7 11/6/2012		OC-SW-EDSD/SW7-XXX EDSD/SW7 6/18/2012	
Bromomethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Butane, 2-methoxy-2-methyl-	0.005	UJ	0.005	U	0.005	UJ	0.005	U	0.005	U
Carbon disulfide	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Carbon tetrachloride	0.001	UJ	0.001	UJ	0.001	UJ	0.001	U	0.001	U
Chlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chlorodibromomethane	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
Chloroethane	0.00044	J	0.002	U	0.002	U	0.002	U	0.002	U
Chloroform	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloromethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Cis-1,2-Dichloroethene	0.001	U	0.0019		0.0061		0.0031		0.0011	
cis-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Cyclohexane	0.01	U	0.01	U	0.01	U	0.001	U	0.001	U
Dibromomethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Dichlorodifluoromethane	0.001	U	0.001	UJ	0.001	U	0.001	U	0.001	U
Diethyl ether	0.01	U	0.01	U	0.01	U	0.001	U	0.001	U
Ethyl benzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Ethyl-t-Butyl Ether	0.005	UJ	0.005	U	0.005	UJ	0.005	U	0.005	U
Hexachlorobutadiene	0.0004	U	0.0004	U	0.0004	U	0.0004	UJ	0.0004	U
Isopropyl ether	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Isopropylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Methyl cyclohexane	0.01	U	0.01	U	0.01	U	0.001	U	0.001	U
Methyl Tertbutyl Ether	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	U
Methylene chloride	0.002	U	0.002	U	0.002	U	0.001	U	0.002	U
Naphthalene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
n-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Propylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
sec-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Styrene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
tert-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Tetrachloroethene	0.001	U	0.001	U	0.00026	J	0.001	U	0.001	U
Tetrahydrofuran	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Toluene	0.001	U	0.00067	J	0.00074	J	0.001	U	0.001	U
trans-1,2-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
trans-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Trichloroethene	0.001	U	0.0027		0.0034		0.0021	U	0.001	U
Trichlorofluoromethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Vinyl chloride	0.0005	U	0.0005	U	0.00052		0.0005	U	0.0005	U
Xylene, o	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Xylenes (m&p)	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW2(EDBS6)-XXX (EDBS6) EDSD/SW2 6/8/2011		OC-SW-EDSD/SW5 (EDBS11)-XXX EDSD/SW5 (EDBS11) 12/13/2010		OC-SW-EDSD/SW5(EDBS11)-XXX EDSD/SW5 (EDBS11) 6/8/2011		OC-SW-EDSD/SW7-XXX EDSD/SW7 11/6/2012		OC-SW-EDSD/SW7-XXX EDSD/SW7 6/18/2012	
Semivolatile Organics (mg/L)										
1,2,4,5-Tetrachlorobenzene	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
1-Methylnaphthalene	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
2,3,4,6-Tetrachlorophenol	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
2,4,5-Trichlorophenol	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
2,4,6-Trichlorophenol	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
2,4-Dichlorophenol	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
2,4-Dimethylphenol	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
2,4-Dinitrophenol	0.005	U	0.0045	UJ	0.0053	U	0.0049	UJ	0.0047	U
2,4-Dinitrotoluene	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
2,6-Dinitrotoluene	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
2-Chloronaphthalene	0.005	U	0.0045	U	0.0053	U	0.0049	UJ	0.0047	U
2-Chlorophenol	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
2-Methylnaphthalene	0.001	U	0.00091	U	0.0011	U	0.00097	U	0.00094	U
2-Methylphenol	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
2-Nitroaniline	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
2-Nitrophenol	0.005	U	0.0045	UJ	0.0053	U	0.0049	U	0.0047	U
3 & 4 Methylphenol	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
3,3'-Dichlorobenzidine	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
3-Nitroaniline	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
4,6-Dinitro-2-methylphenol	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
4-Bromophenyl phenyl ether	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
4-Chloro-3-methylphenol	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
4-Chloroaniline	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
4-Chlorophenyl phenyl ether	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
4-Nitroaniline	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
4-Nitrophenol	0.005	U	0.0045	UJ	0.0053	U		R	0.0047	U
Acenaphthene	0.001	U	0.00091	U	0.0011	U	0.00097	U	0.00094	U
Acenaphthylene	0.0003	U	0.00027	U	0.00032	U	0.00029	U	0.00028	U
Acetophenone	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Aniline	0.005	U	0.0045	UJ	0.0053	U	0.0049	U	0.0047	UJ
Anthracene	0.001	U	0.00091	U	0.0011	U	0.00097	U	0.00094	U
Atrazine	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Azobenzene	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Benzaldehyde	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Benzo(a)anthracene	0.0003	U	0.00027	U	0.00032	U	0.00029	U	0.00028	U
Benzo(a)pyrene	0.0002	U	0.00018	U	0.00021	U	0.00019	U	0.00019	U
Benzo(b)fluoranthene	0.0003	U	0.00027	U	0.00032	U	0.00029	U	0.00028	U
Benzo(ghi)perylene	0.0005	U	0.000088	J	0.00053	U	0.00049	U	0.00047	U

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW2(EDBS6)-XXX (EDBS6) EDSD/SW2 6/8/2011		OC-SW-EDSD/SW5 (EDBS11)-XXX EDSD/SW5 (EDBS11) 12/13/2010		OC-SW-EDSD/SW5(EDBS11)-XXX EDSD/SW5 (EDBS11) 6/8/2011		OC-SW-EDSD/SW7-XXX EDSD/SW7 11/6/2012		OC-SW-EDSD/SW7-XXX EDSD/SW7 6/18/2012	
Benzo(k)fluoranthene	0.0003	U	0.00027	U	0.00032	U	0.00029	U	0.00028	U
Benzoic Acid	0.0021	J		R	0.0053	U		R	0.0047	U
Benzyl alcohol	0.01	U	0.0091	U	0.011	U	0.0097	U	0.0094	U
Biphenyl	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Bis(2-Chloroethoxy)methane	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Bis(2-Chloroethyl)ether	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Bis(2-Chloroisopropyl)ether	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Bis(2-Ethylhexyl)phthalate	0.002	U	0.0012	J	0.0021	U	0.0019	U	0.0019	U
Butylbenzylphthalate	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Caprolactam	0.005	UJ		R	0.0053	UJ	0.0049	UJ	0.0047	UJ
Carbazole	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Chrysene	0.001	U	0.00091	U	0.0011	U	0.00097	U	0.00094	U
Dibenz(a,h)anthracene	0.0005	U	0.000081	J	0.00053	U	0.00049	U	0.00047	U
Dibenzofuran	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Diethylphthalate	0.005	U	0.006	U	0.0053	U	0.0049	U	0.0047	U
Dimethylphthalate	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Di-n-butylphthalate	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Di-n-octylphthalate	0.005	U	0.0045	UJ	0.0053	U	0.0049	U	0.0047	U
Diphenyl ether	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Diphenylmethanone	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Fluoranthene	0.001	U	0.00091	U	0.0011	U	0.00097	U	0.00094	U
Fluorene	0.001	U	0.00091	U	0.0011	U	0.00097	U	0.00094	U
Hexachlorobenzene	0.001	U	0.00091	U	0.0011	U	0.00097	U	0.00094	U
Hexachlorocyclopentadiene	0.005	U	0.0045	UJ	0.0053	U	0.0049	UJ	0.0047	U
Hexachloroethane	0.003	U	0.0027	U	0.0032	U	0.0049	U	0.0028	U
Indeno(1,2,3-cd)pyrene	0.0005	U	0.00009	J	0.00053	U	0.00049	U	0.00047	U
Isophorone	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Nitrobenzene	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
N-Nitrosodimethylamine	0.000012		0.000002	U	0.00002	U	0.0000019	UJ	0.0000086	
N-Nitrosodi-n-propylamine	0.000002	U	0.000002	U	0.00002	U	0.0000019	U	0.000002	U
N-Nitrosodiphenylamine	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Pentachlorophenol	0.001	U		R	0.0011	U	0.00097	U	0.00094	U
Phenanthrene	0.0002	U	0.00018	U	0.00021	U	0.00039	U	0.00019	U
Phenol	0.005	UJ	0.0045	UJ	0.0053	UJ	0.0049	U	0.0047	U
Pyrene	0.005	U	0.0045	U	0.0053	U	0.0049	U	0.0047	U
Metals, Total (mg/L)										
Aluminum	0.028	J	0.77		0.13		0.2	U	0.12	
Antimony	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U
Arsenic	0.01	U	0.01	U	0.01	U	0.01	U	0.0078	J

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW2(EDBS6)-XXX (EDBS6) EDSD/SW2 6/8/2011		OC-SW-EDSD/SW5 (EDBS11)-XXX EDSD/SW5 (EDBS11) 12/13/2010		OC-SW-EDSD/SW5(EDBS11)-XXX EDSD/SW5 (EDBS11) 6/8/2011		OC-SW-EDSD/SW7-XXX EDSD/SW7 11/6/2012		OC-SW-EDSD/SW7-XXX EDSD/SW7 6/18/2012	
Barium	0.057		0.013		0.033		0.036		0.04	
Beryllium	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Cadmium	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Calcium	43		11		46		42		38	
Chromium	0.005	U	0.065		0.004	J	0.0041	J	0.0087	
Chromium, Hexavalent	0.00056	J	0.00086	J	0.001	UJ				
Cobalt	0.0016	J	0.002	J	0.0024	J	0.0024	J	0.0022	J
Copper	0.0014		0.003	NJ	0.00084		0.0029		0.0019	
Iron	1		0.7		0.91		0.79		1.7	
Lead	0.00013	U	0.00086	J	0.0001	U	0.0005	J	0.0015	
Magnesium	6.5		1.4		6.9		6.5		6.1	
Manganese	0.77		0.22		0.71		0.66		0.91	
Mercury	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
Nickel	0.0017	J	0.0029	J	0.0025	J	0.0039	J	0.0037	J
Potassium	2.8	J	4	U	3.6	J	6.1		5.4	
Selenium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Silver	0.0001	U	0.001	U	0.0001	U	0.001	U	0.00014	
Sodium	88		17		81		78		82	
Thallium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Tin	0.05	U	0.05	U	0.05	U	0.01	UJ	0.05	U
Vanadium	0.01	U	0.01	UJ	0.01	U	0.01	U	0.01	U
Zinc	0.0088	J	0.026	J	0.05	U	0.023	J	0.021	J
Metals, Filtered (mg/L)										
Aluminum										
Chromium										
Sodium										
Inorganics (mg/L)										
Bromide	0.1	U	0.1	U	0.1	U	0.18	J	0.11	
Chloride	220		26		180		130		140	
Hardness	140		34		140		140		120	
Lab Specific Conductance **(mS/cm)**										
Nitrate as N	0.81		0.87		0.93		1.6		1.1	
Nitrite as N	0.1	U	0.01	U	0.1	U	0.05	U	0.1	U
Nitrogen, as Ammonia	0.92		2.2		8.7		9		10	
Sulfate	19		36		69		81		70	
Total Organic Carbon	1.2		5.1		1.5		4.4		4.3	
Total Suspended Solids	5		5.5		5	U	4	U	12	

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-EDSD/SW2(EDBS6)-XXX (EDBS6) EDSD/SW2 6/8/2011		OC-SW-EDSD/SW5 (EDBS11)-XXX EDSD/SW5 (EDBS11) 12/13/2010		OC-SW-EDSD/SW5(EDBS11)-XXX EDSD/SW5 (EDBS11) 6/8/2011		OC-SW-EDSD/SW7-XXX EDSD/SW7 11/6/2012		OC-SW-EDSD/SW7-XXX EDSD/SW7 6/18/2012	
Specialty Compounds (mg/L)										
Kempore (Azodicarbonamide)	4.1	N	1	U	1.2	N	1	UJ	1	U
OPEX	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-SD-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-ISCO3 ISCO3 3/22/2011		OC-SW-ISCO3 ISCO3 5/16/2011		OC-SW-ISCO3 ISCO3 8/23/2011		OC-SW-ISCO3 ISCO3 11/8/2011		OC-ISCO3-SW ISCO3 2/23/2012	
Volatile Organics (mg/L)												
1,1,1,2-Tetrachloroethane	0.001	U										
1,1,1-Trichloroethane	0.001	U										
1,1,2,2-Tetrachloroethane	0.0005	U										
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	U										
1,1,2-Trichloroethane	0.001	U										
1,1-Dichloroethane	0.001	U										
1,1-Dichloroethene	0.001	U										
1,1-Dichloropropene	0.001	U										
1,2,3-Trichlorobenzene	0.001	U										
1,2,3-Trichloropropane	0.001	U										
1,2,4-Trichlorobenzene	0.001	U										
1,2,4-Trimethylbenzene	0.001	U										
1,2-Dibromo-3-chloropropane	0.005	U										
1,2-Dibromoethane	0.001	U										
1,2-Dichlorobenzene	0.001	U										
1,2-Dichloroethane	0.001	U										
1,2-Dichloropropane	0.001	U										
1,3,5-Trimethylbenzene	0.001	U										
1,3-Dichlorobenzene	0.001	U										
1,3-Dichloropropane	0.001	U										
1,4-Dichlorobenzene	0.001	U										
1,4-Dioxane	0.05	U										
2,2-Dichloropropane	0.001	U										
2,4,4-Trimethyl-1-pentene	0.001	UJ										
2,4,4-Trimethyl-2-pentene	0.001	U										
2-Butanone	0.01	U										
2-Chlorotoluene	0.001	U										
2-Hexanone	0.01	U										
4-Chlorotoluene	0.001	U										
4-iso-Propyltoluene	0.001	U										
4-Methyl-2-pentanone	0.01	U										
Acetic acid, methyl ester	0.02	U										
Acetone	0.05	U										
Benzene	0.001	U										
Bromobenzene	0.001	U										
Bromochloromethane	0.001	U										
Bromodichloromethane	0.0005	U										
Bromoform	0.001	UJ										

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-SD-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-ISCO3 ISCO3 3/22/2011		OC-SW-ISCO3 ISCO3 5/16/2011		OC-SW-ISCO3 ISCO3 8/23/2011		OC-SW-ISCO3 ISCO3 11/8/2011		OC-ISCO3-SW ISCO3 2/23/2012	
Bromomethane	0.002	U										
Butane, 2-methoxy-2-methyl-	0.005	UJ										
Carbon disulfide	0.01	U										
Carbon tetrachloride	0.001	UJ										
Chlorobenzene	0.001	U										
Chlorodibromomethane	0.0005	U										
Chloroethane	0.002	U										
Chloroform	0.001	U										
Chloromethane	0.002	U										
Cis-1,2-Dichloroethene	0.001	U										
cis-1,3-Dichloropropene	0.0004	U										
Cyclohexane	0.01	U										
Dibromomethane	0.001	U										
Dichlorodifluoromethane	0.001	U										
Diethyl ether	0.01	U										
Ethyl benzene	0.001	U										
Ethyl-t-Butyl Ether	0.005	UJ										
Hexachlorobutadiene	0.0004	U										
Isopropyl ether	0.01	U										
Isopropylbenzene	0.001	U										
Methyl cyclohexane	0.01	U										
Methyl Tertbutyl Ether	0.001	UJ										
Methylene chloride	0.002	U										
Naphthalene	0.005	U										
n-Butylbenzene	0.001	U										
Propylbenzene	0.001	U										
sec-Butylbenzene	0.001	U										
Styrene	0.001	U										
tert-Butylbenzene	0.001	U										
Tetrachloroethene	0.001	U										
Tetrahydrofuran	0.01	U										
Toluene	0.001	U										
trans-1,2-Dichloroethene	0.001	U										
trans-1,3-Dichloropropene	0.0004	U										
Trichloroethene	0.001	U										
Trichlorofluoromethane	0.001	U										
Vinyl chloride	0.0005	U										
Xylene, o	0.001	U										
Xylenes (m&p)	0.002	U										

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-SD-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-ISCO3 ISCO3 3/22/2011		OC-SW-ISCO3 ISCO3 5/16/2011		OC-SW-ISCO3 ISCO3 8/23/2011		OC-SW-ISCO3 ISCO3 11/8/2011		OC-ISCO3-SW ISCO3 2/23/2012	
Semivolatile Organics (mg/L)												
1,2,4,5-Tetrachlorobenzene	0.005	U										
1-Methylnaphthalene	0.005	U										
2,3,4,6-Tetrachlorophenol	0.005	U										
2,4,5-Trichlorophenol	0.005	U										
2,4,6-Trichlorophenol	0.005	U										
2,4-Dichlorophenol	0.005	U										
2,4-Dimethylphenol	0.005	U										
2,4-Dinitrophenol	0.005	U										
2,4-Dinitrotoluene	0.005	U										
2,6-Dinitrotoluene	0.005	U										
2-Chloronaphthalene	0.005	U										
2-Chlorophenol	0.005	U										
2-Methylnaphthalene	0.001	U										
2-Methylphenol	0.005	U										
2-Nitroaniline	0.005	U										
2-Nitrophenol	0.005	U										
3 & 4 Methylphenol	0.005	U										
3,3'-Dichlorobenzidine	0.005	U										
3-Nitroaniline	0.005	U										
4,6-Dinitro-2-methylphenol	0.005	U										
4-Bromophenyl phenyl ether	0.005	U										
4-Chloro-3-methylphenol	0.005	U										
4-Chloroaniline	0.005	U										
4-Chlorophenyl phenyl ether	0.005	U										
4-Nitroaniline	0.005	U										
4-Nitrophenol	0.005	U										
Acenaphthene	0.001	U										
Acenaphthylene	0.0003	U										
Acetophenone	0.005	U										
Aniline	0.005	U										
Anthracene	0.001	U										
Atrazine	0.005	U										
Azobenzene	0.005	U										
Benzaldehyde	0.005	U										
Benzo(a)anthracene	0.0003	U										
Benzo(a)pyrene	0.0002	U										
Benzo(b)fluoranthene	0.0003	U										
Benzo(ghi)perylene	0.0005	U										

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-SD-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-ISCO3 ISCO3 3/22/2011		OC-SW-ISCO3 ISCO3 5/16/2011		OC-SW-ISCO3 ISCO3 8/23/2011		OC-SW-ISCO3 ISCO3 11/8/2011		OC-ISCO3-SW ISCO3 2/23/2012	
Benzo(k)fluoranthene	0.0003	U										
Benzoic Acid	0.0021	J										
Benzyl alcohol	0.01	U										
Biphenyl	0.005	U										
Bis(2-Chloroethoxy)methane	0.005	U										
Bis(2-Chloroethyl)ether	0.005	U										
Bis(2-Chloroisopropyl)ether	0.005	U										
Bis(2-Ethylhexyl)phthalate	0.002	U										
Butylbenzylphthalate	0.005	U										
Caprolactam	0.00073	J										
Carbazole	0.005	U										
Chrysene	0.001	U										
Dibenz(a,h)anthracene	0.0005	U										
Dibenzofuran	0.005	U										
Diethylphthalate	0.005	U										
Dimethylphthalate	0.005	U										
Di-n-butylphthalate	0.005	U										
Di-n-octylphthalate	0.005	U										
Diphenyl ether	0.005	U										
Diphenylmethanone	0.005	U										
Fluoranthene	0.001	U										
Fluorene	0.001	U										
Hexachlorobenzene	0.001	U										
Hexachlorocyclopentadiene	0.005	U										
Hexachloroethane	0.003	U										
Indeno(1,2,3-cd)pyrene	0.0005	U										
Isophorone	0.005	U										
Nitrobenzene	0.005	U										
N-Nitrosodimethylamine	0.000002	U										
N-Nitrosodi-n-propylamine	0.0000033											
N-Nitrosodiphenylamine	0.005	U										
Pentachlorophenol	0.001	U										
Phenanthrene	0.0002	U										
Phenol	0.005	UJ										
Pyrene	0.005	U										
Metals, Total (mg/L)												
Aluminum	0.39		0.23		0.18		0.053	J	0.2		0.039	J
Antimony	0.006	U										
Arsenic	0.005	J										

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-SD-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-ISCO3 ISCO3 3/22/2011		OC-SW-ISCO3 ISCO3 5/16/2011		OC-SW-ISCO3 ISCO3 8/23/2011		OC-SW-ISCO3 ISCO3 11/8/2011		OC-ISCO3-SW ISCO3 2/23/2012	
Barium	0.1											
Beryllium	0.001	U										
Cadmium	0.001	U										
Calcium	46											
Chromium	0.0014	J	0.0013	J	0.005	U	0.0012	J	0.002	J	0.00068	J
Chromium, Hexavalent												
Cobalt	0.01	U										
Copper	0.0032											
Iron	11											
Lead	0.00051	J										
Magnesium	5.2											
Manganese	0.09											
Mercury	0.0002	U										
Nickel	0.01	U										
Potassium	3.7	J										
Selenium	0.01	U										
Silver	0.0001	U										
Sodium	190		100	J	87		82	J	93		77	J
Thallium	0.01	U										
Tin	0.05	U										
Vanadium	0.0025	J										
Zinc	0.053											
Metals, Filtered (mg/L)												
Aluminum			0.045	J	0.039	J	0.1	U	0.028	J	0.036	J
Chromium			0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Sodium			120	J	100		99	J	100		88	J
Inorganics (mg/L)												
Bromide	0.1	U										
Chloride	360		210		190	J	200		170		140	
Hardness	140											
Lab Specific Conductance **(mS/cm)**			0.91		0.92		0.8		0.74		0.67	
Nitrate as N	2.6	J	0.93		1.1	J	0.7		1		0.94	
Nitrite as N	0.1	U	0.1	U	0.01	UJ	0.1	U	0.1	U	0.1	U
Nitrogen, as Ammonia	0.1	U	5.3		8.2	J	1.7		1.7		2.4	
Sulfate	19		53		99	J	22		33		36	
Total Organic Carbon	2.3											
Total Suspended Solids	14											

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-SD-EDSD/SW0-XXX EDSD/SW0 6/8/2011		OC-SW-ISCO3 ISCO3 3/22/2011		OC-SW-ISCO3 ISCO3 5/16/2011		OC-SW-ISCO3 ISCO3 8/23/2011		OC-SW-ISCO3 ISCO3 11/8/2011		OC-ISCO3-SW ISCO3 2/23/2012	
Specialty Compounds (mg/L)												
Kempore (Azodicarbonamide)												
OPEX												

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-ISCO3 ISCO3 6/7/2012		OC-SW-ISCO3 ISCO3 8/23/2012		OC-SW-ISCO3 ISCO3 11/16/2012		OC-ISCO3 ISCO3 3/21/2013		OC-ISCO3 ISCO3 5/13/2013		OC-ISCO3 ISCO3 8/22/2013		OC-ISCO3 ISCO3 11/21/2013	
Volatile Organics (mg/L)														
1,1,1,2-Tetrachloroethane														
1,1,1-Trichloroethane														
1,1,2,2-Tetrachloroethane														
1,1,2-Trichloro-1,2,2-Trifluoroethane														
1,1,2-Trichloroethane														
1,1-Dichloroethane														
1,1-Dichloroethene														
1,1-Dichloropropene														
1,2,3-Trichlorobenzene														
1,2,3-Trichloropropane														
1,2,4-Trichlorobenzene														
1,2,4-Trimethylbenzene														
1,2-Dibromo-3-chloropropane														
1,2-Dibromoethane														
1,2-Dichlorobenzene														
1,2-Dichloroethane														
1,2-Dichloropropane														
1,3,5-Trimethylbenzene														
1,3-Dichlorobenzene														
1,3-Dichloropropane														
1,4-Dichlorobenzene														
1,4-Dioxane														
2,2-Dichloropropane														
2,4,4-Trimethyl-1-pentene														
2,4,4-Trimethyl-2-pentene														
2-Butanone														
2-Chlorotoluene														
2-Hexanone														
4-Chlorotoluene														
4-iso-Propyltoluene														
4-Methyl-2-pentanone														
Acetic acid, methyl ester														
Acetone														
Benzene														
Bromobenzene														
Bromochloromethane														
Bromodichloromethane														
Bromoform														

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-ISCO3 ISCO3 6/7/2012		OC-SW-ISCO3 ISCO3 8/23/2012		OC-SW-ISCO3 ISCO3 11/16/2012		OC-ISCO3 ISCO3 3/21/2013		OC-ISCO3 ISCO3 5/13/2013		OC-ISCO3 ISCO3 8/22/2013		OC-ISCO3 ISCO3 11/21/2013	
Bromomethane														
Butane, 2-methoxy-2-methyl-														
Carbon disulfide														
Carbon tetrachloride														
Chlorobenzene														
Chlorodibromomethane														
Chloroethane														
Chloroform														
Chloromethane														
Cis-1,2-Dichloroethene														
cis-1,3-Dichloropropene														
Cyclohexane														
Dibromomethane														
Dichlorodifluoromethane														
Diethyl ether														
Ethyl benzene														
Ethyl-t-Butyl Ether														
Hexachlorobutadiene														
Isopropyl ether														
Isopropylbenzene														
Methyl cyclohexane														
Methyl Tertbutyl Ether														
Methylene chloride														
Naphthalene														
n-Butylbenzene														
Propylbenzene														
sec-Butylbenzene														
Styrene														
tert-Butylbenzene														
Tetrachloroethene														
Tetrahydrofuran														
Toluene														
trans-1,2-Dichloroethene														
trans-1,3-Dichloropropene														
Trichloroethene														
Trichlorofluoromethane														
Vinyl chloride														
Xylene, o														
Xylenes (m&p)														

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-ISCO3 ISCO3 6/7/2012		OC-SW-ISCO3 ISCO3 8/23/2012		OC-SW-ISCO3 ISCO3 11/16/2012		OC-ISCO3 ISCO3 3/21/2013		OC-ISCO3 ISCO3 5/13/2013		OC-ISCO3 ISCO3 8/22/2013		OC-ISCO3 ISCO3 11/21/2013	
Semivolatile Organics (mg/L)														
1,2,4,5-Tetrachlorobenzene														
1-Methylnaphthalene														
2,3,4,6-Tetrachlorophenol														
2,4,5-Trichlorophenol														
2,4,6-Trichlorophenol														
2,4-Dichlorophenol														
2,4-Dimethylphenol														
2,4-Dinitrophenol														
2,4-Dinitrotoluene														
2,6-Dinitrotoluene														
2-Chloronaphthalene														
2-Chlorophenol														
2-Methylnaphthalene														
2-Methylphenol														
2-Nitroaniline														
2-Nitrophenol														
3 & 4 Methylphenol														
3,3'-Dichlorobenzidine														
3-Nitroaniline														
4,6-Dinitro-2-methylphenol														
4-Bromophenyl phenyl ether														
4-Chloro-3-methylphenol														
4-Chloroaniline														
4-Chlorophenyl phenyl ether														
4-Nitroaniline														
4-Nitrophenol														
Acenaphthene														
Acenaphthylene														
Acetophenone														
Aniline														
Anthracene														
Atrazine														
Azobenzene														
Benzaldehyde														
Benzo(a)anthracene														
Benzo(a)pyrene														
Benzo(b)fluoranthene														
Benzo(ghi)perylene														

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-ISCO3 ISCO3 6/7/2012		OC-SW-ISCO3 ISCO3 8/23/2012		OC-SW-ISCO3 ISCO3 11/16/2012		OC-ISCO3 ISCO3 3/21/2013		OC-ISCO3 ISCO3 5/13/2013		OC-ISCO3 ISCO3 8/22/2013		OC-ISCO3 ISCO3 11/21/2013	
Benzo(k)fluoranthene														
Benzoic Acid														
Benzyl alcohol														
Biphenyl														
Bis(2-Chloroethoxy)methane														
Bis(2-Chloroethyl)ether														
Bis(2-Chloroisopropyl)ether														
Bis(2-Ethylhexyl)phthalate														
Butylbenzylphthalate														
Caprolactam														
Carbazole														
Chrysene														
Dibenz(a,h)anthracene														
Dibenzofuran														
Diethylphthalate														
Dimethylphthalate														
Di-n-butylphthalate														
Di-n-octylphthalate														
Diphenyl ether														
Diphenylmethanone														
Fluoranthene														
Fluorene														
Hexachlorobenzene														
Hexachlorocyclopentadiene														
Hexachloroethane														
Indeno(1,2,3-cd)pyrene														
Isophorone														
Nitrobenzene														
N-Nitrosodimethylamine														
N-Nitrosodi-n-propylamine														
N-Nitrosodiphenylamine														
Pentachlorophenol														
Phenanthrene														
Phenol														
Pyrene														
Metals, Total (mg/L)														
Aluminum	0.028	J	0.54		0.14	J	0.084	J	0.093	J	0.2	U	0.062	J
Antimony														
Arsenic														

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-ISCO3 ISCO3 6/7/2012		OC-SW-ISCO3 ISCO3 8/23/2012		OC-SW-ISCO3 ISCO3 11/16/2012		OC-ISCO3 ISCO3 3/21/2013		OC-ISCO3 ISCO3 5/13/2013		OC-ISCO3 ISCO3 8/22/2013		OC-ISCO3 ISCO3 11/21/2013	
Barium														
Beryllium														
Cadmium														
Calcium														
Chromium	0.005	U	0.0035	J	0.005	U	0.005	U	0.005	U	0.005	U	0.0016	J
Chromium, Hexavalent														
Cobalt														
Copper														
Iron														
Lead														
Magnesium														
Manganese														
Mercury														
Nickel														
Potassium														
Selenium														
Silver														
Sodium	71	J	74	J	78		85		90		96		86	
Thallium														
Tin														
Vanadium														
Zinc														
Metals, Filtered (mg/L)														
Aluminum	0.025	J	0.023	J	0.2	U	0.074	J	0.2	U	0.2	U	0.062	J
Chromium	0.005	U	0.00068	J	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Sodium	71		89	J	78		87		88		96		90	
Inorganics (mg/L)														
Bromide														
Chloride	160		180		150		170		180		210		190	
Hardness														
Lab Specific Conductance **(mS/cm)**	0.68		0.72		0.68		0.7		0.75		0.87		0.77	
Nitrate as N	0.71		0.72		1	J	0.87		0.85		1		0.78	
Nitrite as N	0.1	U	0.1	U		R	0.05	U	0.05	U	0.05	U	0.05	U
Nitrogen, as Ammonia	1.8		1.7		1.1		1.2		1.4		0.19		0.27	
Sulfate	34		26		29		35		29		25		21	
Total Organic Carbon														
Total Suspended Solids														

Appendix F-16
Analytical Surface Water Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-ISCO3 ISCO3 6/7/2012		OC-SW-ISCO3 ISCO3 8/23/2012		OC-SW-ISCO3 ISCO3 11/16/2012		OC-ISCO3 ISCO3 3/21/2013		OC-ISCO3 ISCO3 5/13/2013		OC-ISCO3 ISCO3 8/22/2013		OC-ISCO3 ISCO3 11/21/2013	
Specialty Compounds (mg/L)														
Kempore (Azodicarbonamide)														
OPEX														

mg/L = milligram per liter
mS/cm = milliSiemen per centimeter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Prepared by / Date: LCG 11/25/2014
Checked by / Date: BJR 12/8/2014

Appendix F-17
Analytical Surface Water Data - Landfill Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-LB-1-XXX LB-1 12/9/2010		OC-SW-LB-1-XXX LB-1 6/7/2011		OC-SW-LB-2-XXX LB-2 6/7/2011		OC-SW-LB-3-XXX LB-3 12/9/2010		OC-SW-LB-3-XXX LB-3 6/7/2011		OC-SW-LB-S2-XXX LB-2 12/9/2010	
Volatile Organics (mg/L)												
1,1,1,2-Tetrachloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,1-Trichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,2,2-Tetrachloroethane	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,2-Trichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethane	0.001	U	0.001	U	0.001	U	0.00028	J	0.001	U	0.001	U
1,1-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloropropene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dibromo-3-chloropropane	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,2-Dibromoethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3,5-Trimethylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dioxane		R	0.05	U	0.05	U		R	0.05	U		R
2,2-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2,4,4-Trimethyl-1-pentene	0.001	U	0.001	UJ	0.001	UJ	0.001	U	0.001	UJ	0.001	U
2,4,4-Trimethyl-2-pentene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	0.01	U	0.01	U	0.01	U	0.01	U	0.0014	J	0.01	U
2-Chlorotoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Hexanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
4-Chlorotoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
4-iso-Propyltoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.00025	J	0.001	U
4-Methyl-2-pentanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Acetic acid, methyl ester	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Acetone	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Benzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromochloromethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromodichloromethane	0.001	U	0.0005	U	0.0005	U	0.001	U	0.0005	U	0.001	U
Bromoform	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ
Bromomethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Butane, 2-methoxy-2-methyl-	0.005	U	0.005	UJ	0.005	UJ	0.005	U	0.005	UJ	0.005	U
Carbon disulfide	0.01	U	0.00043	J	0.01	UJ	0.01	U	0.01	UJ	0.01	U
Carbon tetrachloride	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ	0.001	UJ
Chlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chlorodibromomethane	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
Chloroethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Chloroform	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloromethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Cis-1,2-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
cis-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Cyclohexane	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Dibromomethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Dichlorodifluoromethane	0.001	UJ	0.001	U	0.001	U	0.001	UJ	0.001	U	0.001	UJ

Appendix F-17
Analytical Surface Water Data - Landfill Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-LB-1-XXX LB-1 12/9/2010		OC-SW-LB-1-XXX LB-1 6/7/2011		OC-SW-LB-2-XXX LB-2 6/7/2011		OC-SW-LB-3-XXX LB-3 12/9/2010		OC-SW-LB-3-XXX LB-3 6/7/2011		OC-SW-LB-S2-XXX LB-2 12/9/2010	
Diethyl ether	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Ethyl benzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Ethyl-t-Butyl Ether	0.005	U	0.005	UJ	0.005	UJ	0.005	U	0.005	UJ	0.005	U
Hexachlorobutadiene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Isopropyl ether	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Isopropylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Methyl cyclohexane	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Methyl Tertbutyl Ether	0.00056	J	0.0002	J	0.00047	J	0.00028	J	0.00035	J	0.00049	J
Methylene chloride	0.002	U	0.002	UJ	0.002	UJ	0.002	U	0.002	UJ	0.002	U
Naphthalene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
n-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Propylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
sec-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Styrene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
tert-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Tetrachloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Tetrahydrofuran	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Toluene	0.001	U	0.00036	J	0.001	U	0.00044	J	0.0046		0.001	U
trans-1,2-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
trans-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Trichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Trichlorofluoromethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Vinyl chloride	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
Xylene, o	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Xylenes (m&p)	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Semivolatile Organics (mg/L)												
1,2,4,5-Tetrachlorobenzene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
1-Methylnaphthalene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,3,4,6-Tetrachlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4,5-Trichlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4,6-Trichlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4-Dichlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4-Dimethylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4-Dinitrophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4-Dinitrotoluene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,6-Dinitrotoluene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Chloronaphthalene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Chlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Methylnaphthalene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
2-Methylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Nitroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Nitrophenol	0.0045	UJ	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
3 & 4 Methylphenol	0.0018	J	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
3,3'-Dichlorobenzidine	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
3-Nitroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4,6-Dinitro-2-methylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Bromophenyl phenyl ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Chloro-3-methylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Chloroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Chlorophenyl phenyl ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Nitroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Nitrophenol	0.0045	UJ	0.0045	U	0.0045	U	0.0045	UJ	0.0045	U	0.0045	UJ
Acenaphthene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U

Appendix F-17
Analytical Surface Water Data - Landfill Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-LB-1-XXX LB-1 12/9/2010		OC-SW-LB-1-XXX LB-1 6/7/2011		OC-SW-LB-2-XXX LB-2 6/7/2011		OC-SW-LB-3-XXX LB-3 12/9/2010		OC-SW-LB-3-XXX LB-3 6/7/2011		OC-SW-LB-S2-XXX LB-2 12/9/2010	
Acenaphthylene	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U
Acetophenone	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Aniline	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ
Anthracene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Atrazine	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Azobenzene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Benzaldehyde	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Benzo(a)anthracene	0.00052		0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U
Benzo(a)pyrene	0.001		0.00018	U	0.00017	J	0.00018	UJ	0.00018	U	0.00018	U
Benzo(b)fluoranthene	0.0015		0.00027	UJ	0.00013	J	0.00027	UJ	0.00027	UJ	0.00027	U
Benzo(ghi)perylene	0.0016		0.00045	U	0.00045	U	0.00045	UJ	0.00045	U	0.00045	U
Benzo(k)fluoranthene	0.00061		0.00027	U	0.00015	J	0.00027	UJ	0.00027	U	0.00027	U
Benzoic Acid	0.0043	J	0.002	J	0.0019	J	0.0045	UJ	0.0019	J	0.0045	UJ
Benzyl alcohol	0.00076	J	0.0091	U	0.0091	U	0.0091	U	0.0091	U	0.0091	U
Biphenyl	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Chloroethoxy)methane	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Chloroethyl)ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Chloroisopropyl)ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Ethylhexyl)phthalate	0.027	UJ	0.00074	J	0.0018	U	0.0045	U	0.0018	U	0.0032	U
Butylbenzylphthalate	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Caprolactam	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ
Carbazole	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Chrysene	0.001		0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Dibenz(a,h)anthracene	0.00045	U	0.00045	U	0.00045	U	0.00045	UJ	0.00045	U	0.00045	U
Dibenzofuran	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Diethylphthalate	0.0045	U	0.0045	U	0.0045	U	0.0046	U	0.0045	U	0.0055	U
Dimethylphthalate	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Di-n-butylphthalate	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Di-n-octylphthalate	0.0045	UJ	0.0045	U	0.0045	U	0.0045	UJ	0.0045	U	0.0045	U
Diphenyl ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Diphenylmethanone	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Fluoranthene	0.001		0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Fluorene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Hexachlorobenzene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Hexachlorocyclopentadiene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Hexachloroethane	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0027	U
Indeno(1,2,3-cd)pyrene	0.0012		0.00045	U	0.0002	J	0.00045	UJ	0.00045	U	0.00045	U
Isophorone	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Nitrobenzene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
N-Nitrosodi-n-propylamine	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
N-Nitrosodiphenylamine	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Pentachlorophenol	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Phenanthrene	0.00041		0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U
Phenol	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ
Pyrene	0.0014	J	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Metals, Total (mg/L)												
Aluminum	12		1.2		1		0.1	U	0.035	J	0.1	U
Antimony	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U
Arsenic	0.03		0.011		0.034		0.007	J	0.047		0.0048	J
Barium	0.26		0.095		0.053		0.04		0.056		0.039	
Beryllium	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Cadmium	0.0028		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Calcium	53		31		24		49		44		25	

Appendix F-17
Analytical Surface Water Data - Landfill Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-LB-1-XXX LB-1 12/9/2010		OC-SW-LB-1-XXX LB-1 6/7/2011		OC-SW-LB-2-XXX LB-2 6/7/2011		OC-SW-LB-3-XXX LB-3 12/9/2010		OC-SW-LB-3-XXX LB-3 6/7/2011		OC-SW-LB-S2-XXX LB-2 12/9/2010	
Chromium	0.047		0.0054		0.02		0.0017	J	0.0039	J	0.0015	J
Cobalt	0.01		0.0026	J	0.0014	J	0.01	U	0.01	U	0.01	U
Copper	0.051	J	0.012		0.0087		0.01	J	0.0087		0.0036	J
Iron	33		15		18		2.6		12		1.6	
Lead	0.24		0.027		0.022		0.001	U	0.00042	J	0.0015	
Magnesium	8.1		3.3		3.6		6.6		6.1		4	
Manganese	1.6		0.54		0.99		1.4		2.2		0.76	
Mercury	0.00055		0.0002	U	0.0002	U	0.0002	U	0.00027		0.0002	U
Nickel	0.019		0.0046	J	0.0023	J	0.01	U	0.01	U	0.01	U
Potassium	6.9		1.4	J	4.1		8		5.7		4.8	
Selenium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Silver	0.001	UJ	0.00021	U	0.0002	U	0.001	UJ	0.0001	U	0.001	UJ
Sodium	190		180		83		87		94		81	
Thallium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Tin	0.007	J	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Vanadium	0.038		0.007	J	0.0047	J	0.01	U	0.01	U	0.01	U
Zinc	0.5		0.11		0.038	J	0.0073	J	0.05	U	0.023	J
Inorganics (mg/L)												
Bromide	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Chloride	410		360		150		160		140		170	
Hardness	170		90		74		150		140		79	
Nitrate as N	0.05	U	0.05	UJ	0.91		0.87		0.13		0.94	
Nitrite as N	0.1	U	0.1	UJ	0.01	U	0.1	U	0.1	U	0.1	U
Nitrogen, as Ammonia	1.3		0.52		3.7		6.9		8.7		4.6	
Sulfate	88		4.4		17		39		16		35	
Total Organic Carbon	30		13		3.4		7.3		5.8		4.9	
Total Suspended Solids	1100		32		94		5		26		7	

Notes:
mg/L = milligram per liter

U = not detected, value is the reporting limit
J = value is estimated
R = value is rejected

Prepared by / Date: LCG 11/25/2014
Checked by / Date: BJR 12/8/2014

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-10-XXX MMB-SW/SD-10 12/2/2010		OC-SW-MMB-SW/SD-10-XXX MMB-SW/SD-10 6/6/2011		OC-SW-MMB-SW/SD-11-XXX MMB-SW/SD-11 12/2/2010		OC-SW-MMB-SW/SD-11-XXX MMB-SW/SD-11 6/7/2011		OC-SW-MMB-SW/SD-1-XXX MMB-SW/SD-1 12/1/2010		OC-SW-MMB-SW/SD-1-XXX MMB-SW/SD-1 6/6/2011		OC-SW-MMB-SW/SD-2-XXX MMB-SW/SD-2 12/3/2010	
Volatile Organics (mg/L)														
1,1,1,2-Tetrachloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,1-Trichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,2,2-Tetrachloroethane	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,2-Trichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloropropene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dibromo-3-chloropropane	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,2-Dibromoethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3,5-Trimethylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dioxane		R	0.05	U		R	0.05	U		R	0.05	U		R
2,2-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2,4,4-Trimethyl-1-pentene	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	U
2,4,4-Trimethyl-2-pentene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
2-Chlorotoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Hexanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
4-Chlorotoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
4-iso-Propyltoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
4-Methyl-2-pentanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Acetic acid, methyl ester	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Acetone	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Benzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromochloromethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromodichloromethane	0.001	U	0.0005	U	0.001	U	0.0005	U	0.001	U	0.0005	U	0.001	U
Bromoform	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	UJ	0.001	UJ	0.001	U
Bromomethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Butane, 2-methoxy-2-methyl-	0.005	U	0.005	UJ	0.005	U	0.005	UJ	0.005	U	0.005	UJ	0.005	U
Carbon disulfide	0.01	U	0.01	UJ	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Carbon tetrachloride	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	UJ	0.001	UJ	0.001	U
Chlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chlorodibromomethane	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
Chloroethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Chloroform	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloromethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Cis-1,2-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.00062	J
cis-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Cyclohexane	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Dibromomethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Dichlorodifluoromethane	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ
Diethyl ether	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-10-XXX MMB-SW/SD-10 12/2/2010		OC-SW-MMB-SW/SD-10-XXX MMB-SW/SD-10 6/6/2011		OC-SW-MMB-SW/SD-11-XXX MMB-SW/SD-11 12/2/2010		OC-SW-MMB-SW/SD-11-XXX MMB-SW/SD-11 6/7/2011		OC-SW-MMB-SW/SD-1-XXX MMB-SW/SD-1 12/1/2010		OC-SW-MMB-SW/SD-1-XXX MMB-SW/SD-1 6/6/2011		OC-SW-MMB-SW/SD-2-XXX MMB-SW/SD-2 12/3/2010	
Ethyl benzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Ethyl-t-Butyl Ether	0.005	U	0.005	UJ	0.005	U	0.005	UJ	0.005	U	0.005	UJ	0.005	U
Hexachlorobutadiene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Isopropyl ether	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Isopropylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Methyl cyclohexane	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Methyl Tertbutyl Ether	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.00033	J
Methylene chloride	0.002	U	0.002	UJ	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Naphthalene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
n-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Propylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
sec-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Styrene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
tert-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Tetrachloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Tetrahydrofuran	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Toluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
trans-1,2-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
trans-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Trichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.0004	J
Trichlorofluoromethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Vinyl chloride	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
Xylene, o	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Xylenes (m&p)	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Semivolatile Organics (mg/L)														
1,2,4,5-Tetrachlorobenzene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
1-Methylnaphthalene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,3,4,6-Tetrachlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	UJ	0.0045	U	0.0045	U
2,4,5-Trichlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4,6-Trichlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4-Dichlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4-Dimethylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4-Dinitrophenol	0.0045	UJ	0.0045	U	0.0045	UJ	0.0045	U		R	0.0045	U	0.0045	U
2,4-Dinitrotoluene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,6-Dinitrotoluene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Chloronaphthalene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Chlorophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Methylnaphthalene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
2-Methylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Nitroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Nitrophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	UJ	0.0045	U	0.0045	U
3 & 4 Methylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
3,3'-Dichlorobenzidine	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	UJ		R	0.0045	U
3-Nitroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4,6-Dinitro-2-methylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U		R	0.0045	U	0.0045	U
4-Bromophenyl phenyl ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Chloro-3-methylphenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Chloroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Chlorophenyl phenyl ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Nitroaniline	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	UJ	0.0045	U	0.0045	U
4-Nitrophenol	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	UJ	0.0045	U	0.0045	U
Acenaphthene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Acenaphthylene	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U
Acetophenone	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-10-XXX MMB-SW/SD-10 12/2/2010		OC-SW-MMB-SW/SD-10-XXX MMB-SW/SD-10 6/6/2011		OC-SW-MMB-SW/SD-11-XXX MMB-SW/SD-11 12/2/2010		OC-SW-MMB-SW/SD-11-XXX MMB-SW/SD-11 6/7/2011		OC-SW-MMB-SW/SD-1-XXX MMB-SW/SD-1 12/1/2010		OC-SW-MMB-SW/SD-1-XXX MMB-SW/SD-1 6/6/2011		OC-SW-MMB-SW/SD-2-XXX MMB-SW/SD-2 12/3/2010	
Aniline	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	U	0.0045	UJ	0.0045	UJ	0.0045	UJ
Anthracene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Atrazine	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Azobenzene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Benzaldehyde	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Benzo(a)anthracene	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U
Benzo(a)pyrene	0.00018	U	0.00018	U	0.00018	UJ	0.00018	U	0.00018	U	0.00018	U	0.00018	U
Benzo(b)fluoranthene	0.00027	U	0.00027	UJ	0.00027	UJ	0.00027	U	0.00027	U	0.00027	UJ	0.00027	U
Benzo(ghi)perylene	0.00045	U	0.00045	U	0.00045	UJ	0.00045	U	0.00045	U	0.00045	U	0.00045	U
Benzo(k)fluoranthene	0.00027	U	0.00027	U	0.00027	UJ	0.00027	U	0.00027	U	0.00027	U	0.00027	U
Benzoic Acid	0.0045	UJ	0.0045	U	0.0045	UJ	0.0019	J		R	0.0045	U	0.0045	U
Benzyl alcohol	0.0091	U	0.0091	U	0.0091	U	0.0091	U	0.0091	U	0.0091	U	0.0091	U
Biphenyl	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Chloroethoxy)methane	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Chloroethyl)ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Chloroisopropyl)ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Ethylhexyl)phthalate	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0065	U
Butylbenzylphthalate	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Caprolactam	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ
Carbazole	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Chrysene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Dibenz(a,h)anthracene	0.00045	U	0.00045	U	0.00045	UJ	0.00045	U	0.00045	U	0.00045	U	0.00045	U
Dibenzofuran	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Diethylphthalate	0.0085	U	0.0045	U	0.0045	U	0.0045	U	0.014	UJ	0.0045	U	0.0048	U
Dimethylphthalate	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Di-n-butylphthalate	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.00098	J	0.0045	U	0.00059	J
Di-n-octylphthalate	0.0045	U	0.0045	U	0.0045	UJ	0.0045	U	0.0045	UJ	0.0045	U	0.0045	U
Diphenyl ether	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Diphenylamine	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Diphenylmethanone	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Fluoranthene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Fluorene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Hexachlorobenzene	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Hexachlorocyclopentadiene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	UJ	0.0045	U	0.0045	U
Hexachloroethane	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0027	U
Indeno(1,2,3-cd)pyrene	0.00045	U	0.00045	U	0.00045	UJ	0.00045	U	0.00045	U	0.00045	U	0.00045	U
Isophorone	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	UJ	0.0045	U	0.0045	U
Nitrobenzene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
N-Nitrosodimethylamine	0.0000019	U	0.0000019	U	0.0000019	U	0.000019	U	0.0000019	U	0.00000047	J	0.0000023	U
N-Nitrosodi-n-propylamine	0.0000019	U	0.0000019	U	0.00000044	J	0.000019	U	0.00000078	J	0.0000019	U	0.0000019	U
N-Nitrosodiphenylamine	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Pentachlorophenol	0.00091	U	0.00091	U	0.00091	U	0.00091	U		R	0.00091	U	0.00091	U
Phenanthrene	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U
Phenol	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ
Pyrene	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Metals, Total (mg/L)														
Aluminum	0.1	U	0.1	U	0.081	J	0.036	J	0.092	J	0.063	J	0.093	J
Antimony	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U
Arsenic	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Barium	0.027		0.034		0.018		0.032		0.026		0.027		0.035	
Beryllium	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Cadmium	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Calcium	21		30		12		24		17		22		27	
Chromium	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-10-XXX MMB-SW/SD-10 12/2/2010		OC-SW-MMB-SW/SD-10-XXX MMB-SW/SD-10 6/6/2011		OC-SW-MMB-SW/SD-11-XXX MMB-SW/SD-11 12/2/2010		OC-SW-MMB-SW/SD-11-XXX MMB-SW/SD-11 6/7/2011		OC-SW-MMB-SW/SD-1-XXX MMB-SW/SD-1 12/1/2010		OC-SW-MMB-SW/SD-1-XXX MMB-SW/SD-1 6/6/2011		OC-SW-MMB-SW/SD-2-XXX MMB-SW/SD-2 12/3/2010	
Cobalt	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Copper	0.0038	NJ	0.0005	U	0.0034	NJ	0.0015		0.0024	NJ	0.0027		0.0029	NJ
Iron	0.43		1.2		0.45		1.3		0.53		1.2		1.1	
Lead	0.00016	J	0.0001	U	0.0014		0.00064	J	0.00054	J	0.00023	J	0.0012	
Magnesium	3.3		4.4		2.3		4.6		3.4		3.9		4.3	
Manganese	0.16		0.3		0.066		0.2		0.16		0.21		0.95	
Mercury	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
Nickel	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Potassium	2.8	J	1.8	J	1.4	J	2.8	J	2.9	J	2	J	3.1	J
Selenium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Silver	0.001	U	0.0001	U	0.001	U	0.0001	U	0.001	U	0.0001	U	0.001	U
Sodium	44		70		29		110		48		79		58	
Thallium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Tin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Vanadium	0.01	UJ	0.01	U	0.01	UJ	0.01	U	0.01	UJ	0.01	U	0.01	UJ
Zinc	0.05	U	0.05	U	0.019	J	0.05	U	0.0071	J	0.05	U	0.0085	J
Inorganics (mg/L)														
Bromide	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Chloride	110		130		48		220		100		140		120	
Hardness	66		92		38		78		57		70		84	
Nitrate as N	0.39		0.05	U	0.36		0.31	J	0.12		0.05	U	0.6	
Nitrite as N	0.1	U	0.1	U	0.01	U	0.1	UJ	0.1	U	0.01	U	0.01	U
Nitrogen, as Ammonia	0.23		0.1	U	0.1	U	0.25		0.18		0.1	U	0.6	
Sulfate	24		3.2		15		13		22		5.4		25	J
Total Organic Carbon	5.3		4.5		4.7		2.3		4.8		4.1		3.8	
Total Suspended Solids	2	U	5	U	2		5	U	4		5	UJ	6.4	
Specialty Compounds (mg/L)														
Hydrazine	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U
Monomethylhydrazine (MMH)	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
UDMH	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
Acetaldehyde	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
Formaldehyde	0.03	U	0.03	UJ	0.0088	J	0.03	U	0.0068	J	0.03	UJ	0.005	J
Kempore (Azodicarbonamide)													1	U
OPEX													0.1	U

mg/L = milligram per liter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-2-XXX MMB-SW/SD-2 6/8/2011		OC-SW-MMB-SW/SD-3-XXX MMB-SW/SD-3 12/3/2010		OC-SW-MMB-SW/SD-3-XXX MMB-SW/SD-3 6/8/2011		OC-SW-MMB-SW/SD-4-XXX MMB-SW/SD-4 12/2/2010		OC-SW-MMB-SW/SD-4-XXX MMB-SW/SD-4 6/6/2011		OC-SW-MMB-SW/SD-5-XXX MMB-SW/SD-5 12/2/2010		OC-SW-MMB-SW/SD-5-XXX MMB-SW/SD-5 6/7/2011	
Volatile Organics (mg/L)														
1,1,1,2-Tetrachloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,1-Trichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,2,2-Tetrachloroethane	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1,2-Trichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,1-Dichloropropene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,3-Trichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dibromo-3-chloropropane	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
1,2-Dibromoethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichloroethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,2-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3,5-Trimethylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,3-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
1,4-Dioxane	0.05	U		R	0.05	U		R	0.05	U		R	0.05	U
2,2-Dichloropropane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2,4,4-Trimethyl-1-pentene	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ
2,4,4-Trimethyl-2-pentene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Butanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
2-Chlorotoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
2-Hexanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
4-Chlorotoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
4-iso-Propyltoluene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
4-Methyl-2-pentanone	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Acetic acid, methyl ester	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Acetone	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Benzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromochloromethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Bromodichloromethane	0.0005	U	0.001	U	0.0005	U	0.001	U	0.0005	U	0.001	U	0.0005	U
Bromoform	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ
Bromomethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Butane, 2-methoxy-2-methyl-	0.005	UJ	0.005	U	0.005	UJ	0.005	U	0.005	UJ	0.005	U	0.005	UJ
Carbon disulfide	0.01	U	0.01	U	0.00027	J	0.01	U	0.01	UJ	0.01	U	0.01	UJ
Carbon tetrachloride	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ
Chlorobenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chlorodibromomethane	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
Chloroethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Chloroform	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chloromethane	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Cis-1,2-Dichloroethene	0.0002	J	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
cis-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Cyclohexane	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Dibromomethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Dichlorodifluoromethane	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	U	0.001	UJ	0.001	U
Diethyl ether	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-2-XXX MMB-SW/SD-2 6/8/2011		OC-SW-MMB-SW/SD-3-XXX MMB-SW/SD-3 12/3/2010		OC-SW-MMB-SW/SD-3-XXX MMB-SW/SD-3 6/8/2011		OC-SW-MMB-SW/SD-4-XXX MMB-SW/SD-4 12/2/2010		OC-SW-MMB-SW/SD-4-XXX MMB-SW/SD-4 6/6/2011		OC-SW-MMB-SW/SD-5-XXX MMB-SW/SD-5 12/2/2010		OC-SW-MMB-SW/SD-5-XXX MMB-SW/SD-5 6/7/2011	
Ethyl benzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Ethyl-t-Butyl Ether	0.005	UJ	0.005	U	0.005	UJ	0.005	U	0.005	UJ	0.005	U	0.005	UJ
Hexachlorobutadiene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Isopropyl ether	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Isopropylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Methyl cyclohexane	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Methyl Tertbutyl Ether	0.0002	J	0.00029	J	0.0002	J	0.001	U	0.001	UJ	0.001	U	0.001	UJ
Methylene chloride	0.002	U	0.002	U	0.002	U	0.002	U	0.002	UJ	0.002	U	0.002	UJ
Naphthalene	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
n-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Propylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
sec-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Styrene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
tert-Butylbenzene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Tetrachloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Tetrahydrofuran	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Toluene	0.001	U	0.001	U	0.00075	J	0.001	U	0.001	U	0.001	U	0.001	U
trans-1,2-Dichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
trans-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
Trichloroethene	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Trichlorofluoromethane	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Vinyl chloride	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
Xylene, o	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Xylenes (m&p)	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
Semivolatile Organics (mg/L)														
1,2,4,5-Tetrachlorobenzene	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
1-Methylnaphthalene	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,3,4,6-Tetrachlorophenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4,5-Trichlorophenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4,6-Trichlorophenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4-Dichlorophenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4-Dimethylphenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,4-Dinitrophenol	0.005	U	0.0045	U	0.005	U	0.0045	UJ	0.0045	U	0.0045	UJ	0.0045	U
2,4-Dinitrotoluene	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2,6-Dinitrotoluene	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Chloronaphthalene	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Chlorophenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Methylnaphthalene	0.001	U	0.00091	U	0.001	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
2-Methylphenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Nitroaniline	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
2-Nitrophenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
3 & 4 Methylphenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
3,3'-Dichlorobenzidine	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
3-Nitroaniline	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4,6-Dinitro-2-methylphenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Bromophenyl phenyl ether	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Chloro-3-methylphenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Chloroaniline	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Chlorophenyl phenyl ether	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Nitroaniline	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
4-Nitrophenol	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Acenaphthene	0.001	U	0.00091	U	0.001	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Acenaphthylene	0.0003	U	0.00027	U	0.0003	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U
Acetophenone	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-2-XXX MMB-SW/SD-2 6/8/2011		OC-SW-MMB-SW/SD-3-XXX MMB-SW/SD-3 12/3/2010		OC-SW-MMB-SW/SD-3-XXX MMB-SW/SD-3 6/8/2011		OC-SW-MMB-SW/SD-4-XXX MMB-SW/SD-4 12/2/2010		OC-SW-MMB-SW/SD-4-XXX MMB-SW/SD-4 6/6/2011		OC-SW-MMB-SW/SD-5-XXX MMB-SW/SD-5 12/2/2010		OC-SW-MMB-SW/SD-5-XXX MMB-SW/SD-5 6/7/2011	
Aniline	0.005	U	0.0045	UJ	0.005	U	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ
Anthracene	0.001	U	0.00091	U	0.001	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Atrazine	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Azobenzene	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Benzaldehyde	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Benzo(a)anthracene	0.0003	U	0.00027	U	0.0003	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U
Benzo(a)pyrene	0.0002	U	0.00018	UJ	0.0002	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U
Benzo(b)fluoranthene	0.0003	U	0.00027	UJ	0.0003	U	0.00027	U	0.00027	UJ	0.00027	U	0.00027	UJ
Benzo(ghi)perylene	0.0005	U	0.00045	UJ	0.0005	U	0.00045	U	0.00045	U	0.00045	U	0.00045	U
Benzo(k)fluoranthene	0.0003	U	0.00027	UJ	0.0003	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U
Benzoic Acid	0.0022	J	0.0045	U	0.0021	J	0.0045	UJ	0.0019	J	0.0045	UJ	0.002	J
Benzyl alcohol	0.01	U	0.0091	U	0.01	U	0.0091	U	0.0091	U	0.0091	U	0.0091	U
Biphenyl	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Chloroethoxy)methane	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Chloroethyl)ether	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Chloroisopropyl)ether	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Bis(2-Ethylhexyl)phthalate	0.002	U	0.0045	U	0.002	U	0.0027	U	0.0018	U	0.0018	U	0.0018	U
Butylbenzylphthalate	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Caprolactam	0.005	UJ	0.0045	UJ	0.00066	J	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ
Carbazole	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Chrysene	0.001	U	0.00091	U	0.001	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Dibenz(a,h)anthracene	0.0005	U	0.00045	UJ	0.0005	U	0.00045	U	0.00045	U	0.00045	U	0.00045	U
Dibenzofuran	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Diethylphthalate	0.005	U	0.0045	U	0.005	U	0.0098	U	0.0045	U	0.0093	U	0.0045	U
Dimethylphthalate	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Di-n-butylphthalate	0.005	U	0.00056	J	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Di-n-octylphthalate	0.005	U	0.0045	UJ	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Diphenyl ether	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Diphenylamine	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Diphenylmethanone	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Fluoranthene	0.001	U	0.00091	U	0.001	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Fluorene	0.001	U	0.00091	U	0.001	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Hexachlorobenzene	0.001	U	0.00091	U	0.001	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Hexachlorocyclopentadiene	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Hexachloroethane	0.003	U	0.0027	U	0.003	U	0.0027	U	0.0027	U	0.0027	U	0.0027	U
Indeno(1,2,3-cd)pyrene	0.0005	U	0.00045	UJ	0.0005	U	0.00045	U	0.00045	U	0.00045	U	0.00045	U
Isophorone	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Nitrobenzene	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
N-Nitrosodimethylamine	0.00002	U	0.0000019	U	0.000019	U	0.0000019	U	0.0000019	U	0.0000019	U	0.000019	U
N-Nitrosodi-n-propylamine	0.00002	U	0.0000019	U	0.000019	U	0.0000019	U	0.0000019	U	0.000002	U	0.000019	U
N-Nitrosodiphenylamine	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Pentachlorophenol	0.001	U	0.00091	U	0.001	U	0.00091	U	0.00091	U	0.00091	U	0.00091	U
Phenanthrene	0.0002	U	0.00018	U	0.0002	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U
Phenol	0.005	UJ	0.0045	UJ	0.005	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ	0.0045	UJ
Pyrene	0.005	U	0.0045	U	0.005	U	0.0045	U	0.0045	U	0.0045	U	0.0045	U
Metals, Total (mg/L)														
Aluminum	0.026	J	0.22		0.12		0.017	J	0.1	U	0.083	J	0.11	
Antimony	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U	0.006	U
Arsenic	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Barium	0.049		0.032		0.042		0.022		0.025		0.018		0.04	
Beryllium	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Cadmium	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Calcium	33		24		30		18		22		13		22	
Chromium	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-2-XXX MMB-SW/SD-2 6/8/2011		OC-SW-MMB-SW/SD-3-XXX MMB-SW/SD-3 12/3/2010		OC-SW-MMB-SW/SD-3-XXX MMB-SW/SD-3 6/8/2011		OC-SW-MMB-SW/SD-4-XXX MMB-SW/SD-4 12/2/2010		OC-SW-MMB-SW/SD-4-XXX MMB-SW/SD-4 6/6/2011		OC-SW-MMB-SW/SD-5-XXX MMB-SW/SD-5 12/2/2010		OC-SW-MMB-SW/SD-5-XXX MMB-SW/SD-5 6/7/2011	
Cobalt	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.0022	J
Copper	0.00077		0.0045	NJ	0.0026		0.0031	NJ	0.0005	U	0.0024	NJ	0.0018	
Iron	1.6		2.3		2.7		0.46		0.88		0.49		1.9	
Lead	0.00044	J	0.0032		0.0016	J	0.00058	J	0.0001	U	0.0014		0.0014	J
Magnesium	5.1		4.1		5		3.5		3.9		2.6		4.2	
Manganese	1.5		0.52		2.1		0.13		0.14		0.034		1.2	
Mercury	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
Nickel	0.01	U	0.0012	J	0.0072	J	0.01	U	0.01	U	0.01	U	0.0013	J
Potassium	3.3	J	3.5	J	1.4	J	2.6	J	2.3	J	2.2	J	2.1	J
Selenium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Silver	0.0001	U	0.001	U	0.0001	U	0.001	U	0.0001	U	0.001	U	0.0001	U
Sodium	85		56		65		53		80		44		93	
Thallium	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Tin	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Vanadium	0.01	U	0.01	UJ	0.01	U	0.01	UJ	0.01	U	0.01	UJ	0.01	U
Zinc	0.05	U	0.012	J	0.021	J	0.05	U	0.05	U	0.011	J	0.05	U
Inorganics (mg/L)														
Bromide	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	
Chloride	160		120		150		100		130		79		160	
Hardness	100		76		95		59		70		43		72	
Nitrate as N	0.55	J	0.21		0.05	U	0.11		0.05	U	0.24		0.05	U
Nitrite as N	0.1	U	0.01	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Nitrogen, as Ammonia	0.66		0.22		0.29		0.16		0.1	U	0.1	U	0.1	
Sulfate	16		22		8		19		7.1		15		5.7	
Total Organic Carbon	1.7		6.9		3.4		4.5		4.8		3.6		3.7	
Total Suspended Solids	5	U	18		5	U	2	U	6		4		10	
Specialty Compounds (mg/L)														
Hydrazine	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U
Monomethylhydrazine (MMH)	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
UDMH	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U
Acetaldehyde	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
Formaldehyde	0.03	U	0.0056	J	0.03	U	0.01	J	0.03	U	0.0084	J	0.03	U
Kempore (Azodicarbonamide)	0.71	NJ									1	U	1	U
OPEX	0.1	UJ									0.1	U	0.1	UJ

mg/L = milligram per liter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-6-XXX MMB-SW/SD-6 12/3/2010		OC-SW-MMB-SW/SD-6-XXX MMB-SW/SD-6 6/8/2011		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 12/2/2010		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 6/7/2011		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 6/8/2011		OC-SW-MMB-SW/SD-8-XXX MMB-SW/SD-8 12/2/2010		OC-SW-MMB-SW/SD-8-XXX MMB-SW/SD-8 6/7/2011	
Volatile Organics (mg/L)														
1,1,1,2-Tetrachloroethane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,1,1-Trichloroethane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,1,2,2-Tetrachloroethane	0.0005	U	0.0005	U	0.0005	U			0.0005	U	0.0005	U	0.0005	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,1,2-Trichloroethane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,1-Dichloroethane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,1-Dichloroethene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,1-Dichloropropene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,2,3-Trichlorobenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,2,3-Trichloropropane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,2,4-Trichlorobenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,2,4-Trimethylbenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,2-Dibromo-3-chloropropane	0.005	U	0.005	U	0.005	U			0.005	U	0.005	U	0.005	U
1,2-Dibromoethane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,2-Dichlorobenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,2-Dichloroethane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,2-Dichloropropane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,3,5-Trimethylbenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,3-Dichlorobenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,3-Dichloropropane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,4-Dichlorobenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
1,4-Dioxane		R	0.05	U		R			0.05	U		R	0.05	U
2,2-Dichloropropane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
2,4,4-Trimethyl-1-pentene	0.001	U	0.001	UJ	0.001	U			0.001	UJ	0.001	U	0.001	UJ
2,4,4-Trimethyl-2-pentene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
2-Butanone	0.01	U	0.01	U	0.01	U			0.01	U	0.01	U	0.01	U
2-Chlorotoluene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
2-Hexanone	0.01	U	0.01	U	0.01	U			0.01	U	0.01	U	0.01	U
4-Chlorotoluene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
4-iso-Propyltoluene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
4-Methyl-2-pentanone	0.01	U	0.01	U	0.01	U			0.01	U	0.01	U	0.01	U
Acetic acid, methyl ester	0.02	U	0.02	U	0.02	U			0.02	U	0.02	U	0.02	U
Acetone	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U	0.05	U
Benzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Bromobenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Bromochloromethane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Bromodichloromethane	0.001	U	0.0005	U	0.001	U			0.0005	U	0.001	U	0.0005	U
Bromoform	0.001	U	0.001	UJ	0.001	U			0.001	UJ	0.001	U	0.001	UJ
Bromomethane	0.002	U	0.002	U	0.002	U			0.002	U	0.002	U	0.002	U
Butane, 2-methoxy-2-methyl-	0.005	U	0.005	UJ	0.005	U			0.005	UJ	0.005	U	0.005	UJ
Carbon disulfide	0.01	U	0.00029	J	0.01	U			0.00028	J	0.01	U	0.01	UJ
Carbon tetrachloride	0.001	U	0.001	UJ	0.001	U			0.001	UJ	0.001	U	0.001	UJ
Chlorobenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Chlorodibromomethane	0.0005	U	0.0005	U	0.0005	U			0.0005	U	0.0005	U	0.0005	U
Chloroethane	0.002	U	0.002	U	0.002	U			0.002	U	0.002	U	0.002	U
Chloroform	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Chloromethane	0.002	U	0.002	U	0.002	U			0.002	U	0.002	U	0.002	U
Cis-1,2-Dichloroethene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
cis-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U			0.0004	U	0.0004	U	0.0004	U
Cyclohexane	0.01	U	0.01	U	0.01	U			0.01	U	0.01	U	0.01	U
Dibromomethane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Dichlorodifluoromethane	0.001	UJ	0.001	U	0.001	UJ			0.001	U	0.001	UJ	0.001	U
Diethyl ether	0.01	U	0.01	U	0.01	U			0.01	U	0.01	U	0.01	U

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-6-XXX MMB-SW/SD-6 12/3/2010		OC-SW-MMB-SW/SD-6-XXX MMB-SW/SD-6 6/8/2011		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 12/2/2010		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 6/7/2011		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 6/8/2011		OC-SW-MMB-SW/SD-8-XXX MMB-SW/SD-8 12/2/2010		OC-SW-MMB-SW/SD-8-XXX MMB-SW/SD-8 6/7/2011	
Ethyl benzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Ethyl-t-Butyl Ether	0.005	U	0.005	UJ	0.005	U			0.005	UJ	0.005	U	0.005	UJ
Hexachlorobutadiene	0.0004	U	0.0004	U	0.0004	U			0.0004	U	0.0004	U	0.0004	U
Isopropyl ether	0.01	U	0.01	U	0.01	U			0.01	U	0.01	U	0.01	U
Isopropylbenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Methyl cyclohexane	0.01	U	0.01	U	0.01	U			0.01	U	0.01	U	0.01	U
Methyl Tertbutyl Ether	0.001	U	0.001	UJ	0.001	U			0.001	UJ	0.001	U	0.001	UJ
Methylene chloride	0.002	U	0.002	U	0.002	U			0.002	U	0.002	U	0.002	UJ
Naphthalene	0.005	U	0.005	U	0.005	U			0.005	U	0.005	U	0.005	U
n-Butylbenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Propylbenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
sec-Butylbenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Styrene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
tert-Butylbenzene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Tetrachloroethene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Tetrahydrofuran	0.01	U	0.01	U	0.01	U			0.01	U	0.01	U	0.01	U
Toluene	0.001	U	0.0004	J	0.001	U			0.00034	J	0.001	U	0.001	U
trans-1,2-Dichloroethene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
trans-1,3-Dichloropropene	0.0004	U	0.0004	U	0.0004	U			0.0004	U	0.0004	U	0.0004	U
Trichloroethene	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Trichlorofluoromethane	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Vinyl chloride	0.0005	U	0.0005	U	0.0005	U			0.0005	U	0.0005	U	0.0005	U
Xylene, o	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Xylenes (m&p)	0.002	U	0.002	U	0.002	U			0.002	U	0.002	U	0.002	U
Semivolatile Organics (mg/L)														
1,2,4,5-Tetrachlorobenzene	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
1-Methylnaphthalene	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2,3,4,6-Tetrachlorophenol	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2,4,5-Trichlorophenol	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2,4,6-Trichlorophenol	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2,4-Dichlorophenol	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2,4-Dimethylphenol	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2,4-Dinitrophenol	0.0045	U	0.005	U	0.0045	UJ			0.005	U	0.0045	UJ	0.0045	U
2,4-Dinitrotoluene	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2,6-Dinitrotoluene	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2-Chloronaphthalene	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2-Chlorophenol	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2-Methylnaphthalene	0.00091	U	0.001	U	0.00091	U			0.001	U	0.00091	U	0.00091	U
2-Methylphenol	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2-Nitroaniline	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
2-Nitrophenol	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
3 & 4 Methylphenol	0.0045	U	0.00074	J	0.0045	U			0.005	U	0.0045	U	0.0045	U
3,3'-Dichlorobenzidine	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	UJ	0.0045	U
3-Nitroaniline	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
4,6-Dinitro-2-methylphenol	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
4-Bromophenyl phenyl ether	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
4-Chloro-3-methylphenol	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
4-Chloroaniline	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	UJ	0.0045	U
4-Chlorophenyl phenyl ether	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
4-Nitroaniline	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	UJ	0.0045	U
4-Nitrophenol	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Acenaphthene	0.00091	U	0.001	U	0.00091	U			0.001	U	0.00091	U	0.00091	U
Acenaphthylene	0.00027	U	0.0003	U	0.00027	U			0.0003	U	0.00027	U	0.00027	U
Acetophenone	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U

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Parameter Name	OC-SW-MMB-SW/SD-6-XXX MMB-SW/SD-6 12/3/2010		OC-SW-MMB-SW/SD-6-XXX MMB-SW/SD-6 6/8/2011		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 12/2/2010		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 6/7/2011		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 6/8/2011		OC-SW-MMB-SW/SD-8-XXX MMB-SW/SD-8 12/2/2010		OC-SW-MMB-SW/SD-8-XXX MMB-SW/SD-8 6/7/2011	
Aniline	0.0045	UJ	0.005	U	0.0045	UJ			0.005	U	0.0045	UJ	0.0045	U
Anthracene	0.00091	U	0.001	U	0.00091	U			0.001	U	0.00091	U	0.00091	U
Atrazine	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Azobenzene	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Benzaldehyde	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Benzo(a)anthracene	0.00027	U	0.0003	U	0.00027	U			0.0003	U	0.00027	U	0.00027	U
Benzo(a)pyrene	0.000096	J	0.0002	U	0.00018	U			0.0002	U	0.00018	U	0.00018	U
Benzo(b)fluoranthene	0.00013	J	0.0003	U	0.00027	U			0.0003	U	0.00027	U	0.00027	U
Benzo(ghi)perylene	0.000089	J	0.0005	U	0.00045	U			0.0005	U	0.00045	U	0.00045	U
Benzo(k)fluoranthene	0.00027	U	0.0003	U	0.00027	U			0.0003	U	0.00027	U	0.00027	U
Benzoic Acid	0.0045	U	0.0024	J	0.0045	UJ			0.0021	J	0.0045	UJ	0.0019	J
Benzyl alcohol	0.0091	U	0.01	U	0.0091	U			0.01	U	0.0091	U	0.0091	U
Biphenyl	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Bis(2-Chloroethoxy)methane	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Bis(2-Chloroethyl)ether	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Bis(2-Chloroisopropyl)ether	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Bis(2-Ethylhexyl)phthalate	0.0041	U	0.002	U	0.0037	U			0.002	U	0.0018	U	0.0018	U
Butylbenzylphthalate	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Caprolactam	0.0045	UJ	0.005	UJ	0.0045	UJ			0.00066	J	0.0045	UJ	0.0045	UJ
Carbazole	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Chrysene	0.00091	U	0.001	U	0.00091	U			0.001	U	0.00091	U	0.00091	U
Dibenz(a,h)anthracene	0.00045	U	0.0005	U	0.00045	U			0.0005	U	0.00045	U	0.00045	U
Dibenzofuran	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Diethylphthalate	0.0071	U	0.005	U	0.0045	U			0.005	U	0.007	UJ	0.0045	U
Dimethylphthalate	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Di-n-butylphthalate	0.00057	J	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Di-n-octylphthalate	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Diphenyl ether	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Diphenylamine	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Diphenylmethanone	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Fluoranthene	0.00091	U	0.001	U	0.00091	U			0.001	U	0.00091	U	0.00091	U
Fluorene	0.00091	U	0.001	U	0.00091	U			0.001	U	0.00091	U	0.00091	U
Hexachlorobenzene	0.00091	U	0.001	U	0.00091	U			0.001	U	0.00091	U	0.00091	U
Hexachlorocyclopentadiene	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	UJ	0.0045	U
Hexachloroethane	0.0027	U	0.003	U	0.0027	U			0.003	U	0.0027	U	0.0027	U
Indeno(1,2,3-cd)pyrene	0.00045	U	0.0005	U	0.00045	U			0.0005	U	0.00045	U	0.00045	U
Isophorone	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Nitrobenzene	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
N-Nitrosodimethylamine	0.0000019	U	0.000038	U	0.0000019	U			0.000019	U	0.0000019	U	0.000019	U
N-Nitrosodi-n-propylamine	0.0000019	U	0.000038	U	0.00000066	J			0.000019	U	0.0000019	U	0.000019	U
N-Nitrosodiphenylamine	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Pentachlorophenol	0.00091	U	0.001	U	0.00091	U			0.001	U	0.00091	U	0.00091	U
Phenanthrene	0.00018	U	0.0002	U	0.00018	U			0.0002	U	0.00018	U	0.00018	U
Phenol	0.0045	UJ	0.00083	J	0.0045	UJ			0.005	UJ	0.0045	UJ	0.0045	UJ
Pyrene	0.0045	U	0.005	U	0.0045	U			0.005	U	0.0045	U	0.0045	U
Metals, Total (mg/L)														
Aluminum	1.8		0.48		0.077	J			0.14		0.04	J	0.035	J
Antimony	0.006	U	0.006	U	0.006	U			0.006	U	0.006	U	0.006	U
Arsenic	0.0045	J	0.0048	J	0.01	U			0.01	U	0.01	U	0.01	U
Barium	0.065		0.15		0.015				0.042		0.02		0.044	
Beryllium	0.001	U	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Cadmium	0.00025	J	0.001	U	0.001	U			0.001	U	0.001	U	0.001	U
Calcium	23		40		9.7				24		12		25	
Chromium	0.005	U	0.00098	J	0.005	U			0.005	U	0.005	U	0.005	U

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-6-XXX MMB-SW/SD-6 12/3/2010		OC-SW-MMB-SW/SD-6-XXX MMB-SW/SD-6 6/8/2011		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 12/2/2010		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 6/7/2011		OC-SW-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 6/8/2011		OC-SW-MMB-SW/SD-8-XXX MMB-SW/SD-8 12/2/2010		OC-SW-MMB-SW/SD-8-XXX MMB-SW/SD-8 6/7/2011	
Cobalt	0.0023	J	0.0077	J	0.01	U			0.0016	J	0.01	U	0.0021	J
Copper	0.0083	NJ	0.054		0.01	U	0.0012				0.0025	NJ	0.00083	
Iron	20		29		0.48				3.3		0.38		2.8	
Lead	0.014		0.11		0.0016		0.0015	J			0.0017		0.00042	J
Magnesium	3.6		5.9		2				4.7		2.5		4.8	
Manganese	1.2		9.3		0.03				0.57		0.046		0.83	
Mercury	0.0002	U	0.0002	U	0.0002	U			0.0002	U	0.0002	U	0.0002	U
Nickel	0.0032	J	0.0043	J	0.01	U			0.01	U	0.01	U	0.01	U
Potassium	2	J	3.6	J	1.2	J			2.5	J	1.8	J	2.6	J
Selenium	0.01	U	0.01	U	0.01	U			0.01	U	0.01	U	0.01	U
Silver	0.001	U	0.0005	U	0.001	U	0.0001	U			0.001	U	0.0001	U
Sodium	37		45		30				110		44		110	
Thallium	0.01	U	0.0066	J	0.01	U			0.01	U	0.01	U	0.01	U
Tin	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U	0.05	U
Vanadium	0.0037	J	0.0015	J	0.01	UJ			0.01	U	0.01	UJ	0.01	U
Zinc	0.069		0.027	J	0.0093	J			0.05	U	0.011	J	0.05	U
Inorganics (mg/L)														
Bromide	0.1	U	0.1	U	0.1	U			0.1	U	0.1	U	0.12	
Chloride	76		76		49				210		90		180	
Hardness	73		120		32				80		41		83	
Nitrate as N	0.24		0.05	UJ	0.31				0.15	J	0.22		0.097	
Nitrite as N	0.01	U	0.01	U	0.01	U			0.1	U	0.1	U	0.1	U
Nitrogen, as Ammonia	0.48		2.5		0.1	U			0.15		0.1	U	0.16	
Sulfate	20		39		12				11		16		8.7	
Total Organic Carbon	6.7		7.5		4.9				2.9		4.3		2.7	
Total Suspended Solids	930		1000		2	U			40		2.5	U	6	
Specialty Compounds (mg/L)														
Hydrazine	0.0001	U	0.0001	U	0.0001	U	0.0001	U			0.0001	U	0.00006	J
Monomethylhydrazine (MMH)	0.0005	U	0.0005	U	0.0005	U	0.0005	U			0.0005	U	0.0005	U
UDMH	0.0005	U	0.0005	U	0.0005	U	0.0005	U			0.0005	U	0.0005	U
Acetaldehyde	0.03	U	0.03	U	0.03	U			0.03	U	0.03	U	0.03	U
Formaldehyde	0.0051	J	0.03	U	0.0071	J			0.03	U	0.0091	J	0.03	U
Kempore (Azodicarbonamide)														
OPEX														

mg/L = milligram per liter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-9-XXX MMB-SW/SD-9 12/1/2010		OC-SW-MMB-SW/SD-9-XXX MMB-SW/SD-9 6/6/2011	
Volatile Organics (mg/L)				
1,1,1,2-Tetrachloroethane	0.001	U	0.001	U
1,1,1-Trichloroethane	0.001	U	0.001	U
1,1,2,2-Tetrachloroethane	0.0005	U	0.0005	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.001	U	0.001	U
1,1,2-Trichloroethane	0.001	U	0.001	U
1,1-Dichloroethane	0.001	U	0.001	U
1,1-Dichloroethene	0.001	U	0.001	U
1,1-Dichloropropene	0.001	U	0.001	U
1,2,3-Trichlorobenzene	0.001	U	0.001	U
1,2,3-Trichloropropane	0.001	U	0.001	U
1,2,4-Trichlorobenzene	0.001	U	0.001	U
1,2,4-Trimethylbenzene	0.001	U	0.001	U
1,2-Dibromo-3-chloropropane	0.005	U	0.005	U
1,2-Dibromoethane	0.001	U	0.001	U
1,2-Dichlorobenzene	0.001	U	0.001	U
1,2-Dichloroethane	0.001	U	0.001	U
1,2-Dichloropropane	0.001	U	0.001	U
1,3,5-Trimethylbenzene	0.001	U	0.001	U
1,3-Dichlorobenzene	0.001	U	0.001	U
1,3-Dichloropropane	0.001	U	0.001	U
1,4-Dichlorobenzene	0.001	U	0.001	U
1,4-Dioxane		R	0.05	U
2,2-Dichloropropane	0.001	U	0.001	U
2,4,4-Trimethyl-1-pentene	0.001	U	0.001	UJ
2,4,4-Trimethyl-2-pentene	0.001	U	0.001	U
2-Butanone	0.01	U	0.01	U
2-Chlorotoluene	0.001	U	0.001	U
2-Hexanone	0.01	U	0.01	U
4-Chlorotoluene	0.001	U	0.001	U
4-iso-Propyltoluene	0.001	U	0.001	U
4-Methyl-2-pentanone	0.01	U	0.01	U
Acetic acid, methyl ester	0.02	U	0.02	U
Acetone	0.05	U	0.05	U
Benzene	0.001	U	0.001	U
Bromobenzene	0.001	U	0.001	U
Bromochloromethane	0.001	U	0.001	U
Bromodichloromethane	0.001	U	0.0005	U
Bromoform	0.001	UJ	0.001	UJ
Bromomethane	0.002	U	0.002	U
Butane, 2-methoxy-2-methyl-	0.005	U	0.005	UJ
Carbon disulfide	0.01	U	0.01	U
Carbon tetrachloride	0.001	UJ	0.001	UJ
Chlorobenzene	0.001	U	0.001	U
Chlorodibromomethane	0.0005	U	0.0005	U
Chloroethane	0.002	U	0.002	U
Chloroform	0.001	U	0.001	U
Chloromethane	0.002	U	0.002	U
Cis-1,2-Dichloroethene	0.001	U	0.001	U
cis-1,3-Dichloropropene	0.0004	U	0.0004	U
Cyclohexane	0.01	U	0.01	U
Dibromomethane	0.001	U	0.001	U
Dichlorodifluoromethane	0.001	UJ	0.001	U
Diethyl ether	0.01	U	0.01	U

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-9-XXX MMB-SW/SD-9 12/1/2010		OC-SW-MMB-SW/SD-9-XXX MMB-SW/SD-9 6/6/2011	
Ethyl benzene	0.001	U	0.001	U
Ethyl-t-Butyl Ether	0.005	U	0.005	UJ
Hexachlorobutadiene	0.0004	U	0.0004	U
Isopropyl ether	0.01	U	0.01	U
Isopropylbenzene	0.001	U	0.001	U
Methyl cyclohexane	0.01	U	0.01	U
Methyl Tertbutyl Ether	0.001	U	0.001	UJ
Methylene chloride	0.002	U	0.002	U
Naphthalene	0.005	U	0.005	U
n-Butylbenzene	0.001	U	0.001	U
Propylbenzene	0.001	U	0.001	U
sec-Butylbenzene	0.001	U	0.001	U
Styrene	0.001	U	0.001	U
tert-Butylbenzene	0.001	U	0.001	U
Tetrachloroethene	0.001	U	0.001	U
Tetrahydrofuran	0.01	U	0.01	U
Toluene	0.001	U	0.001	U
trans-1,2-Dichloroethene	0.001	U	0.001	U
trans-1,3-Dichloropropene	0.0004	U	0.0004	U
Trichloroethene	0.001	U	0.001	U
Trichlorofluoromethane	0.001	U	0.001	U
Vinyl chloride	0.0005	U	0.0005	U
Xylene, o	0.001	U	0.001	U
Xylenes (m&p)	0.002	U	0.002	U
Semivolatile Organics (mg/L)				
1,2,4,5-Tetrachlorobenzene	0.0045	U	0.0045	U
1-Methylnaphthalene	0.0045	U	0.0045	U
2,3,4,6-Tetrachlorophenol	0.0045	UJ	0.0045	U
2,4,5-Trichlorophenol	0.0045	U	0.0045	U
2,4,6-Trichlorophenol	0.0045	U	0.0045	U
2,4-Dichlorophenol	0.0045	U	0.0045	U
2,4-Dimethylphenol	0.0045	U	0.0045	U
2,4-Dinitrophenol		R	0.0045	U
2,4-Dinitrotoluene	0.0045	U	0.0045	U
2,6-Dinitrotoluene	0.0045	U	0.0045	U
2-Chloronaphthalene	0.0045	U	0.0045	U
2-Chlorophenol	0.0045	U	0.0045	U
2-Methylnaphthalene	0.00091	U	0.00091	U
2-Methylphenol	0.0045	U	0.0045	U
2-Nitroaniline	0.0045	U	0.0045	U
2-Nitrophenol	0.0045	UJ	0.0045	U
3 & 4 Methylphenol	0.0045	U	0.0045	U
3,3'-Dichlorobenzidine	0.0045	UJ	0.0045	U
3-Nitroaniline	0.0045	U	0.0045	U
4,6-Dinitro-2-methylphenol		R	0.0045	U
4-Bromophenyl phenyl ether	0.0045	U	0.0045	U
4-Chloro-3-methylphenol	0.0045	U	0.0045	U
4-Chloroaniline	0.0045	U	0.0045	U
4-Chlorophenyl phenyl ether	0.0045	U	0.0045	U
4-Nitroaniline	0.0045	UJ	0.0045	U
4-Nitrophenol	0.0045	UJ	0.0045	U
Acenaphthene	0.00091	U	0.00091	U
Acenaphthylene	0.00027	U	0.00027	U
Acetophenone	0.0045	U	0.0045	U

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-9-XXX MMB-SW/SD-9 12/1/2010		OC-SW-MMB-SW/SD-9-XXX MMB-SW/SD-9 6/6/2011	
Aniline	0.0045	UJ	0.0045	UJ
Anthracene	0.00091	U	0.00091	U
Atrazine	0.0045	U	0.0045	U
Azobenzene	0.0045	U	0.0045	U
Benzaldehyde	0.0045	U	0.0045	U
Benzo(a)anthracene	0.00027	U	0.00027	U
Benzo(a)pyrene	0.00018	U	0.00013	J
Benzo(b)fluoranthene	0.00027	U	0.00027	UJ
Benzo(ghi)perylene	0.00045	U	0.00045	U
Benzo(k)fluoranthene	0.00027	U	0.00027	U
Benzoic Acid		R	0.0019	J
Benzyl alcohol	0.0091	U	0.0091	U
Biphenyl	0.0045	U	0.0045	U
Bis(2-Chloroethoxy)methane	0.0045	U	0.0045	U
Bis(2-Chloroethyl)ether	0.0045	U	0.0045	U
Bis(2-Chloroisopropyl)ether	0.0045	U	0.0045	U
Bis(2-Ethylhexyl)phthalate	0.0018	U	0.0018	U
Butylbenzylphthalate	0.0045	U	0.0045	U
Caprolactam	0.0045	UJ	0.0045	UJ
Carbazole	0.0045	U	0.0045	U
Chrysene	0.00091	U	0.00091	U
Dibenz(a,h)anthracene	0.00045	U	0.00045	U
Dibenzofuran	0.0045	U	0.0045	U
Diethylphthalate	0.012	UJ	0.0045	U
Dimethylphthalate	0.0045	U	0.0045	U
Di-n-butylphthalate	0.00078	J	0.0045	U
Di-n-octylphthalate	0.0045	UJ	0.0045	U
Diphenyl ether	0.0045	U	0.0045	U
Diphenylamine	0.0045	U	0.0045	U
Diphenylmethanone	0.0045	U	0.0045	U
Fluoranthene	0.00091	U	0.00091	U
Fluorene	0.00091	U	0.00091	U
Hexachlorobenzene	0.00091	U	0.00091	U
Hexachlorocyclopentadiene	0.0045	UJ	0.0045	U
Hexachloroethane	0.0027	U	0.0027	U
Indeno(1,2,3-cd)pyrene	0.00045	U	0.00045	U
Isophorone	0.0045	UJ	0.0045	U
Nitrobenzene	0.0045	U	0.0045	U
N-Nitrosodimethylamine	0.0000019	U	0.0000019	U
N-Nitrosodi-n-propylamine	0.0000019	U	0.0000019	UJ
N-Nitrosodiphenylamine	0.0045	U	0.0045	U
Pentachlorophenol		R	0.00091	U
Phenanthrene	0.00018	U	0.00018	U
Phenol	0.0045	UJ	0.0045	UJ
Pyrene	0.0045	U	0.0045	U
Metals, Total (mg/L)				
Aluminum	0.012	J	0.1	U
Antimony	0.006	U	0.006	U
Arsenic	0.01	U	0.01	U
Barium	0.025		0.022	
Beryllium	0.001	U	0.001	U
Cadmium	0.001	U	0.001	U
Calcium	21		24	
Chromium	0.005	U	0.005	U

Appendix F-18
Analytical Surface Water Data - Maple Meadow Brook Wetland
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SW-MMB-SW/SD-9-XXX MMB-SW/SD-9 12/1/2010		OC-SW-MMB-SW/SD-9-XXX MMB-SW/SD-9 6/6/2011	
Cobalt	0.01	U	0.01	U
Copper	0.0016	NJ	0.0005	U
Iron	0.45		2.2	
Lead	0.001	U	0.0001	U
Magnesium	3.7		4.1	
Manganese	0.16		0.17	
Mercury	0.0002	U	0.0002	U
Nickel	0.01	U	0.01	U
Potassium	3.1	J	1.9	J
Selenium	0.01	U	0.01	U
Silver	0.001	U	0.0001	U
Sodium	54		76	
Thallium	0.01	U	0.01	U
Tin	0.05	U	0.05	U
Vanadium	0.01	UJ	0.01	U
Zinc	0.05	U	0.05	U
Inorganics (mg/L)				
Bromide	0.1	U	0.1	U
Chloride	100		130	
Hardness	67		77	
Nitrate as N	0.12		0.05	U
Nitrite as N	0.1	U	0.1	U
Nitrogen, as Ammonia	0.23		0.1	U
Sulfate	21		3.9	
Total Organic Carbon	4.5		5.1	
Total Suspended Solids	2	U	5	UJ
Specialty Compounds (mg/L)				
Hydrazine	0.0001	U	0.0001	U
Monomethylhydrazine (MMH)	0.0005	U	0.0005	U
UDMH	0.0005	U	0.0005	U
Acetaldehyde	0.03	U	0.03	U
Formaldehyde	0.0093	J	0.03	U
Kempore (Azodicarbonamide)				
OPEX				

Prepared by / Date: LCG 11/25/2014
Checked by / Date: BJR 12/8/2014

mg/L = milligram per liter

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
N = presumptively present

Appendix F-19
Analytical Sediment Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-OPWD-1-XXX OPWD-1 12/10/2010 0-0.5 ft		OC-SD-OPWD-2-XXX OPWD-2 12/10/2010 0-0.5 ft		OC-SD-OPWD-SD/SO/SW-S-XXX OPWD-SD-S 12/10/2010 0-0.5 ft	
Volatile Organics (mg/Kg)						
1,1,1,2-Tetrachloroethane	0.0035	U	0.0067	U		R
1,1,1-Trichloroethane	0.0035	U	0.0067	U		R
1,1,2,2-Tetrachloroethane	0.0035	U	0.0067	U		R
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.017	U	0.034	U		R
1,1,2-Trichloroethane	0.0035	U	0.0067	U		R
1,1-Dichloroethane	0.0035	U	0.0067	U		R
1,1-Dichloroethene	0.0035	U	0.0067	U		R
1,1-Dichloropropene	0.0035	U	0.0067	U		R
1,2,3-Trichlorobenzene	0.0035	U	0.0067	U		R
1,2,3-Trichloropropane	0.0035	U	0.0067	U		R
1,2,4-Trichlorobenzene	0.0035	U	0.0067	U	0.0038	J
1,2,4-Trimethylbenzene	0.0035	U	0.0067	U		R
1,2-Dibromo-3-chloropropane	0.035	U	0.067	U		R
1,2-Dibromoethane	0.0035	U	0.0067	U		R
1,2-Dichlorobenzene	0.0035	U	0.0067	U		R
1,2-Dichloroethane	0.0035	U	0.0067	U		R
1,2-Dichloropropane	0.0035	U	0.0067	U		R
1,3,5-Trimethylbenzene	0.0035	U	0.0067	U		R
1,3-Dichlorobenzene	0.0035	U	0.0067	U		R
1,3-Dichloropropane	0.0035	U	0.0067	U		R
1,4-Dichlorobenzene	0.0035	U	0.0067	U		R
1,4-Dioxane	0.35	UJ	0.67	UJ		R
2,2-Dichloropropane	0.0035	U	0.0067	U		R
2,4,4-Trimethyl-1-pentene	0.007	U	0.013	U	0.06	J
2,4,4-Trimethyl-2-pentene	0.007	U	0.013	U	0.008	J
2-Butanone	0.035	U	0.067	U	0.043	J
2-Chlorotoluene	0.0035	U	0.0067	U		R
2-Hexanone	0.035	U	0.067	U		R
4-Chlorotoluene	0.0035	U	0.0067	U		R
4-iso-Propyltoluene	0.0035	U	0.0067	U		R
4-Methyl-2-pentanone	0.035	U	0.067	U		R
Acetic acid, methyl ester	0.07	UJ	0.13	UJ		R
Acetone	0.35	UJ	0.67	UJ		R
Benzene	0.0035	U	0.0067	U		R
Bromobenzene	0.0035	U	0.0067	U		R
Bromochloromethane	0.0035	U	0.0067	U		R
Bromodichloromethane	0.0035	U	0.0067	U		R

Appendix F-19
Analytical Sediment Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-OPWD-1-XXX OPWD-1 12/10/2010 0-0.5 ft		OC-SD-OPWD-2-XXX OPWD-2 12/10/2010 0-0.5 ft		OC-SD-OPWD-SD/SO/SW-S-XXX OPWD-SD-S 12/10/2010 0-0.5 ft	
Bromoform	0.0035	U	0.0067	U		R
Bromomethane	0.007	U	0.013	U		R
Butane, 2-methoxy-2-methyl-	0.0035	U	0.0067	U		R
Carbon disulfide	0.0035	U	0.0067	U		R
Carbon tetrachloride	0.0035	U	0.0067	U		R
Chlorobenzene	0.0035	U	0.0067	U		R
Chlorodibromomethane	0.0035	U	0.0067	U		R
Chloroethane	0.007	U	0.013	U		R
Chloroform	0.0035	U	0.0067	U		R
Chloromethane	0.007	U	0.013	U		R
Cis-1,2-Dichloroethene	0.0035	U	0.0067	U		R
cis-1,3-Dichloropropene	0.0035	U	0.0067	U		R
Cyclohexane	0.035	U	0.067	U		R
Dibromomethane	0.0035	U	0.0067	U		R
Dichlorodifluoromethane	0.007	UJ	0.013	UJ		R
Diethyl ether	0.0035	U	0.0067	U		R
Ethyl benzene	0.0035	U	0.0067	U		R
Ethyl-t-Butyl Ether	0.0035	U	0.0067	U		R
Hexachlorobutadiene	0.0035	U	0.0067	U		R
Isopropyl ether	0.0035	U	0.0067	U		R
Isopropylbenzene	0.0035	U	0.0067	U		R
Methyl cyclohexane	0.0035	U	0.0067	U		R
Methyl Tertbutyl Ether	0.0035	U	0.0067	U		R
Methylene chloride	0.014	U	0.027	U		R
Naphthalene	0.035	U	0.067	U		R
n-Butylbenzene	0.0035	U	0.0067	U		R
Propylbenzene	0.0035	U	0.0067	U		R
sec-Butylbenzene	0.0035	U	0.0067	U		R
Styrene	0.0035	U	0.0067	U		R
tert-Butylbenzene	0.0035	U	0.0067	U		R
Tetrachloroethene	0.0035	U	0.0067	U		R
Tetrahydrofuran	0.035	UJ	0.067	UJ		R
Toluene	0.0035	U	0.0067	U		R
trans-1,2-Dichloroethene	0.0035	U	0.0067	U		R
trans-1,3-Dichloropropene	0.0035	U	0.0067	U		R
Trichloroethene	0.0035	U	0.0067	U		R
Trichlorofluoromethane	0.007	U	0.013	U		R
Vinyl chloride	0.0035	U	0.0067	U		R

Appendix F-19
Analytical Sediment Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-OPWD-1-XXX OPWD-1 12/10/2010 0-0.5 ft		OC-SD-OPWD-2-XXX OPWD-2 12/10/2010 0-0.5 ft		OC-SD-OPWD-SD/SO/SW-S-XXX OPWD-SD-S 12/10/2010 0-0.5 ft	
Xylene, o	0.0035	U	0.0067	U		R
Xylenes (m&p)	0.007	U	0.013	U		R
Semivolatile Organics (mg/Kg)						
1,2,4,5-Tetrachlorobenzene	0.056	U	0.087	U		R
1,2,4-Trichlorobenzene	0.056	U	0.027	J	0.066	J
1,2-Dichlorobenzene	0.056	U	0.087	U		R
1,3-Dichlorobenzene	0.056	U	0.087	U		R
1,4-Dichlorobenzene	0.056	U	0.087	U		R
1-Methylnaphthalene	0.056	U	0.087	U		R
2,3,4,6-Tetrachlorophenol	0.056	U	0.087	U		R
2,4,5-Trichlorophenol	0.056	U	0.087	U		R
2,4,6-Trichlorophenol	0.056	U	0.087	U		R
2,4-Dichlorophenol	0.056	U	0.087	U		R
2,4-Dimethylphenol	0.056	U	0.087	U		R
2,4-Dinitrophenol	0.056	U	0.087	U		R
2,4-Dinitrotoluene	0.056	U	0.087	U		R
2,6-Dinitrotoluene	0.056	U	0.087	U		R
2-Chloronaphthalene	0.056	U	0.087	U		R
2-Chlorophenol	0.056	U	0.087	U		R
2-Methylnaphthalene	0.056	U	0.087	U		R
2-Methylphenol	0.056	U	0.087	U		R
2-Nitroaniline	0.28	U	0.44	U		R
2-Nitrophenol	0.056	U	0.087	U		R
3 & 4 Methylphenol	0.056	U	0.087	U		R
3,3'-Dichlorobenzidine	0.11	U	0.17	U		R
3-Nitroaniline	0.28	U	0.44	U		R
4,6-Dinitro-2-methylphenol	0.28	U	0.44	U		R
4-Bromophenyl phenyl ether	0.056	U	0.087	U		R
4-Chloro-3-methylphenol	0.11	U	0.17	U		R
4-Chloroaniline	0.11	U	0.17	U		R
4-Chlorophenyl phenyl ether	0.056	U	0.087	U	0.061	J
4-Nitroaniline	0.28	U	0.44	U		R
4-Nitrophenol	0.28	U	0.44	U		R
Acenaphthene	0.056	U	0.087	U		R
Acenaphthylene	0.056	U	0.087	U		R
Acetophenone	0.056	U	0.087	U		R
Aniline	0.056	U	0.087	U		R
Anthracene	0.056	U	0.087	U		R

Appendix F-19
Analytical Sediment Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-OPWD-1-XXX OPWD-1 12/10/2010 0-0.5 ft		OC-SD-OPWD-2-XXX OPWD-2 12/10/2010 0-0.5 ft		OC-SD-OPWD-SD/SO/SW-S-XXX OPWD-SD-S 12/10/2010 0-0.5 ft	
Atrazine	0.056	U	0.087	U		R
Azobenzene	0.056	U	0.087	U		R
Benzaldehyde	0.056	U	0.087	U		R
Benzo(a)anthracene	0.17		0.14		0.098	J
Benzo(a)pyrene	0.2		0.18		0.14	J
Benzo(b)fluoranthene	0.3		0.31			R
Benzo(ghi)perylene	0.12		0.15		0.14	J
Benzo(k)fluoranthene	0.18		0.16			R
Benzoic Acid	0.054	J	0.26	J	0.42	J
Benzyl alcohol	0.11	U	0.17	U		R
Biphenyl	0.056	U	0.087	U		R
Bis(2-Chloroethoxy)methane	0.056	U	0.087	U		R
Bis(2-Chloroethyl)ether	0.056	U	0.087	U		R
Bis(2-Chloroisopropyl)ether	0.056	U	0.087	U		R
Bis(2-Ethylhexyl)phthalate	0.11		0.047	J	0.12	J
Butylbenzylphthalate	0.056	U	0.087	U		R
Caprolactam	0.056	UJ	0.087	UJ		R
Carbazole	0.039	J	0.051	J	0.044	J
Chrysene	0.25		0.28		0.21	J
Dibenz(a,h)anthracene	0.035	J	0.061	J		R
Dibenzofuran	0.056	U	0.087	U		R
Diethylphthalate	0.056	U	0.087	U		R
Dimethylphthalate	0.056	U	0.087	U		R
Di-n-butylphthalate	0.056	UJ	0.087	U		R
Di-n-octylphthalate	0.056	U	0.087	U		R
Diphenyl ether	0.094		0.087	U	0.86	J
Diphenylmethanone	0.028	J	0.087	U	0.2	J
Fluoranthene	0.44		0.59		0.34	J
Fluorene	0.056	U	0.087	U		R
Hexachlorobenzene	0.056	U	0.087	U		R
Hexachlorobutadiene	0.056	U	0.087	U		R
Hexachlorocyclopentadiene	0.11	U	0.17	U		R
Hexachloroethane	0.056	U	0.087	U		R
Indeno(1,2,3-cd)pyrene	0.12		0.14		0.14	J
Isophorone	0.056	U	0.087	U		R
Naphthalene	0.13	U	0.21	U		R
Nitrobenzene	0.056	U	0.087	U		R
N-Nitrosodimethylamine	0.056	U	0.087	U		R

Appendix F-19
Analytical Sediment Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-OPWD-1-XXX OPWD-1 12/10/2010 0-0.5 ft		OC-SD-OPWD-2-XXX OPWD-2 12/10/2010 0-0.5 ft		OC-SD-OPWD-SD/SO/SW-S-XXX OPWD-SD-S 12/10/2010 0-0.5 ft	
N-Nitrosodi-n-propylamine	0.056	U	0.087	U		R
N-Nitrosodiphenylamine	0.098		0.087	U	0.8	J
Pentachlorophenol	0.056	U	0.087	U		R
Phenanthrene	0.12		0.18		0.1	J
Phenol	0.056	U	0.087	U		R
Pyrene	0.42		0.44		0.35	J
Inorganics (mg/Kg)						
Aluminum	13000		24000		14000	J
Antimony	0.95	UJ	1.4	UJ		R
Arsenic	14		9.3		6.7	J
Barium	9.1	J	16	J	10	J
Beryllium	1.1		1.4		1.1	J
Cadmium	0.33	J	0.099	J	0.62	J
Calcium	480	J	850		2000	J
Chromium	1400		250		2400	J
Chromium, Hexavalent					7.1	U
Cobalt	4.4		3.2		15	J
Copper	16		19		39	J
Iron	8400		6300		13000	J
Lead	8		14		14	J
Magnesium	830	J	1100	J	1000	J
Manganese	40	J	55	J	160	J
Mercury	0.12	U	0.17	U		R
Nickel	12		10		15	J
Potassium	1900		1200		1400	J
Selenium	0.95	U	1.4	U		R
Silver	26		3.7		41	J
Sodium	74	J	88	J	360	J
Thallium	1.9	U	2.8	U		R
Tin	9.5	U	14	U		R
Vanadium	9.2		15		11	J
Zinc	23	J	24	J	100	J
Chloride	110		91		240	
Nitrate as N	8.4	U	13	U	17	U
Nitrite as N	1.7	U	2.6	U	3.4	U
Nitrogen, as Ammonia	93	J	130	J	540	J
Oxidation Reduction Potential **(mV)**					150	
pH **(pH units)**					7.19	HF

Appendix F-19
Analytical Sediment Data - Off-Property West Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-OPWD-1-XXX OPWD-1 12/10/2010 0-0.5 ft		OC-SD-OPWD-2-XXX OPWD-2 12/10/2010 0-0.5 ft		OC-SD-OPWD-SD/SO/SW-S-XXX OPWD-SD-S 12/10/2010 0-0.5 ft	
Sulfate	310		280		1500	
Total Organic Carbon	13000		28000		34000	
Specialty Compounds (mg/Kg)						
Hydrazine	0.0013	J	0.0041	U		
Monomethylhydrazine (MMH)	0.0083	U	0.01	U		
UDMH	0.0083	U	0.01	U		
Acetaldehyde	0.34	U	0.54	U		
Formaldehyde	0.4		0.61			

mg/Kg = milligram per kilogram
mV = millivolts

Prepared by / Date: LCG 11/25/2014
Checked by / Date: BJR 12/8/2014

U = not detected, value is the reporting limit
J = value is estimated
R = value is rejected
HF = holding time exceeded

Appendix F-20
Analytical Sediment Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-EDSD/SW2 (EDBS6)-XXX EDSD/SW2 (EDBS6) 12/13/2010 0-0.33 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 11/6/2012 0-0.5 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 6/18/2012 0-0.5 ft
Volatile Organics (mg/Kg)			
1,1,1,2-Tetrachloroethane	0.0099 UJ	0.0029 U	0.0025 U
1,1,1-Trichloroethane	0.0099 UJ	0.0029 U	0.0025 U
1,1,2,2-Tetrachloroethane	0.0099 UJ	0.0029 U	0.0025 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.05 UJ	0.0041	0.013 U
1,1,2-Trichloroethane	0.0099 UJ	0.0029 U	0.0025 U
1,1-Dichloroethane	0.0099 UJ	0.0029 U	0.0025 U
1,1-Dichloroethene	0.0099 UJ	0.0029 U	0.0025 U
1,1-Dichloropropene	0.0099 UJ	0.0029 U	0.0025 U
1,2,3-Trichlorobenzene	0.0099 UJ	0.0029 U	0.0025 U
1,2,3-Trichloropropane	0.0099 UJ	0.0029 U	0.0025 U
1,2,4-Trichlorobenzene	0.0099 UJ	0.0029 U	0.0025 U
1,2,4-Trimethylbenzene	0.0099 UJ	0.0029 U	0.0025 U
1,2-Dibromo-3-chloropropane	0.099 UJ	0.029 U	0.025 U
1,2-Dibromoethane	0.0099 UJ	0.0029 U	0.0025 U
1,2-Dichlorobenzene	0.0099 UJ	0.0029 U	0.0025 U
1,2-Dichloroethane	0.0099 UJ	0.0029 U	0.0025 U
1,2-Dichloropropane	0.0099 UJ	0.0029 U	0.0025 U
1,3,5-Trimethylbenzene	0.0099 UJ	0.0029 U	0.0025 U
1,3-Dichlorobenzene	0.0099 UJ	0.0029 U	0.0025 U
1,3-Dichloropropane	0.0099 UJ	0.0029 U	0.0025 U
1,4-Dichlorobenzene	0.0099 UJ	0.0029 U	0.0025 U
1,4-Dioxane	0.99 UJ	0.29 UJ	0.25 U
2,2-Dichloropropane	0.0099 UJ	0.0029 U	0.0025 U
2,4,4-Trimethyl-1-pentene	0.02 UJ	0.0058 U	0.005 U
2,4,4-Trimethyl-2-pentene	0.02 UJ	0.0016 J	0.005 U
2-Butanone	0.097 J	0.029 U	0.025 U
2-Chlorotoluene	0.0099 UJ	0.0029 U	0.0025 U
2-Hexanone	0.099 UJ	0.029 U	0.025 U
4-Chlorotoluene	0.0099 UJ	0.0029 U	0.0025 U
4-iso-Propyltoluene	0.0099 UJ	0.0029 U	0.0025 U
4-Methyl-2-pentanone	0.099 UJ	0.029 U	0.025 U
Acetic acid, methyl ester	0.2 UJ	0.058 U	0.05 U
Acetone	0.43 J	0.29 U	0.25 UJ
Benzene	0.0099 UJ	0.0029 U	0.0025 U
Bromobenzene	0.0099 UJ	0.0029 U	0.0025 U

Appendix F-20
Analytical Sediment Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-EDSD/SW2 (EDBS6)-XXX EDSD/SW2 (EDBS6) 12/13/2010 0-0.33 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 11/6/2012 0-0.5 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 6/18/2012 0-0.5 ft
Bromochloromethane	0.0099 UJ	0.0029 U	0.0025 U
Bromodichloromethane	0.0099 UJ	0.0029 U	0.0025 U
Bromoform	0.0099 UJ	0.0029 U	0.0025 U
Bromomethane	0.02 UJ	0.0058 U	0.005 U
Butane, 2-methoxy-2-methyl-	0.0099 UJ	0.0029 U	0.0025 U
Carbon disulfide	0.0099 UJ	0.0029 U	0.0025 U
Carbon tetrachloride	0.0099 UJ	0.0029 U	0.0025 U
Chlorobenzene	0.0099 UJ	0.0029 U	0.0025 U
Chlorodibromomethane	0.0099 UJ	0.0029 U	0.0025 U
Chloroethane	0.02 UJ	0.0058 U	0.005 U
Chloroform	0.0099 UJ	0.0029 U	0.0025 U
Chloromethane	0.02 UJ	0.0058 U	0.005 U
Cis-1,2-Dichloroethene	0.0099 UJ	0.0029 U	0.0025 U
cis-1,3-Dichloropropene	0.0099 UJ	0.0029 U	0.0025 U
Cyclohexane	0.099 UJ	0.029 U	0.025 U
Dibromomethane	0.0099 UJ	0.0029 U	0.0025 U
Dichlorodifluoromethane	0.02 UJ	0.0058 U	0.005 U
Diethyl ether	0.0099 UJ	0.0029 U	0.0025 U
Ethyl benzene	0.0099 UJ	0.0029 U	0.0025 U
Ethyl-t-Butyl Ether	0.0099 UJ	0.0029 U	0.0025 U
Hexachlorobutadiene	0.0099 UJ	0.0029 U	0.0025 U
Isopropyl ether	0.0099 UJ	0.0029 U	0.0025 U
Isopropylbenzene	0.0099 UJ	0.0029 U	0.0025 U
Methyl cyclohexane	0.0099 UJ	0.0029 U	0.0025 U
Methyl Tertbutyl Ether	0.0099 UJ	0.0029 U	0.0025 U
Methylene chloride	0.04 UJ	0.0029 U	0.01 U
Naphthalene	0.099 UJ	0.029 U	0.025 U
n-Butylbenzene	0.0099 UJ	0.0029 U	0.0025 U
Propylbenzene	0.0099 UJ	0.0029 U	0.0025 U
sec-Butylbenzene	0.0099 UJ	0.0029 U	0.0025 U
Styrene	0.0099 UJ	0.0029 U	0.0025 U
tert-Butylbenzene	0.0099 UJ	0.0029 U	0.0025 U
Tetrachloroethene	0.0099 UJ	0.0029 U	0.0025 U
Tetrahydrofuran	0.099 UJ	0.058 U	0.05 U
Toluene	0.0099 UJ	0.0029 U	0.0025 U
trans-1,2-Dichloroethene	0.0099 UJ	0.0029 U	0.0025 U

Appendix F-20
Analytical Sediment Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-EDSD/SW2 (EDBS6)-XXX EDSD/SW2 (EDBS6) 12/13/2010 0-0.33 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 11/6/2012 0-0.5 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 6/18/2012 0-0.5 ft
trans-1,3-Dichloropropene	0.0099 UJ	0.0029 U	0.0025 U
Trichloroethene	0.0099 UJ	0.0017 J	0.0025 U
Trichlorofluoromethane	0.02 UJ	0.0058 U	0.005 U
Vinyl chloride	0.0099 UJ	0.0029 U	0.0025 U
Xylene, o	0.0099 UJ	0.0029 U	0.0025 U
Xylenes (m&p)	0.02 UJ	0.0058 U	0.005 U
Semivolatile Organics (mg/Kg)			
1,2,4,5-Tetrachlorobenzene	0.2 UJ	0.042 U	0.6 U
1,2,4-Trichlorobenzene	0.2 UJ		0.6 U
1,2-Dichlorobenzene	0.2 UJ		0.6 U
1,3-Dichlorobenzene	0.2 UJ		0.6 U
1,4-Dichlorobenzene	0.2 UJ		0.6 U
1-Methylnaphthalene	0.2 UJ	0.042 U	0.6 U
2,3,4,6-Tetrachlorophenol	0.2 UJ	0.042 U	0.6 U
2,4,5-Trichlorophenol	0.2 UJ	0.042 U	0.6 U
2,4,6-Trichlorophenol	0.2 UJ	0.042 U	0.6 U
2,4-Dichlorophenol	0.2 UJ	0.042 U	0.6 U
2,4-Dimethylphenol	0.2 UJ	0.042 U	0.6 U
2,4-Dinitrophenol	0.2 UJ	R	0.6 U
2,4-Dinitrotoluene	0.2 UJ	0.042 U	0.6 U
2,6-Dinitrotoluene	0.2 UJ	0.042 UJ	0.6 U
2-Chloronaphthalene	0.2 UJ	0.042 U	0.6 U
2-Chlorophenol	0.2 UJ	0.042 U	0.6 U
2-Methylnaphthalene	0.078 J	0.042 U	0.6 U
2-Methylphenol	0.2 UJ	0.042 U	0.6 U
2-Nitroaniline	1 UJ	0.21 U	3 U
2-Nitrophenol	0.2 UJ	0.042 U	0.6 U
3 & 4 Methylphenol	0.2 UJ	0.042 U	0.6 U
3,3'-Dichlorobenzidine	0.4 UJ	0.085 U	1.2 U
3-Nitroaniline	1 UJ	0.21 U	3 U
4,6-Dinitro-2-methylphenol	1 UJ	R	3 U
4-Bromophenyl phenyl ether	0.2 UJ	0.042 U	0.6 U
4-Chloro-3-methylphenol	0.4 UJ	0.085 U	1.2 U
4-Chloroaniline	0.4 UJ	0.085 U	1.2 U
4-Chlorophenyl phenyl ether	0.2 UJ	0.042 U	0.6 U
4-Nitroaniline	1 UJ	0.21 U	3 U

Appendix F-20
Analytical Sediment Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-EDSD/SW2 (EDBS6)-XXX EDSD/SW2 (EDBS6) 12/13/2010 0-0.33 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 11/6/2012 0-0.5 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 6/18/2012 0-0.5 ft
4-Nitrophenol	1 UJ	R	3 U
Acenaphthene	0.14 J	0.019 J	0.6 U
Acenaphthylene	0.2 UJ	0.042 U	0.6 U
Acetophenone	0.2 UJ	0.042 U	0.6 U
Aniline	0.2 UJ	0.042 U	0.6 UJ
Anthracene	0.27 J	0.04 J	0.6 U
Atrazine	0.2 UJ	0.042 U	0.6 U
Azobenzene	0.2 UJ	0.042 U	0.6 U
Benzaldehyde	0.2 UJ	0.042 U	0.6 U
Benzo(a)anthracene	0.77 J	0.25	0.63 J
Benzo(a)pyrene	0.94 J	0.24	0.67
Benzo(b)fluoranthene	1.6 J	0.43	1 J
Benzo(ghi)perylene	0.56 J	0.11	0.54 J
Benzo(k)fluoranthene	0.53 J	0.17	0.45 J
Benzoic Acid	0.49 J	0.16 J	3 U
Benzyl alcohol	0.4 UJ	0.085 UJ	1.2 U
Biphenyl	0.2 UJ	0.042 U	0.6 U
Bis(2-Chloroethoxy)methane	0.2 UJ	0.042 U	0.6 U
Bis(2-Chloroethyl)ether	0.2 UJ	0.042 U	0.6 U
Bis(2-Chloroisopropyl)ether	0.2 UJ	0.042 U	0.6 U
Bis(2-Ethylhexyl)phthalate	10 J	0.96 J	1.5
Butylbenzylphthalate	0.2 UJ	0.042 U	0.6 U
Caprolactam	0.2 UJ	0.042 U	0.6 U
Carbazole	0.24 J	0.063	0.6 U
Chrysene	1.3 J	0.38	1
Dibenz(a,h)anthracene	0.2 UJ	0.037 J	0.6 U
Dibenzofuran	0.15 J	0.042 U	0.6 U
Diethylphthalate	0.2 UJ	0.042 U	0.6 U
Dimethylphthalate	0.2 UJ	0.042 U	0.6 U
Di-n-butylphthalate	0.2 UJ	0.21 U	1.2 U
Di-n-octylphthalate	0.2 UJ	0.042 U	0.6 U
Diphenyl ether	0.28 J	0.042 U	0.6 U
Diphenylamine		0.042 U	0.6 U
Diphenylmethanone	0.2 UJ	0.042 U	0.6 U
Fluoranthene	2.7 J	0.64	1.8 J
Fluorene	0.23 J	0.02 J	0.6 U

Appendix F-20
Analytical Sediment Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-EDSD/SW2 (EDBS6)-XXX EDSD/SW2 (EDBS6) 12/13/2010 0-0.33 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 11/6/2012 0-0.5 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 6/18/2012 0-0.5 ft
Hexachlorobenzene	0.2 UJ	0.042 U	0.6 U
Hexachlorobutadiene	0.2 UJ		0.6 U
Hexachlorocyclopentadiene	0.4 UJ	0.085 U	1.2 U
Hexachloroethane	0.2 UJ	0.042 U	0.6 U
Indeno(1,2,3-cd)pyrene	0.53 J	0.11	0.48 J
Isophorone	0.2 UJ	0.042 U	0.6 U
Naphthalene	0.11 J		0.6 U
Nitrobenzene	0.2 UJ	0.042 U	0.6 U
N-Nitrosodimethylamine	0.2 UJ	0.042 UJ	0.12 U
N-Nitrosodi-n-propylamine	0.2 UJ	0.042 U	0.6 U
N-Nitrosodiphenylamine	0.21 J	0.042 UJ	0.6 U
Pentachlorophenol	0.2 UJ	0.042 U	0.6 U
Phenanthrene	1.3 J	0.31	0.64
Phenol	0.2 UJ	0.026 J	0.6 U
Pyrene	2.3 J	0.43	1.1
Inorganics (mg/Kg)			
Aluminum	6400 J	3800 J	5900
Antimony	3.4 UJ	0.89	4
Arsenic	450 J	26	57
Barium	150 J	42 J	140
Beryllium	1.4 UJ	1.6	0.2 J
Cadmium	2.2 J	3.7	0.84
Calcium	7900 J	1900	1500
Chromium	31 J	78 J	39
Cobalt	30 J	13	7.2
Copper	110 J	130 J	270
Iron	210000 J	21000	41000
Lead	25 J	140 J	340
Magnesium	1400 J	2000 J	3300
Manganese	3200 J	600	230
Mercury	0.33 UJ	0.026 J	0.04 J
Nickel	21 J	29 J	19
Potassium	1400 UJ	620 J	290 J
Selenium	3.4 UJ	0.66 U	1.2 U
Silver	3.4 UJ	0.27 J	2.6
Sodium	340 J	160	180 J

Appendix F-20
Analytical Sediment Data - East Ditch
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-EDSD/SW2 (EDBS6)-XXX EDSD/SW2 (EDBS6) 12/13/2010 0-0.33 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 11/6/2012 0-0.5 ft	OC-SD-EDSD/SW7-XXX EDSD/SW7 6/18/2012 0-0.5 ft
Thallium	6.9 UJ	1.3 U	2.5 U
Tin	8.6 J		12 U
Vanadium	120 J	15	16
Zinc	550 J	1900	450
Bromide			24 U
Chloride	690	26	55
Nitrate as N	20 U	0.99 U	6 U
Nitrite as N	4 U	0.99 U	1.2 U
Nitrogen, as Ammonia	130	8.5	10
Sulfate	160 U	71	48 U
Total Organic Carbon	86000	28	8800
Specialty Compounds (mg/Kg)			
Hydrazine		0.0026 U	0.0014 J
Monomethylhydrazine (MMH)		0.0064 U	0.0059 U
UDMH		0.0064 U	0.0059 U
Acetaldehyde		0.055 J	0.24 UJ
Formaldehyde		1.1 J	0.72
Dimethylformamide		0.23 U	0.21 U
Phthalic Acid/Phthalic anhydride		0.13 UJ	0.12 U

mg/Kg = milligram per kilogram

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected

Prepared by / Date: LCG 11/25/2014
Checked by / Date: BJR 12/8/2014

Appendix F-21
Analytical Sediment Data - Landfill Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-LB-1-XXX LB-1 12/9/2010 0-0.5 ft	OC-SD-LB-2-XXX LB-2 12/9/2010 0-0.5 ft	OC-SD-LB-3-XXX LB-3 12/9/2010 0-0.5 ft
Volatile Organics (mg/Kg)			
1,1,1,2-Tetrachloroethane	0.0044 U	0.005 U	0.0062 U
1,1,1-Trichloroethane	0.0044 U	0.005 U	0.0062 U
1,1,2,2-Tetrachloroethane	0.0044 U	0.005 U	0.0062 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.022 U	0.025 U	0.031 U
1,1,2-Trichloroethane	0.0044 U	0.005 U	0.0062 U
1,1-Dichloroethane	0.0044 U	0.005 U	0.0062 U
1,1-Dichloroethene	0.0044 U	0.005 U	0.0062 U
1,1-Dichloropropene	0.0044 U	0.005 U	0.0062 U
1,2,3-Trichlorobenzene	0.0044 U	0.005 U	0.0062 U
1,2,3-Trichloropropane	0.0044 U	0.005 U	0.0062 U
1,2,4-Trichlorobenzene	0.0044 U	0.005 U	0.0062 U
1,2,4-Trimethylbenzene	0.0044 U	0.005 U	0.0062 U
1,2-Dibromo-3-chloropropane	0.044 U	0.05 U	0.062 U
1,2-Dibromoethane	0.0044 U	0.005 U	0.0062 U
1,2-Dichlorobenzene	0.0044 U	0.005 U	0.031
1,2-Dichloroethane	0.0044 U	0.005 U	0.0062 U
1,2-Dichloropropane	0.0044 U	0.005 U	0.0062 U
1,3,5-Trimethylbenzene	0.0044 U	0.005 U	0.0062 U
1,3-Dichlorobenzene	0.0044 U	0.005 U	0.0062 U
1,3-Dichloropropane	0.0044 U	0.005 U	0.0062 U
1,4-Dichlorobenzene	0.0044 U	0.005 U	0.0062 U
1,4-Dioxane	0.44 UJ	0.5 UJ	0.62 UJ
2,2-Dichloropropane	0.0044 U	0.005 U	0.0062 U
2,4,4-Trimethyl-1-pentene	0.0087 U	0.01 U	0.012 U
2,4,4-Trimethyl-2-pentene	0.0087 U	0.01 U	0.012 U
2-Butanone	0.044 U	0.05 U	0.069
2-Chlorotoluene	0.0044 U	0.005 U	0.0062 U
2-Hexanone	0.044 U	0.05 U	0.062 U
4-Chlorotoluene	0.0044 U	0.005 U	0.0062 U
4-iso-Propyltoluene	0.0044 U	0.005 U	0.0062 U
4-Methyl-2-pentanone	0.044 U	0.05 U	0.062 U
Acetic acid, methyl ester	0.087 UJ	0.1 UJ	0.12 UJ
Acetone	0.44 UJ	0.5 UJ	0.62 UJ
Benzene	0.0044 U	0.005 U	0.0062 U
Bromobenzene	0.0044 U	0.005 U	0.0062 U
Bromochloromethane	0.0044 U	0.005 U	0.0062 U
Bromodichloromethane	0.0044 U	0.005 U	0.0062 U

Appendix F-21
Analytical Sediment Data - Landfill Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-LB-1-XXX LB-1 12/9/2010 0-0.5 ft	OC-SD-LB-2-XXX LB-2 12/9/2010 0-0.5 ft	OC-SD-LB-3-XXX LB-3 12/9/2010 0-0.5 ft
Bromoform	0.0044 U	0.005 U	0.0062 U
Bromomethane	0.0087 U	0.01 U	0.012 U
Butane, 2-methoxy-2-methyl-	0.0044 U	0.005 U	0.0062 U
Carbon disulfide	0.0044 U	0.005 U	0.0062 U
Carbon tetrachloride	0.0044 U	0.005 U	0.0062 U
Chlorobenzene	0.0044 U	0.005 U	0.059
Chlorodibromomethane	0.0044 U	0.005 U	0.0062 U
Chloroethane	0.0087 U	0.01 U	0.012 U
Chloroform	0.0044 U	0.005 U	0.0062 U
Chloromethane	0.0087 U	0.01 U	0.012 U
Cis-1,2-Dichloroethene	0.0044 U	0.005 U	0.0062 U
cis-1,3-Dichloropropene	0.0044 U	0.005 U	0.0062 U
Cyclohexane	0.044 U	0.05 U	0.062 U
Dibromomethane	0.0044 U	0.005 U	0.0062 U
Dichlorodifluoromethane	0.0087 UJ	0.01 UJ	0.012 UJ
Diethyl ether	0.0044 U	0.005 U	0.0062 U
Ethyl benzene	0.0044 U	0.005 U	0.0062 U
Ethyl-t-Butyl Ether	0.0044 U	0.005 U	0.0062 U
Hexachlorobutadiene	0.0044 U	0.005 U	0.0062 U
Isopropyl ether	0.0044 U	0.005 U	0.0062 U
Isopropylbenzene	0.0044 U	0.005 U	0.0062 U
Methyl cyclohexane	0.0044 U	0.005 U	0.0062 U
Methyl Tertbutyl Ether	0.0044 U	0.005 U	0.0062 U
Methylene chloride	0.017 U	0.02 U	0.025 U
Naphthalene	0.044 U	0.05 U	0.062 U
n-Butylbenzene	0.0044 U	0.005 U	0.0062 U
Propylbenzene	0.0044 U	0.005 U	0.0062 U
sec-Butylbenzene	0.0044 U	0.005 U	0.0046 J
Styrene	0.0044 U	0.005 U	0.0062 U
tert-Butylbenzene	0.0044 U	0.005 U	0.0062 U
Tetrachloroethene	0.0044 U	0.005 U	0.0062 U
Tetrahydrofuran	0.044 UJ	0.05 UJ	0.062 UJ
Toluene	0.0044 U	0.005 U	0.0062 U
trans-1,2-Dichloroethene	0.0044 U	0.005 U	0.0062 U
trans-1,3-Dichloropropene	0.0044 U	0.005 U	0.0062 U
Trichloroethene	0.0044 U	0.005 U	0.0062 U
Trichlorofluoromethane	0.0087 U	0.01 U	0.012 U
Vinyl chloride	0.0044 U	0.005 U	0.0062 U

Appendix F-21
Analytical Sediment Data - Landfill Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-LB-1-XXX LB-1 12/9/2010 0-0.5 ft	OC-SD-LB-2-XXX LB-2 12/9/2010 0-0.5 ft	OC-SD-LB-3-XXX LB-3 12/9/2010 0-0.5 ft
Xylene, o	0.0044 U	0.005 U	0.0062 U
Xylenes (m&p)	0.0087 U	0.01 U	0.012 U
Semivolatile Organics (mg/Kg)			
1,2,4,5-Tetrachlorobenzene	0.29 U	0.32 U	3.8 U
1,2,4-Trichlorobenzene	0.29 U	0.32 U	3.8 U
1,2-Dichlorobenzene	0.29 U	0.32 U	3.8 U
1,3-Dichlorobenzene	0.29 U	0.32 U	3.8 U
1,4-Dichlorobenzene	0.29 U	0.32 U	3.8 U
1-Methylnaphthalene	0.29 U	0.32 U	3.8 U
2,3,4,6-Tetrachlorophenol	0.29 U	0.32 U	3.8 U
2,4,5-Trichlorophenol	0.29 U	0.32 U	3.8 U
2,4,6-Trichlorophenol	0.29 U	0.32 U	3.8 U
2,4-Dichlorophenol	0.29 U	0.32 U	3.8 U
2,4-Dimethylphenol	0.29 U	0.32 U	3.8 U
2,4-Dinitrophenol	0.29 U	0.32 U	3.8 U
2,4-Dinitrotoluene	0.29 U	0.32 U	3.8 U
2,6-Dinitrotoluene	0.29 U	0.32 U	3.8 U
2-Chloronaphthalene	0.29 U	0.32 U	3.8 U
2-Chlorophenol	0.29 U	0.32 U	3.8 U
2-Methylnaphthalene	0.29 U	0.32 U	3.8 U
2-Methylphenol	0.29 U	0.32 U	3.8 U
2-Nitroaniline	1.4 U	1.6 U	19 U
2-Nitrophenol	0.29 U	0.32 U	3.8 U
3 & 4 Methylphenol	0.29 U	0.32 U	3.8 U
3,3'-Dichlorobenzidine	0.58 U	0.65 U	7.6 U
3-Nitroaniline	1.4 U	1.6 U	19 U
4,6-Dinitro-2-methylphenol	1.4 U	1.6 U	19 U
4-Bromophenyl phenyl ether	0.29 U	0.32 U	3.8 U
4-Chloro-3-methylphenol	0.58 U	0.65 U	7.6 U
4-Chloroaniline	0.58 U	0.65 U	7.6 U
4-Chlorophenyl phenyl ether	0.29 U	0.32 U	3.8 U
4-Nitroaniline	1.4 U	1.6 U	19 U
4-Nitrophenol	1.4 U	1.6 U	19 U
Acenaphthene	0.29 U	0.32 U	3.8 U
Acenaphthylene	0.29 U	0.32 U	3.8 U
Acetophenone	0.29 U	0.32 U	3.8 U
Aniline	0.29 U	0.32 U	3.8 U
Anthracene	0.29 U	0.32 U	3.8 U

Appendix F-21
Analytical Sediment Data - Landfill Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-LB-1-XXX LB-1 12/9/2010 0-0.5 ft	OC-SD-LB-2-XXX LB-2 12/9/2010 0-0.5 ft	OC-SD-LB-3-XXX LB-3 12/9/2010 0-0.5 ft
Atrazine	0.29 U	0.32 U	3.8 U
Azobenzene	0.29 U	0.32 U	3.8 U
Benzaldehyde	0.29 U	0.32 U	3.8 U
Benzo(a)anthracene	0.29 U	0.32 U	1.4 J
Benzo(a)pyrene	0.29 U	0.32 U	1.5 J
Benzo(b)fluoranthene	0.11 J	0.32 U	2 J
Benzo(ghi)perylene	0.096 J	0.32 U	1.6 J
Benzo(k)fluoranthene	0.29 U	0.32 U	3.8 U
Benzoic Acid	1.4 UJ	1.6 UJ	19 UJ
Benzyl alcohol	0.58 U	0.65 U	7.6 U
Biphenyl	0.29 U	0.32 U	3.8 U
Bis(2-Chloroethoxy)methane	0.29 U	0.32 U	3.8 U
Bis(2-Chloroethyl)ether	0.29 U	0.32 U	3.8 U
Bis(2-Chloroisopropyl)ether	0.29 U	0.32 U	3.8 U
Bis(2-Ethylhexyl)phthalate	0.39	0.16 J	4.7
Butylbenzylphthalate	0.29 U	0.32 U	3.8 U
Caprolactam	0.29 UJ	0.32 UJ	3.8 UJ
Carbazole	0.29 U	0.32 U	3.8 U
Chrysene	0.29 U	0.32 U	1.8 J
Dibenz(a,h)anthracene	0.29 U	0.32 U	3.8 U
Dibenzofuran	0.29 U	0.32 U	3.8 U
Diethylphthalate	0.29 U	0.32 U	3.8 U
Dimethylphthalate	0.29 U	0.32 U	3.8 U
Di-n-butylphthalate	0.29 UJ	0.32 UJ	3.8 UJ
Di-n-octylphthalate	0.29 U	0.32 U	3.8 U
Diphenyl ether	0.29 U	0.32 U	3.8 U
Diphenylmethanone	0.29 U	0.32 U	3.8 U
Fluoranthene	0.095 J	0.11 J	3.5 J
Fluorene	0.29 U	0.32 U	3.8 U
Hexachlorobenzene	0.29 U	0.32 U	3.8 U
Hexachlorobutadiene	0.29 U	0.32 U	3.8 U
Hexachlorocyclopentadiene	0.58 U	0.65 U	7.6 U
Hexachloroethane	0.29 U	0.32 U	3.8 U
Indeno(1,2,3-cd)pyrene	0.29 U	0.32 U	1.4 J
Isophorone	0.29 U	0.32 U	3.8 U
Naphthalene	0.69 U	0.77 U	9.2 U
Nitrobenzene	0.29 U	0.32 U	3.8 U
N-Nitrosodimethylamine	0.29 U	0.32 U	3.8 U

Appendix F-21
Analytical Sediment Data - Landfill Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-LB-1-XXX LB-1 12/9/2010 0-0.5 ft	OC-SD-LB-2-XXX LB-2 12/9/2010 0-0.5 ft	OC-SD-LB-3-XXX LB-3 12/9/2010 0-0.5 ft
N-Nitrosodi-n-propylamine	0.29 U	0.32 U	3.8 U
N-Nitrosodiphenylamine	0.29 U	0.32 U	2 J
Pentachlorophenol	0.29 U	0.32 U	3.8 U
Phenanthrene	0.35 U	0.39 U	1.1 J
Phenol	0.29 U	0.32 U	3.8 U
Pyrene	0.12 J	0.32 U	2.9 J
Inorganics (mg/Kg)			
Aluminum	8800	3800	12000
Antimony	1.1 UJ	1 UJ	1.4 UJ
Arsenic	5.9	5.5	35
Barium	35 J	9.4 J	94 J
Beryllium	0.25 J	0.11 J	0.3 J
Cadmium	0.76	0.15 J	1
Calcium	1600 J	1000 J	4700 J
Chromium	24	20	130
Cobalt	2.1	0.65 J	7.2
Copper	24	4.9	61
Iron	8400	3100	25000
Lead	260	19	120
Magnesium	1800 J	330 J	3700 J
Manganese	75 J	96 J	380 J
Mercury	0.14	0.12 U	1.2
Nickel	9.3	1.8 J	19
Potassium	690	240 J	1900
Selenium	1.1 U	1 U	1.4 U
Silver	0.2 J	0.23 J	1.6
Sodium	220	45 J	130 J
Thallium	2.1 U	2 U	2.7 U
Tin	11 U	10 U	6.8 J
Vanadium	22	5.5	29
Zinc	110 J	22 J	190 J
Chloride	110	61	150
Nitrate as N	8.8 U	9.6 U	11 U
Nitrite as N	1.8 U	1.9 U	2.3 U
Nitrogen, as Ammonia	140 J	120 J	580 J
Sulfate	78	110	310
Total Organic Carbon	33000	41000	51000

Appendix F-21
Analytical Sediment Data - Landfill Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter Name	OC-SD-LB-1-XXX LB-1 12/9/2010 0-0.5 ft	OC-SD-LB-2-XXX LB-2 12/9/2010 0-0.5 ft	OC-SD-LB-3-XXX LB-3 12/9/2010 0-0.5 ft

mg/Kg = milligram per kilogram
U = not detected, value is the reporting limit
J = value is estimated

Prepared by / Date: LCG 11/25/2014
Checked by / Date: BJR 12/8/2014

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-10-XXX MMB-SW/SD-10 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-11-XXX MMB-SW/SD-11 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 12/1/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 2/17/2011	OC-SD-MMB-SW/SD-2-XXX MMB-SW/SD-2 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-3-XXX MMB-SW/SD-3 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-4-XXX MMB-SW/SD-4 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-5-XXX MMB-SW/SD-5 12/2/2010 0-0.5 ft
Volatile Organics (mg/Kg)								
1,1,1,2-Tetrachloroethane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,1,1-Trichloroethane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,1,2,2-Tetrachloroethane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.12 UJ	0.13 UJ	0.022 U	0.03 U	0.11 UJ	0.12 UJ	0.24 UJ	0.13 UJ
1,1,2-Trichloroethane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,1-Dichloroethane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,1-Dichloroethene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,1-Dichloropropene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,2,3-Trichlorobenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,2,3-Trichloropropane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,2,4-Trichlorobenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,2,4-Trimethylbenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U*	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,2-Dibromo-3-chloropropane	0.24 UJ	0.26 UJ	0.045 U	0.061 U	0.23 UJ	0.25 UJ	0.47 UJ	0.25 UJ
1,2-Dibromoethane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,2-Dichlorobenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,2-Dichloroethane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,2-Dichloropropane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,3,5-Trimethylbenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,3-Dichlorobenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,3-Dichloropropane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,4-Dichlorobenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
1,4-Dioxane	R	R	0.45 UJ	0.61 U	R	R	R	R
2,2-Dichloropropane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
2,4,4-Trimethyl-1-pentene	0.048 UJ	0.051 UJ	0.0089 U	0.012 U	0.045 UJ	0.049 UJ	0.094 UJ	0.05 UJ
2,4,4-Trimethyl-2-pentene	0.048 UJ	0.051 UJ	0.0089 U	0.012 U	0.045 UJ	0.049 UJ	0.094 UJ	0.05 UJ
2-Butanone	0.29 J	0.44 J	0.021 J	0.086	0.34 J	0.2 J	0.5 J	0.25 J
2-Chlorotoluene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
2-Hexanone	0.24 UJ	0.26 UJ	0.045 U	0.061 U	0.23 UJ	0.25 UJ	0.47 UJ	0.25 UJ
4-Chlorotoluene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
4-iso-Propyltoluene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
4-Methyl-2-pentanone	0.24 UJ	0.26 UJ	0.045 U	0.061 U	0.23 UJ	0.25 UJ	0.47 UJ	0.25 UJ
Acetic acid, methyl ester	0.48 UJ	0.51 UJ	0.089 U	0.12 U	0.45 UJ	0.49 UJ	0.94 UJ	0.5 UJ
Acetone	0.92 J	1.3 J	0.075 J	0.24 J*	1.1 J	0.73 J	1.7 J	0.83 J
Benzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Bromobenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Bromochloromethane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Bromodichloromethane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-10-XXX MMB-SW/SD-10 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-11-XXX MMB-SW/SD-11 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 12/1/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 2/17/2011	OC-SD-MMB-SW/SD-2-XXX MMB-SW/SD-2 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-3-XXX MMB-SW/SD-3 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-4-XXX MMB-SW/SD-4 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-5-XXX MMB-SW/SD-5 12/2/2010 0-0.5 ft
Bromoform	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Bromomethane	0.048 UJ	0.051 UJ	0.0089 U	0.012 U	0.045 UJ	0.049 UJ	0.094 UJ	0.05 UJ
Butane, 2-methoxy-2-methyl-	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Carbon disulfide	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Carbon tetrachloride	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Chlorobenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Chlorodibromomethane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Chloroethane	0.048 UJ	0.051 UJ	0.0089 U	0.012 U	0.045 UJ	0.049 UJ	0.094 UJ	0.05 UJ
Chloroform	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Chloromethane	0.048 UJ	0.051 UJ	0.0089 U	0.012 U	0.045 UJ	0.049 UJ	0.094 UJ	0.05 UJ
Cis-1,2-Dichloroethene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
cis-1,3-Dichloropropene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Cyclohexane	0.24 UJ	0.26 UJ	0.045 U	0.061 U	0.23 UJ	0.25 UJ	0.47 UJ	0.25 UJ
Dibromomethane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Dichlorodifluoromethane	0.048 UJ	0.051 UJ	0.0089 U	0.012 U	0.045 UJ	0.049 UJ	0.094 UJ	0.05 UJ
Diethyl ether	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Ethyl benzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Ethyl-t-Butyl Ether	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Hexachlorobutadiene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Isopropyl ether	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Isopropylbenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Methyl cyclohexane	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Methyl Tertbutyl Ether	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Methylene chloride	0.096 UJ	0.1 UJ	0.018 U	0.024 U	0.09 UJ	0.099 UJ	0.19 UJ	0.1 UJ
Naphthalene	0.24 UJ	0.26 UJ	0.045 U	0.061 U	0.23 UJ	0.25 UJ	0.47 UJ	0.25 UJ
n-Butylbenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Propylbenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
sec-Butylbenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Styrene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
tert-Butylbenzene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Tetrachloroethene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Tetrahydrofuran	R	R	R	0.061 U	R	R	R	R
Toluene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
trans-1,2-Dichloroethene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
trans-1,3-Dichloropropene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Trichloroethene	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Trichlorofluoromethane	0.048 UJ	0.051 UJ	0.0089 U	0.012 U	0.045 UJ	0.049 UJ	0.094 UJ	0.05 UJ
Vinyl chloride	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-10-XXX MMB-SW/SD-10 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-11-XXX MMB-SW/SD-11 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 12/1/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 2/17/2011	OC-SD-MMB-SW/SD-2-XXX MMB-SW/SD-2 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-3-XXX MMB-SW/SD-3 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-4-XXX MMB-SW/SD-4 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-5-XXX MMB-SW/SD-5 12/2/2010 0-0.5 ft
Xylene, o	0.024 UJ	0.026 UJ	0.0045 U	0.0061 U	0.023 UJ	0.025 UJ	0.047 UJ	0.025 UJ
Xylenes (m&p)	0.048 UJ	0.051 UJ	0.0089 U	0.012 U	0.045 UJ	0.049 UJ	0.094 UJ	0.05 UJ
Semivolatile Organics (mg/Kg)								
1,2,4,5-Tetrachlorobenzene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
1,2,4-Trichlorobenzene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
1,2-Dichlorobenzene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
1,3-Dichlorobenzene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
1,4-Dichlorobenzene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
1-Methylnaphthalene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2,3,4,6-Tetrachlorophenol	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2,4,5-Trichlorophenol	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2,4,6-Trichlorophenol	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2,4-Dichlorophenol	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2,4-Dimethylphenol	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2,4-Dinitrophenol	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2,4-Dinitrotoluene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2,6-Dinitrotoluene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2-Chloronaphthalene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2-Chlorophenol	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2-Methylnaphthalene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2-Methylphenol	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
2-Nitroaniline	1.2 UJ	1.2 UJ	0.26 U	1.6 U	1.2 UJ	1.3 UJ	1 UJ	1.2 UJ
2-Nitrophenol	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
3 & 4 Methylphenol	0.24 UJ	0.23 UJ	0.32	0.31 U	0.23 UJ	0.27 UJ	0.2 J	0.23 UJ
3,3'-Dichlorobenzidine	0.48 UJ	0.47 UJ	0.11 U	0.62 U	0.46 UJ	0.53 UJ	0.4 UJ	0.47 UJ
3-Nitroaniline	1.2 UJ	1.2 UJ	0.26 U	1.6 U	1.2 UJ	1.3 UJ	1 UJ	1.2 UJ
4,6-Dinitro-2-methylphenol	1.2 UJ	1.2 UJ	0.26 U	1.6 U	1.2 UJ	1.3 UJ	1 UJ	1.2 UJ
4-Bromophenyl phenyl ether	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
4-Chloro-3-methylphenol	0.48 UJ	0.47 UJ	0.11 U	0.62 U	0.46 UJ	0.53 UJ	0.4 UJ	0.47 UJ
4-Chloroaniline	0.48 UJ	0.47 UJ	0.11 UJ	0.62 U	0.46 UJ	0.53 UJ	0.4 UJ	0.47 UJ
4-Chlorophenyl phenyl ether	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
4-Nitroaniline	1.2 UJ	1.2 UJ	0.26 U	1.6 U	1.2 UJ	1.3 UJ	1 UJ	1.2 UJ
4-Nitrophenol	1.2 UJ	1.2 UJ	0.26 U	1.6 U	1.2 UJ	1.3 UJ	1 UJ	0.091 J
Acenaphthene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Acenaphthylene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Acetophenone	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Aniline	0.24 UJ	0.23 UJ	0.053 UJ	0.31 U*	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Anthracene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-10-XXX MMB-SW/SD-10 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-11-XXX MMB-SW/SD-11 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 12/1/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 2/17/2011	OC-SD-MMB-SW/SD-2-XXX MMB-SW/SD-2 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-3-XXX MMB-SW/SD-3 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-4-XXX MMB-SW/SD-4 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-5-XXX MMB-SW/SD-5 12/2/2010 0-0.5 ft
Atrazine	0.24 UJ	0.23 UJ	0.053 U	0.31 U*	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Azobenzene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Benzaldehyde	0.3 J	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.13 J
Benzo(a)anthracene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Benzo(a)pyrene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.084 J	0.2 UJ	0.08 J
Benzo(b)fluoranthene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.11 J	0.2 UJ	0.14 J
Benzo(ghi)perylene	0.24 UJ	0.23 UJ	0.053 U	0.1 JB	0.23 UJ	0.27 UJ	0.2 UJ	0.093 J
Benzo(k)fluoranthene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.15 J
Benzoic Acid	0.52 J	0.83 J	0.3	1.4 J	0.27 J	0.34 J	0.97 J	0.74 J
Benzyl alcohol	0.48 UJ	0.47 UJ	0.11 U	0.62 U	0.46 UJ	0.53 UJ	0.4 UJ	0.47 UJ
Biphenyl	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Bis(2-Chloroethoxy)methane	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Bis(2-Chloroethyl)ether	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Bis(2-Chloroisopropyl)ether	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Bis(2-Ethylhexyl)phthalate	0.25 J	0.096 J	0.05 J	0.31 U	0.21 J	0.27 UJ	0.2 UJ	0.089 J
Butylbenzylphthalate	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Caprolactam	R	0.23 UJ	0.053 U	0.31 U	R	R	0.2 UJ	0.088 J
Carbazole	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Chrysene	0.24 UJ	0.086 J	0.053 U	0.31 U	0.23 UJ	0.094 J	0.2 UJ	0.085 J
Dibenz(a,h)anthracene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.083 J
Dibenzofuran	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Diethylphthalate	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Dimethylphthalate	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Di-n-butylphthalate	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Di-n-octylphthalate	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Diphenyl ether	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Diphenylmethanone	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Fluoranthene	0.1 J	0.13 J	0.053 U	0.31 U	0.079 J	0.19 J	0.2 UJ	0.13 J
Fluorene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Hexachlorobenzene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Hexachlorobutadiene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Hexachlorocyclopentadiene	0.48 UJ	0.47 UJ	0.11 UJ	0.62 U	0.46 UJ	0.53 UJ	0.4 UJ	0.47 UJ
Hexachloroethane	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Indeno(1,2,3-cd)pyrene	0.24 UJ	0.23 UJ	0.053 U	0.095 JB	0.23 UJ	0.27 UJ	0.2 UJ	0.13 J
Isophorone	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Naphthalene	0.57 UJ	0.56 UJ	0.13 U	0.75 U	0.55 UJ	0.64 UJ	0.48 UJ	0.56 UJ
Nitrobenzene	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
N-Nitrosodimethylamine	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-10-XXX MMB-SW/SD-10 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-11-XXX MMB-SW/SD-11 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 12/1/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 2/17/2011	OC-SD-MMB-SW/SD-2-XXX MMB-SW/SD-2 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-3-XXX MMB-SW/SD-3 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-4-XXX MMB-SW/SD-4 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-5-XXX MMB-SW/SD-5 12/2/2010 0-0.5 ft
N-Nitrosodi-n-propylamine	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
N-Nitrosodiphenylamine	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Pentachlorophenol	0.24 UJ	R	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	R
Phenanthrene	0.29 UJ	0.28 UJ	0.063 U	0.37 U	0.28 UJ	0.11 J	0.24 UJ	0.079 J
Phenol	0.24 UJ	0.23 UJ	0.053 U	0.31 U	0.23 UJ	0.27 UJ	0.2 UJ	0.23 UJ
Pyrene	0.11 J	0.13 J	0.053 U	0.31 U	0.071 J	0.2 J	0.2 UJ	0.15 J
Inorganics (mg/Kg)								
Aluminum	6700 J	14000 J	8200	6000	14000 J	8300 J	8500 J	17000 J
Antimony	4 UJ	4.1 UJ	0.94 UJ	1.1 U	3.6 UJ	4.2 UJ	3.4 UJ	4.3 UJ
Arsenic	15 J	22 J	4.5	3.5	20 J	14 J	8.2 J	20 J
Barium	140 J	120 J	33	26	130 J	96 J	68 J	150 J
Beryllium	0.34 J	1.5 J	0.17 J	0.23 J	0.72 J	0.6 J	1 J	2.1 J
Cadmium	1.9 J	4.6 J	0.11 J	0.31 J	1.5 J	2.4 J	0.87 J	2.8 J
Calcium	8800 J	10000 J	1200	1500 B	8700 J	9700 J	9800 J	8100 J
Chromium	16 J	27 J	29 J	11	20 J	16 J	8.5 J	24 J
Cobalt	10 J	19 J	2.8	2.3	9.2 J	4.3 J	8.1 J	17 J
Copper	45 J	53 J	7.8	8.1	27 J	34 J	13 J	50 J
Iron	20000 J	36000 J	12000	7200 B	39000 J	10000 J	15000 J	18000 J
Lead	150 J	160 J	7.2	28	64 J	120 J	31 J	280 J
Magnesium	940 J	2400 J	4500	1700 B	1200 J	1100 J	1000 J	2200 J
Manganese	890 J	1400 J	130	110 B	2100 J	520 J	650 J	610 J
Mercury	0.45 J	0.44 UJ	0.095 U	0.027 JB	0.22 J	0.38 J	0.47 UJ	0.26 J
Nickel	15 J	24 J	16 J	8.5	11 J	12 J	6.4 J	22 J
Potassium	410 J	1100 J	1900	730	470 J	770 J	470 J	1400 J
Selenium	4 UJ	4.1 UJ	0.94 U	1.1 U	3.6 UJ	4.2 UJ	3.4 UJ	4.3 UJ
Silver	4 UJ	4.1 UJ	0.94 U	1.1 U	3.6 UJ	4.2 UJ	3.4 UJ	4.3 UJ
Sodium	800 J	840 J	69 J	180 J	580 J	720 J	570 J	940 J
Thallium	8 UJ	8.2 UJ	1.9 U	2.2 U	1.4 J	8.3 UJ	6.7 UJ	8.6 UJ
Tin	10 J	7.4 J	9.4 U	0.85 JB	7.6 J	16 J	34 UJ	7.1 J
Vanadium	44 J	44 J	17	12	21 J	29 J	18 J	48 J
Zinc	190 J	320 J	34	36	160 J	190 J	59 J	240 J
Chloride	930	760	48	210	630	1000	480	860
Nitrate as N	35 U	35 U	7.9 U	9.4 U	29 U	26 U	29 U	34 U
Nitrite as N	7 U	7.1 U	1.6 U	1.9 U	5.8 U	5.1 U	5.9 U	6.8 U
Nitrogen, as Ammonia	1500 J	490 J	96 J	130	580 J	960 J	790 J	880 J
Sulfate	1400 J	980 J	63 UJ	75 U	1200 J	940 J	350 J	360 J
Total Organic Carbon	270000 J	270000 J	10000 J	65000	260000 J	290000 J	310000 J	220000 J

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-10-XXX MMB-SW/SD-10 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-11-XXX MMB-SW/SD-11 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 12/1/2010 0-0.5 ft	OC-SD-MMB-SW/SD-1-XXX MMB-SW/SD-1 2/17/2011	OC-SD-MMB-SW/SD-2-XXX MMB-SW/SD-2 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-3-XXX MMB-SW/SD-3 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-4-XXX MMB-SW/SD-4 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-5-XXX MMB-SW/SD-5 12/2/2010 0-0.5 ft
Specialty Compounds (mg/Kg)								
Hydrazine	0.014 U	0.016 U	0.0029 U		0.016 U	0.02 U	0.013 U	0.015 U
Monomethylhydrazine (MMH)	0.036 U	0.041 U	0.0072 U		0.039 U	0.049 U	0.033 U	0.037 U
UDMH	0.036 U	0.041 U	0.0072 U		0.039 U	0.049 U	0.033 U	0.037 U
Acetaldehyde	0.22 J	1.5 U	0.32 UJ		0.4 J	0.27 J	1.2 U	0.22 J
Formaldehyde	2.6	2.4 J	0.34 J		4	2.3	1.7	2.2

Notes:

mg/Kg = milligram per kilogram

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
B = compound was found in the blank and sample
* = LCS or LCSD exceeds the control limits

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-6-XXX MMB-SW/SD-6 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8-XXX MMB-SW/SD-8 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-9-XXX MMB-SW/SD-9 12/1/2010 0-0.5 ft	OC-SD-SDREF-012-XXX SDREF-012 12/3/2010 0-0.5 ft
Volatile Organics (mg/Kg)					
1,1,1,2-Tetrachloroethane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,1,1-Trichloroethane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,1,2,2-Tetrachloroethane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.066 UJ	0.11 UJ	0.097 UJ	0.014 U	0.028 U
1,1,2-Trichloroethane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,1-Dichloroethane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,1-Dichloroethene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,1-Dichloropropene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,2,3-Trichlorobenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,2,3-Trichloropropane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,2,4-Trichlorobenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,2,4-Trimethylbenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 UJ
1,2-Dibromo-3-chloropropane	0.13 UJ	0.21 UJ	0.19 UJ	0.028 U	0.057 U
1,2-Dibromoethane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,2-Dichlorobenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,2-Dichloroethane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,2-Dichloropropane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,3,5-Trimethylbenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,3-Dichlorobenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,3-Dichloropropane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,4-Dichlorobenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
1,4-Dioxane	R	R	R	0.28 UJ	0.57 UJ
2,2-Dichloropropane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
2,4,4-Trimethyl-1-pentene	0.026 UJ	0.043 UJ	0.039 UJ	0.0055 U	0.011 U
2,4,4-Trimethyl-2-pentene	0.026 UJ	0.043 UJ	0.039 UJ	0.0055 U	0.011 U
2-Butanone	0.14 J	0.2 J	0.29 J	0.028 U	0.12
2-Chlorotoluene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
2-Hexanone	0.13 UJ	0.21 UJ	0.19 UJ	0.028 U	0.057 U
4-Chlorotoluene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
4-iso-Propyltoluene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
4-Methyl-2-pentanone	0.13 UJ	0.21 UJ	0.19 UJ	0.028 U	0.057 U
Acetic acid, methyl ester	0.26 UJ	0.43 UJ	0.39 UJ	0.055 U	0.11 U
Acetone	0.49 J	0.66 J	1 J	0.035 J	0.41 J
Benzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Bromobenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Bromochloromethane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Bromodichloromethane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-6-XXX MMB-SW/SD-6 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8-XXX MMB-SW/SD-8 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-9-XXX MMB-SW/SD-9 12/1/2010 0-0.5 ft	OC-SD-SDREF-012-XXX SDREF-012 12/3/2010 0-0.5 ft
Bromoform	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Bromomethane	0.026 UJ	0.043 UJ	0.039 UJ	0.0055 U	0.011 U
Butane, 2-methoxy-2-methyl-	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Carbon disulfide	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Carbon tetrachloride	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Chlorobenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Chlorodibromomethane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Chloroethane	0.026 UJ	0.043 UJ	0.039 UJ	0.0055 U	0.011 U
Chloroform	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Chloromethane	0.026 UJ	0.043 UJ	0.039 UJ	0.0055 U	0.011 U
Cis-1,2-Dichloroethene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
cis-1,3-Dichloropropene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Cyclohexane	0.13 UJ	0.21 UJ	0.19 UJ	0.028 U	0.057 U
Dibromomethane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Dichlorodifluoromethane	0.026 UJ	0.043 UJ	0.039 UJ	0.0055 U	0.011 U
Diethyl ether	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Ethyl benzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Ethyl-t-Butyl Ether	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Hexachlorobutadiene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Isopropyl ether	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Isopropylbenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Methyl cyclohexane	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Methyl Tertbutyl Ether	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Methylene chloride	0.053 UJ	0.086 UJ	0.078 UJ	0.011 U	0.023 U
Naphthalene	0.13 UJ	0.21 UJ	0.19 UJ	0.028 U	0.057 U
n-Butylbenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Propylbenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
sec-Butylbenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Styrene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
tert-Butylbenzene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Tetrachloroethene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Tetrahydrofuran	R	R	R	R	R
Toluene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
trans-1,2-Dichloroethene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
trans-1,3-Dichloropropene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Trichloroethene	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Trichlorofluoromethane	0.026 UJ	0.043 UJ	0.039 UJ	0.0055 U	0.011 U
Vinyl chloride	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-6-XXX MMB-SW/SD-6 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8-XXX MMB-SW/SD-8 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-9-XXX MMB-SW/SD-9 12/1/2010 0-0.5 ft	OC-SD-SDREF-012-XXX SDREF-012 12/3/2010 0-0.5 ft
Xylene, o	0.013 UJ	0.021 UJ	0.019 UJ	0.0028 U	0.0057 U
Xylenes (m&p)	0.026 UJ	0.043 UJ	0.039 UJ	0.0055 U	0.011 U
Semivolatile Organics (mg/Kg)					
1,2,4,5-Tetrachlorobenzene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
1,2,4-Trichlorobenzene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
1,2-Dichlorobenzene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
1,3-Dichlorobenzene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
1,4-Dichlorobenzene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
1-Methylnaphthalene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2,3,4,6-Tetrachlorophenol	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2,4,5-Trichlorophenol	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2,4,6-Trichlorophenol	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2,4-Dichlorophenol	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2,4-Dimethylphenol	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2,4-Dinitrophenol	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2,4-Dinitrotoluene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2,6-Dinitrotoluene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2-Chloronaphthalene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2-Chlorophenol	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2-Methylnaphthalene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2-Methylphenol	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
2-Nitroaniline	0.78 UJ	1.1 UJ	0.82 UJ	0.22 U	0.33 U
2-Nitrophenol	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
3 & 4 Methylphenol	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
3,3'-Dichlorobenzidine	0.31 UJ	0.42 UJ	R	0.089 U	0.13 U
3-Nitroaniline	0.78 UJ	1.1 UJ	R	0.22 U	0.33 U
4,6-Dinitro-2-methylphenol	0.78 UJ	1.1 UJ	0.82 UJ	0.22 U	0.33 U
4-Bromophenyl phenyl ether	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
4-Chloro-3-methylphenol	0.31 UJ	0.42 UJ	0.33 UJ	0.089 U	0.13 U
4-Chloroaniline	0.31 UJ	0.42 UJ	R	0.089 UJ	0.13 UJ
4-Chlorophenyl phenyl ether	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
4-Nitroaniline	0.78 UJ	1.1 UJ	R	0.22 U	0.33 U
4-Nitrophenol	0.78 UJ	1.1 UJ	0.82 UJ	0.22 U	0.33 U
Acenaphthene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Acenaphthylene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Acetophenone	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Aniline	0.16 UJ	0.21 UJ	0.16 UJ	0.045 UJ	0.067 UJ
Anthracene	0.082 J	0.21 UJ	0.16 UJ	0.045 U	0.067 U

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-6-XXX MMB-SW/SD-6 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8-XXX MMB-SW/SD-8 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-9-XXX MMB-SW/SD-9 12/1/2010 0-0.5 ft	OC-SD-SDREF-012-XXX SDREF-012 12/3/2010 0-0.5 ft
Atrazine	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Azobenzene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Benzaldehyde	0.16 UJ	0.21 UJ	0.14 J	0.045 U	0.056 J
Benzo(a)anthracene	0.4 J	0.17 J	0.16 UJ	0.045 U	0.082
Benzo(a)pyrene	0.4 J	0.22 J	0.052 J	0.045 U	0.1
Benzo(b)fluoranthene	0.56 J	0.37 J	0.067 J	0.045 U	0.15
Benzo(ghi)perylene	0.32 J	0.16 J	0.081 J	0.045 U	0.092
Benzo(k)fluoranthene	0.21 J	0.15 J	0.16 UJ	0.045 U	0.071
Benzoic Acid	0.6 J	0.28 J	0.76 J	0.21 J	0.29 J
Benzyl alcohol	0.35 J	0.42 UJ	0.33 UJ	0.089 U	0.13 U
Biphenyl	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Bis(2-Chloroethoxy)methane	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Bis(2-Chloroethyl)ether	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Bis(2-Chloroisopropyl)ether	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Bis(2-Ethylhexyl)phthalate	0.35 J	0.2 J	0.056 J	0.23	0.083
Butylbenzylphthalate	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Caprolactam	0.16 UJ	R	0.16 UJ	0.045 U	0.067 U
Carbazole	0.097 J	0.21 UJ	0.16 UJ	0.045 U	0.025 J
Chrysene	0.48 J	0.26 J	0.073 J	0.045 U	0.13
Dibenz(a,h)anthracene	0.15 J	0.21 UJ	0.059 J	0.045 U	0.041 J
Dibenzofuran	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Diethylphthalate	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Dimethylphthalate	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Di-n-butylphthalate	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Di-n-octylphthalate	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Diphenyl ether	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Diphenylmethanone	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Fluoranthene	0.88 J	0.42 J	0.11 J	0.045 U	0.24
Fluorene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Hexachlorobenzene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Hexachlorobutadiene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Hexachlorocyclopentadiene	0.31 UJ	0.42 UJ	R	0.089 UJ	0.13 UJ
Hexachloroethane	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Indeno(1,2,3-cd)pyrene	0.34 J	0.16 J	0.095 J	0.045 U	0.1
Isophorone	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Naphthalene	0.12 J	0.5 UJ	0.39 UJ	0.11 U	0.16 U
Nitrobenzene	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
N-Nitrosodimethylamine	0.16 UJ	0.21 UJ	R	0.045 U	0.067 U

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-6-XXX MMB-SW/SD-6 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8-XXX MMB-SW/SD-8 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-9-XXX MMB-SW/SD-9 12/1/2010 0-0.5 ft	OC-SD-SDREF-012-XXX SDREF-012 12/3/2010 0-0.5 ft
N-Nitrosodi-n-propylamine	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
N-Nitrosodiphenylamine	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Pentachlorophenol	R	0.21 UJ	R	0.045 U	R
Phenanthrene	0.45 J	0.17 J	0.069 J	0.054 U	0.13
Phenol	0.16 UJ	0.21 UJ	0.16 UJ	0.045 U	0.067 U
Pyrene	0.85 J	0.49 J	0.15 J	0.045 U	0.21
Inorganics (mg/Kg)					
Aluminum	28000 J	20000 J	28000 J	5400	7000
Antimony	2.4 UJ	3.4 UJ	2.9 UJ	0.75 UJ	1.2 UJ
Arsenic	52 J	30 J	25 J	3.9	7.2
Barium	190 J	150 J	170 J	22	43
Beryllium	0.72 J	2.4 J	2.7 J	0.18 J	0.25 J
Cadmium	2.3 J	4.6 J	4.9 J	0.082 J	0.45 J
Calcium	8200 J	5300 J	6100 J	930	2100
Chromium	40 J	38 J	42 J	7.5 J	11 J
Cobalt	19 J	34 J	35 J	2.5	3.8
Copper	84 J	90 J	74 J	7.4	18
Iron	95000 J	35000 J	24000 J	6400	16000
Lead	170 J	330 J	470 J	7.2	35
Magnesium	3300 J	3000 J	4000 J	1100	1200
Manganese	1900 J	690 J	600 J	110	560
Mercury	0.51 J	0.45 J	0.43 J	0.11 U	0.13 U
Nickel	28 J	44 J	45 J	5.4 J	7.2 J
Potassium	1500 J	1700 J	2900 J	540	520
Selenium	2.4 UJ	3.4 UJ	1.2 J	0.75 U	1.2 U
Silver	0.74 J	3.4 UJ	2.9 UJ	0.75 U	1.2 U
Sodium	280 J	800 J	720 J	51 J	69 J
Thallium	4.7 UJ	6.8 UJ	5.7 UJ	1.5 U	2.3 U
Tin	11 J	7.7 J	7.9 J	7.5 U	12 U
Vanadium	50 J	54 J	61 J	8.9	13
Zinc	500 J	430 J	460 J	22	96
Chloride	150	690	420	34	110
Nitrate as N	20 U	27 U	25 U	6 U	6.4 U
Nitrite as N	3.9 U	5.4 U	4.9 U	1.2 U	1.3 U
Nitrogen, as Ammonia	530 J	620 J	730 J	62 J	120 J
Sulfate	690 J	940 J	550 J	120 J	200 J
Total Organic Carbon	140000 J	180000 J	150000 J	13000 J	88000 J

Appendix F-22
Analytical Sediment Data - Maple Meadow Brook
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Parameter	OC-SD-MMB-SW/SD-6-XXX MMB-SW/SD-6 12/3/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8A-XXX MMB-SW/SD-8A 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-8-XXX MMB-SW/SD-8 12/2/2010 0-0.5 ft	OC-SD-MMB-SW/SD-9-XXX MMB-SW/SD-9 12/1/2010 0-0.5 ft	OC-SD-SDREF-012-XXX SDREF-012 12/3/2010 0-0.5 ft
Specialty Compounds (mg/Kg)					
Hydrazine	0.0098 U	0.014 U	0.009 UJ	0.0027 U	
Monomethylhydrazine (MMH)	0.024 U	0.035 U	0.023 UJ	0.0068 U	
UDMH	0.024 U	0.035 U	0.023 UJ	0.0068 U	
Acetaldehyde	0.42 J	0.23 J	1 UJ	0.27 UJ	
Formaldehyde	3.2	2.9	2 J	0.31 J	

Notes:

mg/Kg = milligram per kilogram

U = not detected,
value is the reporting limit
J = value is estimated
R = value is rejected
B = compound was found in the blank and sample
* = LCS or LCSD exceeds the control limits

Prepared by / Date: KJC 03/02/14
Checked by / Date: BJR 12/8/2014

APPENDIX G

SEDIMENT TOXICITY EVALUATION
(Provided on CD)

Supplemental Table G-1
Toxicity Test Summary Hyalella azteca Chronic Exposure Sediment Evaluation
Olin Chemical Superfund Site
Wilmington, MA

Endpoint	Lab Control	SDBK-002	SW/SD-1	ISCO-2
Survival (Mean)				
Day 28	93.33%	95.83%	95.00%	41.67%
Day 35	87.14%	94.29%	92.86%	35.87%
Day 42	85.71%	91.43%	90.00%	37.14%
Dry Weight				
Day 28	0.84	0.364	0.457	0.193
Day 42	0.915	0.597	0.659	0.446
Dry Biomass				
Day 28	0.84	0.355	0.435	0.068
Day 42	0.774	0.549	0.591	0.178
Total Surviving Juveniles				
Day 35	0.85	0.54	1.05	0.00
Day 42	3.81	3.28	4.05	0.76
Juvenile Production/Female				
Day 42	6.33	3.86	4.51	0.50

Notes: This table combines select summary results from Tables 3, 4, 5, 8, 9, 12 13, 15 and 16 of the report in Appendix G

Prepared by: PHT 03/21/14
Checked by: CTM 03/24/14

Supplemental Table G-2
Toxicity Test Summary of Statistical Analysis
Hyalella azteca Chronic Exposure Sediment Evaluation
Olin Chemical Superfund Site
Wilmington, MA

	Statistically Significant (Less Than) as Compare To								
Endpoint	Lab Control	Test	P-Value	SDBK-002	Test	P-Value	SW/SD-1	Test	P-Value
Day 28 Survival									
SDBK-002	No	WRSTST	0.6647						
SW/SD-1	No	WRSTST	0.6224						
ISCO2	Yes	EVTST	<0.0001	Yes	EVTST	<0.0001	Yes	EVTST	<0.0001
Day 35 Survival									
SDBK-002	No	EVTST	0.8391						
SW/SD-1	No	EVTST	0.7789						
ISCO2	Yes	EVTST	0.0001	Yes	EVTST	0.0001	Yes	EVTST	<0.0001
Day 42 Survival									
SDBK-002	No	WRSTST	0.6647						
SW/SD-1	No	WRSTST	0.6224						
ISCO2	Yes	EVTST	0.0001	Yes	EVTST	0.0001	Yes	EVTST	<0.0001
Day 28 Dry Weight									
SDBK-002	Yes	EVTST	<0.0001						
SW/SD-1	Yes	EVTST	<0.0001						
ISCO2	Yes	EVTST	<0.0001	Yes	WRSTST	0.0143	Yes	EVTST	0.0006
Day 28 Biomass									
SDBK-002	Yes	EVTST	<0.0001						
SW/SD-1	Yes	EVTST	<0.0001						
ISCO2	Yes	EVTST	<0.0001	Yes	EVTST	<0.0001	Yes	EVTST	<0.0001
Day 42 Dry Weight									
SDBK-002	Yes	EVTST	<0.0001						
SW/SD-1	Yes	EVTST	<0.0001						
ISCO2	Yes	EVTST	<0.0001	Yes	EVTST	0.0135	Yes	UVTST	0.0048
Day 42 Dry Biomass									
SDBK-002	Yes	EVTST	0.0005						
SW/SD-1	Yes	EVTST	0.0004						
ISCO2	Yes	EVTST	<0.0001	Yes	EVTST	<0.0001	Yes	EVTST	<0.0001
Day 35 Juvenile Reproduction/Amphipod									
SDBK-002	No	EVTST	0.0942						
SW/SD-1	No	EVTST	0.7730						
ISCO2	Yes	EVTST	0.0006	Yes	WRSTST	0.0003	Yes	UVTST	0.0005
Day 42 Juvenile Reproduction Overall									
SDBK-002	No	EVTST	0.3206						
SW/SD-1	No	EVTST	0.5815						
ISCO2	Yes	EVTST	0.0067	Yes	EVTST	0.0056	Yes	EVTST	0.0017
Day 42 Juvenile Reproduction/Female									
SDBK-002	No	EVTST	0.0785						
SW/SD-1	No	EVTST	0.1497						
ISCO2	Yes	UVTST	0.00045	Yes	EVTST	0.0004	Yes	EVTST	0.0003

Notes:
This table summarizes statistical test and p values for statistical conclusions in Tables 7-16 (pages 9-13) in the Appendix G report.
WRS - Wilcox Rank Sum Two-Sample Trest
EVTST- Equal Variance t Two-Sample Test
UVTST- Unequal Variance t Two-Sample Test
Yes= Test result is statistically significant (alpha = 0.05)
No= Test result is not statistically significant (alpha = 0.05)

Prepared by: PHT 03/21/14
Checked by: CTM 03/24/14

TOXICOLOGICAL EVALUATION
OF FRESHWATER SEDIMENT SAMPLES

South Ditch Sediment Evaluation
Olin Chemical Superfund Site, Wilmington, Massachusetts
MACTEC Purchase Order 201102101

42 Day *Hyalella azteca*
Survival, Growth and Reproduction Sediment Toxicity Test

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June 2011
Reference Number 20686-11-06-R2

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TOXICOLOGICAL EVALUATION
OF FRESHWATER SEDIMENT SAMPLES

South Ditch Sediment Evaluation
Olin Chemical Superfund Site, Wilmington, Massachusetts
MACTEC Purchase Order 201102101
42 Day *Hyalella azteca*
Survival, Growth and Reproduction Sediment Toxicity Test

1.0 INTRODUCTION

This report presents the results of chronic exposure toxicity tests conducted on sediment samples collected from the South Ditch at the Olin Chemical Superfund Site located in Wilmington, Massachusetts. Samples were provided by MACTEC Engineering & Consulting, Inc., Wakefield, Massachusetts. Testing was based on programs and protocols developed by the ASTM (2010) and US EPA (2000). The toxicity of the samples was assessed by conducting survival, growth and reproduction tests using the freshwater amphipod, *Hyalella azteca*. Toxicity tests and associated supporting analyses were performed at EnviroSystems, Incorporated (ESI), Hampton, New Hampshire.

Toxicity tests expose groups of organisms to environmental samples, a laboratory control and field reference sites for a specified period to assess potential impacts on a variety of endpoints, such as survival, growth or reproduction. Analysis of variance techniques are used to determine the relative toxicity of the samples as compared to the laboratory control and/or field reference sites. Endpoints for this study included survival (measured on days 28, 35 and 42), growth (measured on days 28 and 42, as mean dry weight and mean dry biomass), reproduction (measured on days 35 and 42).

2.0 MATERIALS AND METHODS

2.1 General Methods, Biological Evaluations

Toxicological and analytical protocols used in this program follow procedures outlined in *Test Methods for Measuring the Toxicity of Sediment-Associated Contaminants with Freshwater Invertebrates* (ASTM Method E 1706-05, 2010), *Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates* (US EPA 2000) and *Standard Methods for the Examination of Water and Wastewater*, 20th Edition (APHA 1998). These protocols provide standard approaches for physical and chemical analysis and for the evaluation of toxicological effects of sediments on aquatic invertebrates.

2.2 Test Species

H. azteca were obtained from Aquatic Research Organisms, Hampton, New Hampshire. Organisms used in the 42 day exposure assay were approximately 7 days old at the start of the assay.

2.3 Test Samples and Laboratory Control Sediment

Sediment samples collected from the project site were received at ESI under chain of custody. Once received, samples were inspected to determine integrity, given unique sample numbers and logged into the laboratory sample management database. Once logged in, the samples were placed in a secure refrigerated, 2 - 4 °C, storage area. A listing of sample sites, sample collection, and receipt information is summarized in Table 1.

The control substrate was an artificial sediment prepared according to guidance presented in the EPA/ASTM method. Organic detritus from amphipod cultures and disintegrated paper pulp was used to provide organic content. Overlying water for the sediment toxicity tests was a mixture of natural surface water, collected from the upper portion of the Taylor River watershed in Hampton Falls, New Hampshire, and moderately hard reconstituted water. Use of natural surface water mixed with artificial reconstituted water is recommended by the protocol (US EPA 2000, ASTM 2010).

2.4 *Hyalella azteca* Survival, Growth and Reproduction Toxicity Tests

Prior to test initiation test sediments were sieved using a ≥2 mm sieve to remove large stones, sticks, roots, man-made material and any indigenous organisms. Once sieved, the sediment was homogenized and placed in test chambers. Overlying water was added immediately and then the chambers were allowed to stabilize. The chambers received one volume addition daily until organisms were added.

Test vessels were 400 mL glass beakers containing 100 mL of sediment and approximately 225 mL of overlying water. Test vessels were drilled at a consistent height above their bases and the hole covered with Nytex® screen. The screened hole facilitates water exchange while retaining test organisms. Vessels were maintained in a water bath during the test. Depth of the water in the bath was set below the drain hole in the test vessel to eliminate flow of water from the bath into the test vessel. Test chambers were randomly placed in the water bath after addition of test sediments. Placement locations were generated by the CETIS® software program. The randomization work sheets are included in the data appendix. The water bath was maintained in a limited access, temperature controlled room. Temperatures in the room and water bath were independently set at a temperature of 23°C. Temperature was recorded on an hourly frequency using a temperature logger placed in a surrogate vessel. The photoperiod in the test chamber was set at 16:8 hour light:dark. Lighting was supplied by cool white fluorescent bulbs.

A total of 10 amphipods were randomly selected from the pool of organisms and added to each treatment. Each treatment group included 12 replicates and during the sediment portion of the assay, a surrogate test chamber was used to obtain water qualities without disturbing the sediment or test animals. The surrogate chamber was treated the same as actual test chambers with the addition of animals and food, but was not used to determine endpoint data.

Prior to the daily overlying water renewal, dissolved oxygen, pH, specific conductance and temperature were measured for each treatment. Overlying water in each replicate was then renewed. The volume of water added to each test chamber was approximately two volumes. Water exchanges were facilitated by use of a distribution system designed to provide equal, regulated flow to each chamber. The system was activated manually by the addition of water during the assay. After overlying water renewal each replicate was fed 1.0 mL of a yeast/trout chow/alfalfa suspension. Alkalinity, ammonia and hardness of the overlying water were measured on days 0, 7, 14, 21, 28, 35 and 42. The total organic carbon of the overlying water was measured on days 0 and 28. Water quality records are available in Appendix A.

After 28 days exposure, all replicates of each test treatment were terminated to collect data for initial survival. Each test chamber was gently swirled to loosen the sediments and the test material was dumped into a stainless steel sieve. The sediments were washed through the sieve using freshwater and material left on the screen was sorted to recover the organisms. This process was continued until the entire sample was evaluated.

Surviving amphipods from 4 replicates identified for day 28 survival and growth analysis were counted and placed on tared weighing pans. Pans were dried overnight at 104°C to obtain dry weight to the nearest 0.01 mg. The mean dry weight of surviving organisms was determined to assess growth.

Surviving amphipods from the remaining 8 replicates were enumerated and then returned to test chambers, which were filled with a 50:50 mix of natural surface water and moderately hard reconstituted water. The test vessels were returned to the water bath for the additional 14 day exposure. During this period, water quality monitoring, water exchanges and feeding were conducted in the same manner as during the initial 28 day exposure. Survival and juvenile counts were recorded on Days 35 and 42 in the remaining eight replicates of each test treatment. Growth, measured as dry weight and dry biomass, was determined on Day 42.

2.5 Statistical Analysis

Survival, growth and reproduction were analyzed using CETIS® software to determine significant differences between the test sediment and both the laboratory control and reference site sediments. Data sets were evaluated to determine normality of distribution and homogeneity of sample variance. Data sets were

subsequently evaluated using the appropriate parametric or non-parametric Analysis of Variance (ANOVA) statistic. Statistical comparisons were made for the following endpoints; survival on days 28, 35 and 42; dry weight and dry biomass on days 28 and 42; surviving amphipod juvenile production on day 35 and the total for days 35 and 42; surviving female amphipod juvenile production on day 42 and the total for days 35 and 42. Pair-wise comparisons were made using the appropriate statistical evaluation. Statistical difference was evaluated at α=0.05.

2.6 Quality Control

As part of the laboratory quality control program, reference toxicant evaluations are conducted by ESI on a regular basis for each test species. These results provide relative health and response data while allowing for comparison with historic data sets. Results are summarized in Table 2.

2.7 Protocol Deviations

Review of data generated during the 42 day exposure period documented the following protocol deviations.

There was one instance where an extra animal was added to a test vessel at the assay start. On day 28, a total of 11 animals were recovered in sample 001, replicate 11. In this case the start number of animals exposed was adjusted to 11 for the statistical analysis and calculation of growth.

On day 35 water qualities were measured on replicate 1 beakers and then sub-sampled for chemical analysis. During this process the beakers were accidently tipped and organisms were lost. The beakers were retained for water quality purposes, but were excluded from analysis for day 35 and 42 endpoints.

It is the opinion of ESI's study director that these deviations did not adversely affect the outcome of the assay.

Table 1. Summary of Sample Collection and Receipt Information. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

			Sample Collected		Sample Received	
Field ID	ESI Code	Designation	Date	Time	Date	Time
OC-SD-SDBK-002-XXX	20686-001	reference	02/17/11	1130	02/17/11	1600
OC-SD-MMB-SW/SD-1-XXX	20686-002	reference	02/17/11	1330	02/17/11	1600
OC-SD-ISCO.2-XXX	20686-003	site	02/17/11	0940	02/17/11	1600

Table 2. Reference Toxicant Evaluation. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Date	Endpoint		Value	Historic Mean/ Central Tendency	Acceptable Range	Reference Toxicant
Hyalella azteca						
03/31/11	Survival	LC-50	0.0149	0.0093	0.000 - 0.026	Cadmium (mg/L)
03/31/11	Survival	LC-50	0.0168	0.0093	0.000 - 0.026	Cadmium (mg/L)

3.0 RESULTS AND DISCUSSION

3.1 Laboratory Control and Project Reference Site Performance

At the end of the 28 day exposure period, mean survival in laboratory control sediment was 93.33% with a coefficient of variation (CV) of 10.55%. Amphipods recovered from laboratory control sediment had a mean dry weight of 0.840 mg/amphipod, with a CV of 7.10%. The dry weight of a representative group of

amphipods at the start of the assay was 0.026 mg/individual. The minimum test acceptability criteria for survival in the laboratory control is ≥80%. The minimum acceptable criteria for growth is a demonstration of increased dry weight after 28 days exposure. The minimum acceptable criteria for reproduction is a demonstration of juvenile production. These criteria were met indicating that the organisms were healthy and not stressed by handling and that the overlying water did not adversely impact the results of the assay. Table 3 provides a summary of assay acceptability criteria and laboratory control achievement. Table 4 summarizes the reference site performance.

During daily water quality observations the temperature recorded for the assay had a mean value of 22.82°C with a range of 22.38 to 23.42°C. Confirmation temperature data collected hourly in a surrogate replicate documented a mean temperature of 23.0°C with a range of 22.2 to 24.2°C. Test acceptability criteria requires a mean temperature of 23±1°C, with maximum temporary fluctuations of 23±3°C.

Table 3. Summary of Acceptable Endpoints and Measurements. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Endpoint / Measurement	Protocol Criteria		Study
Survival	lab mean ≥ 80%	Mean Survival %	93.33
		Protocol Met	Yes
Growth	measured growth	start dry wt. (mg)	0.026
		end dry wt. (mg)	0.840
		Protocol Met	Yes
Reproduction	juveniles produced in lab	day 35 j / amphipod	0.85
		day 42 j / amphipod	3.81
		Protocol Met	Yes
Temperature	mean: 23°±1°C	daily / hourly	22.82 / 23.0
	minimum: 20°C	daily / hourly	22.38 / 22.2
	maximum: 26°C	daily / hourly	23.42 / 24.2
		Protocol Met	Yes

Table 4. Summary of Project Reference Site Performance. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Field ID	ESI Code	Mean Percent Survival			Mean Dry Weight (mg)		Mean Dry Biomass (mg)		Reproduction ♂♀		Reproduction ♀	
		D 28	D 35	D 42	D 28	D 42	D 28	D 42	D 35	D 35+42	D 42	D 35+42
OC-SD-SDBK-002-XXX	20686-001	95.83	94.29	91.43	0.364	0.597	0.355	0.549	0.54	3.28	3.86	4.68
OC-SD-MMB-SW/SD-1-XXX	20686-002	95.00	92.86	90.00	0.457	0.659	0.435	0.591	1.05	4.05	4.51	6.20

3.2 Summary

This program utilized protocols developed by the US EPA and ASTM to assess the potential toxicological impacts that exposure to sediments from the South Ditch at the Olin Chemical Superfund Site would have on freshwater invertebrates. Table 5 provides a summary of toxicity test findings and conclusions. Table 6 provides a summary of sample sites that demonstrated a negative effect, based on the finding of statistically significant reduction in an endpoint as compared to the laboratory control or reference site. Tables 7 through 17 provide summaries of assay endpoints and detailed statistical results for each sample location. Table 18 summarizes overlying water qualities measured during the test. Laboratory bench sheets, detailed summaries of survival, dry weights, and associated statistical support data are included in Appendix A.

Table 5. Toxicity Test Summary. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Endpoint	Field ID	Sample Designation	Data	Mean Reference Site Value	Ratio of Site Sample to Mean of Reference Samples
Day 28 Survival (percent)	OC-SD-SDBK-002-XXX	Ref 1	95.83	95.42	0.44
	OC-SD-MMB-SW/SD-1-XXX	Ref 2	95.00		
	OC-SD-ISCO.2-XXX	Site	41.67		
Day 28 Growth[A] (mg)	OC-SD-SDBK-002-XXX	Ref 1	0.364	0.4105	0.47
	OC-SD-MMB-SW/SD-1-XXX	Ref 2	0.457		
	OC-SD-ISCO.2-XXX	Site	0.193		
Day 28 Growth[B] (mg)	OC-SD-SDBK-002-XXX	Ref 1	0.355	0.395	0.17
	OC-SD-MMB-SW/SD-1-XXX	Ref 2	0.435		
	OC-SD-ISCO.2-XXX	Site	0.068		
Day 42 Reproduction[C] (number of juveniles)	OC-SD-SDBK-002-XXX	Ref 1	3.28	3.665	0.21
	OC-SD-MMB-SW/SD-1-XXX	Ref 2	4.05		
	OC-SD-ISCO.2-XXX	Site	0.76		

Notes: [A] Day 28 Growth calculated as: mg of dry weight on day 28 / # of surviving amphipods on day 28.
[B] Day 28 Growth calculated as: mg of dry weight on day 28 / # of amphipods exposed.
[C] Day 42 Reproduction calculated as: day 35 + day 42 juveniles / day 42 survivors.

Conclusions:

Survival, growth and reproduction for organisms maintained in the project site sediment were all statistically lower as compared to the same endpoints for the reference sites. The results can be summarized as follows.

- Survival in the project site sediment sample was 44% of the mean reference site survival.
- Growth in the project site sample, measured as dry weight of the surviving amphipods, was 47% of the mean of the reference sites. Growth, when measured as dry biomass, was 17% of the mean of the reference sites.
- Amphipod reproduction in the project site sample, measured as the mean total juvenile produced by day 42, was 21% of the mean reference site reproduction.

Table 6. Summary of Significant Endpoints. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Finding of Significant Difference(s) between Project Sites and

		Lab Control (20686-000)											OC-SD-SDBK-002-XXX (20686-001)										
		survival			dry wt		dry bio.		reproduction				survival			dry wt		dry bio.		reproduction			
									♂♀		♀									♂♀		♀	
Field ID	ESI Code	day 28	day 35	day 42	day 28	day 42	day 28	day 42	D 35	D 35+42	D 42	D 35+42	day 28	day 35	day 42	day 28	day 42	day 28	day 42	D 35	D 35+42	D 42	D 35+42
OC-SD-SDBK-002-XXX	20686-001				X	X	X	X				X	-	-	-	-	-	-	-	-	-	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002				X	X	X	X					-	-	-	-	-	-	-	-	-	-	-
OC-SD-ISCO.2-XXX	20686-003	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Finding of Significant Difference(s) between Project Sites and

		OC-SD-MMB-SW/SD-1-XXX (20686-002)										
		survival			dry wt		dry bio.		reproduction			
									♂♀		♀	
Field ID	ESI Code	day 28	day 35	day 42	day 28	day 42	day 28	day 42	D 35	D 35+42	D 42	D 35+42
OC-SD-SDBK-002-XXX	20686-001	-	-	-	-	-	-	-	-	-	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	-	-	-	-	-	-	-	-	-	-	-
OC-SD-ISCO.2-XXX	20686-003	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**

4.0 REFERENCES

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ASTM. 2010. Annual Book of ASTM Standards. Volume 11.06. *Test Methods for Measuring the Toxicity of Sediment-Associated Contaminants with Freshwater Invertebrates*. E 1706-05. ASTM, West Conshohocken, PA.

US EPA. 2000. *Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates.* Second Edition. EPA/600-R-99/064.

Table 7. Day 28 *Hyalella azteca* Survival Summary and Statistical Analysis. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Day 28 Survival Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	20686-000	12	93.33%	70.00%	100.00%	10.55%
OC-SD-SDBK-002-XXX	20686-001	12	95.83%	80.00%	100.00%	6.98%
OC-SD-MMB-SW/SD-1-XXX	20686-002	12	95.00%	80.00%	100.00%	8.40%
OC-SD-ISCO.2-XXX	20686-003	12	41.67%	20.00%	80.00%	45.58%

Day 28 Survival Statistical Analysis

			Statistically Significant (less than) as Compared to		
Field ID	ESI Code	Mean	Lab Control (20686-000)	SDBK-002 (20686-001)	MMB-SW/SD (20686-002)
Laboratory Control	20686-000	93.33%	-	-	-
OC-SD-SDBK-002-XXX	20686-001	95.83%	No	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	95.00%	No	-	-
OC-SD-ISCO.2-XXX	20686-003	41.67%	Yes	Yes	Yes

Table 8. Day 35 *Hyalella azteca* Survival Summary and Statistical Analysis. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Day 35 Survival Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	20686-000	7	87.14%	60.00%	100.00%	17.17%
OC-SD-SDBK-002-XXX	20686-001	7	94.29%	80.00%	100.00%	10.35%
OC-SD-MMB-SW/SD-1-XXX	20686-002	7	92.86%	80.00%	100.00%	10.24%
OC-SD-ISCO.2-XXX	20686-003	7	38.57%	10.00%	60.00%	50.60%

Day 35 Survival Statistical Analysis

			Statistically Significant (less than) as Compared to		
Field ID	ESI Code	Mean	Lab Control (20686-000)	SDBK-002 (20686-001)	MMB-SW/SD (20686-002)
Laboratory Control	20686-000	87.14%	-	-	-
OC-SD-SDBK-002-XXX	20686-001	94.29%	No	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	92.86%	No	-	-
OC-SD-ISCO.2-XXX	20686-003	38.57%	Yes	Yes	Yes

Table 9. Day 42 *Hyalella azteca* Survival Summary and Statistical Analysis. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Day 42 Survival Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	20686-000	7	85.71%	60.00%	100.00%	16.30%
OC-SD-SDBK-002-XXX	20686-001	7	91.43%	80.00%	100.00%	11.69%
OC-SD-MMB-SW/SD-1-XXX	20686-002	7	90.00%	70.00%	100.00%	12.83%
OC-SD-ISCO.2-XXX	20686-003	7	37.14%	10.00%	60.00%	50.88%

Day 42 Survival Statistical Analysis

			Statistically Significant (less than) as Compared to		
Field ID	ESI Code	Mean	Lab Control (20686-000)	SDBK-002 (20686-001)	MMB-SW/SD (20686-002)
Laboratory Control	20686-000	85.71%	-	-	-
OC-SD-SDBK-002-XXX	20686-001	91.43%	No	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	90.00%	No	-	-
OC-SD-ISCO.2-XXX	20686-003	37.14%	Yes	Yes	Yes

Table 10. Day 28 *Hyalella azteca* Dry Weight Summary and Statistical Analysis.*Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Day 28 Dry Weight Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	20686-000	4	0.840	0.797	0.926	7.10%
OC-SD-SDBK-002-XXX	20686-001	4	0.364	0.352	0.381	3.47%
OC-SD-MMB-SW/SD-1-XXX	20686-002	4	0.457	0.380	0.499	12.00%
OC-SD-ISCO.2-XXX	20686-003	4	0.193	0.153	0.280	30.52%

Day 28 Dry Weight Statistical Analysis

			Statistically Significant (less than) as Compared to		
Field ID	ESI Code	Mean	Lab Control (20686-000)	SDBK-002 (20686-001)	MMB-SW/SD (20686-002)
Laboratory Control	20686-000	0.840	-	-	-
OC-SD-SDBK-002-XXX	20686-001	0.364	Yes	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	0.457	Yes	-	-
OC-SD-ISCO.2-XXX	20686-003	0.193	Yes	Yes	Yes

Table 11. Day 28 *Hyalella azteca* Dry Biomass Summary and Statistical Analysis. 42 *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Day 28 Biomass Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	20686-000	4	0.840	0.797	0.926	7.10%
OC-SD-SDBK-002-XXX	20686-001	4	0.355	0.330	0.381	5.91%
OC-SD-MMB-SW/SD-1-XXX	20686-002	4	0.435	0.342	0.499	15.26%
OC-SD-ISCO.2-XXX	20686-003	4	0.068	0.046	0.088	29.48%

Day 28 Biomass Statistical Analysis			Statistically Significant (less than) as Compared to		
Field ID	ESI Code	Mean	Lab Control (20686-000)	SDBK-002 (20686-001)	MMB-SW/SD (20686-002)
Laboratory Control	20686-000	0.840	-	-	-
OC-SD-SDBK-002-XXX	20686-001	0.355	Yes	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	0.435	Yes	-	-
OC-SD-ISCO.2-XXX	20686-003	0.068	Yes	Yes	Yes

Table 12. Day 42 *Hyalella azteca* Dry Weight Summary and Statistical Analysis. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Day 42 Dry Weight Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	20686-000	7	0.915	0.759	1.117	11.74%
OC-SD-SDBK-002-XXX	20686-001	7	0.597	0.518	0.703	10.67%
OC-SD-MMB-SW/SD-1-XXX	20686-002	7	0.659	0.606	0.714	5.74%
OC-SD-ISCO.2-XXX	20686-003	7	0.446	0.240	0.605	32.72%

Day 42 Dry Weight Statistical Analysis			Statistically Significant (less than) as Compared to		
Field ID	ESI Code	Mean	Lab Control (20686-000)	SDBK-002 (20686-001)	MMB-SW/SD (20686-002)
Laboratory Control	20686-000	0.915	-	-	-
OC-SD-SDBK-002-XXX	20686-001	0.597	Yes	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	0.659	Yes	-	-
OC-SD-ISCO.2-XXX	20686-003	0.446	Yes	Yes	Yes

Table 13. Day 42 *Hyalella azteca* Dry Biomass Summary and Statistical Analysis. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Day 42 Dry Biomass Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	20686-000	7	0.774	0.670	0.877	11.14%
OC-SD-SDBK-002-XXX	20686-001	7	0.549	0.414	0.703	19.58%
OC-SD-MMB-SW/SD-1-XXX	20686-002	7	0.591	0.500	0.685	11.08%
OC-SD-ISCO.2-XXX	20686-003	7	0.178	0.024	0.353	67.55%

Day 42 Dry Biomass Statistical Analysis			Statistically Significant (less than) as Compared to		
Field ID	ESI Code	Mean	Lab Control (20686-000)	SDBK-002 (20686-001)	MMB-SW/SD (20686-002)
Laboratory Control	20686-000	0.774	-	-	-
OC-SD-SDBK-002-XXX	20686-001	0.549	Yes	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	0.591	Yes	-	-
OC-SD-ISCO.2-XXX	20686-003	0.178	Yes	Yes	Yes

Table 14. Day 35 *Hyalella azteca* Juvenile Production per Amphipod* Summary and Statistical Analysis. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Day 35 Juvenile Production/Amphipod Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	20686-000	7	0.85	0.13	1.80	63.06%
OC-SD-SDBK-002-XXX	20686-001	7	0.54	0.10	0.75	42.64%
OC-SD-MMB-SW/SD-1-XXX	20686-002	7	1.05	0.50	1.60	43.60%
OC-SD-ISCO.2-XXX	20686-003	7	0.00	0.00	0.00	0.00%

Day 35 Juvenile Production/Amphipod Statistical Analysis			Statistically Significant (less than) as Compared to		
Field ID	ESI Code	Mean	Lab Control (20686-000)	SDBK-002 (20686-001)	MMB-SW/SD (20686-002)
Laboratory Control	20686-000	0.85	-	-	-
OC-SD-SDBK-002-XXX	20686-001	0.54	No	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	1.05	No	-	-
OC-SD-ISCO.2-XXX	20686-003	0.00	Yes	Yes	Yes

*Note: The endpoint described here as “Day 35 *Hyalella azteca* Juvenile Production per Amphipod” is the equivalent to the CETIS endpoint identified as “35d Reproduction”.
It is calculated as: day 35 juveniles / day 35 survivors

Table 15. Total *Hyalella azteca* Juvenile Production per Day 42 Surviving Amphipods* Summary and Statistical Analysis. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Total Juveniles/Day 42 Surviving Amphipods Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	20686-000	7	3.81	1.00	6.70	62.07%
OC-SD-SDBK-002-XXX	20686-001	7	3.28	1.20	6.30	51.16%
OC-SD-MMB-SW/SD-1-XXX	20686-002	7	4.05	1.13	6.00	46.58%
OC-SD-ISCO.2-XXX	20686-003	7	0.76	0.00	4.00	191.50%

Total Juveniles/Day 42 Surviving Amphipods Statistical Analysis

Field ID	ESI Code	Mean	Statistically Significant (less than) as Compared to Lab Control (20686-000)	SDBK-002 (20686-001)	MMB-SW/SD (20686-002)
Laboratory Control	20686-000	3.81	-	-	-
OC-SD-SDBK-002-XXX	20686-001	3.28	No	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	4.05	No	-	-
OC-SD-ISCO.2-XXX	20686-003	0.76	Yes	Yes	Yes

*Note: The endpoint described here as "Total *Hyalella azteca* Juvenile Production per Day 42 Surviving Amphipods" is the equivalent to the CETIS endpoint identified as "42d Reproduction-Overall ".
It is calculated as: day 35 + day 42 juveniles / day 42 survivors

Table 16. Day 42 *Hyalella azteca* Juvenile Production per Female Amphipod* Summary and Statistical Analysis. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Day 42 Juvenile Production/Female Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	20686-000	7	6.33	2.00	12.40	63.22%
OC-SD-SDBK-002-XXX	20686-001	7	3.86	1.80	6.22	42.73%
OC-SD-MMB-SW/SD-1-XXX	20686-002	7	4.51	1.67	6.71	43.29%
OC-SD-ISCO.2-XXX	20686-003	6	0.50	0.00	1.67	138.20%

Day 42 Juvenile Production/Female Statistical Analysis

Field ID	ESI Code	Mean	Statistically Significant (less than) as Compared to Lab Control (20686-000)	SDBK-002 (20686-001)	MMB-SW/SD (20686-002)
Laboratory Control	20686-000	6.33	-	-	-
OC-SD-SDBK-002-XXX	20686-001	3.86	No	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	4.51	No	-	-
OC-SD-ISCO.2-XXX	20686-003	0.50	Yes	Yes	Yes

*Note: The endpoint described here as "Day 42 *Hyalella azteca* Juvenile Production per Female Amphipod" is the equivalent to the CETIS endpoint identified as "42 d Juveniles per Female".
It is calculated as: day 42 juveniles / day 42 females

Table 17. Total *Hyalella azteca* Juvenile Production per Female Amphipod Summary and Statistical Analysis. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Total Juveniles/Female Summary

Field ID	ESI Code	Reps	Mean	Minimum	Maximum	CV
Laboratory Control	20686-000	7	8.52	4.00	13.50	45.05%
OC-SD-SDBK-002-XXX	20686-001	7	4.68	2.40	7.00	36.17%
OC-SD-MMB-SW/SD-1-XXX	20686-002	7	6.20	2.83	8.57	37.20%
OC-SD-ISCO.2-XXX	20686-003	3	0.89	0.00	1.67	94.37%

Total Juveniles/Female Statistical Analysis

			Statistically Significant (less than) as Compared to		
Field ID	ESI Code	Mean	Lab Control (20686-000)	SDBK-002 (20686-001)	MMB-SW/SD (20686-002)
Laboratory Control	20686-000	8.52	-	-	-
OC-SD-SDBK-002-XXX	20686-001	4.68	Yes	-	-
OC-SD-MMB-SW/SD-1-XXX	20686-002	6.20	No	-	-
OC-SD-ISCO.2-XXX	20686-003	0.89	Yes	Yes	Yes

*Note: The endpoint described here as “Total *Hyalella azteca* Juvenile Production per Female Amphipod ” is the equivalent to the CETIS endpoint identified as “42d Reproduction per Female ”.
It is calculated as: day 35 + day 42 juveniles / day 42 females

Table 18. Summary of Overlying Water Qualities. *Hyalella azteca* Chronic Exposure Sediment Evaluation. South Ditch, Olin Chemical Superfund Site, Wilmington, Massachusetts. June 2011.

Field ID	Sample Number	Day	Conductivity (uS/cm)	Alkalinity (mg/L)	Hardness (mg/L)	Ammonia (mg/L)
Laboratory Control Sample	000	0	354	73	100	<0.1
OC-SD-SDBK-002-XXX	001	0	325	58	82	<0.1
OC-SD-MMB-SW/SD-1-XXX	002	0	323	52	78	<0.1
OC-SD-ISCO.2-XXX	003	0	355	41	91	0.11
Laboratory Control Sample	000	7	332	66	92	<0.1
OC-SD-SDBK-002-XXX	001	7	319	61	84	<0.1
OC-SD-MMB-SW/SD-1-XXX	002	7	306	52	77	<0.1
OC-SD-ISCO.2-XXX	003	7	314	48	82	<0.1
Laboratory Control Sample	000	14	350	70	90	<0.1
OC-SD-SDBK-002-XXX	001	14	328	66	85	<0.1
OC-SD-MMB-SW/SD-1-XXX	002	14	313	55	79	<0.1
OC-SD-ISCO.2-XXX	003	14	315	53	80	<0.1
Laboratory Control Sample	000	21	345	67	91	<0.1
OC-SD-SDBK-002-XXX	001	21	342	64	90	<0.1
OC-SD-MMB-SW/SD-1-XXX	002	21	321	53	78	<0.1
OC-SD-ISCO.2-XXX	003	21	323	55	82	<0.1
Laboratory Control Sample	000	28	346	62	81	<0.1
OC-SD-SDBK-002-XXX	001	28	329	55	79	<0.1
OC-SD-MMB-SW/SD-1-XXX	002	28	315	51	74	<0.1
OC-SD-ISCO.2-XXX	003	28	321	55	75	<0.1
Laboratory Control Sample	000	35	431	59	88	0.32
OC-SD-SDBK-002-XXX	001	35	396	56	89	0.31
OC-SD-MMB-SW/SD-1-XXX	002	35	398	57	89	0.29
OC-SD-ISCO.2-XXX	003	35	383	54	88	0.11
Laboratory Control Sample	000	42	371	60	84	0.35
OC-SD-SDBK-002-XXX	001	42	363	59	82	<0.1
OC-SD-MMB-SW/SD-1-XXX	002	42	346	60	80	<0.1
OC-SD-ISCO.2-XXX	003	42	335	57	79	<0.1

Additional water quality data are provided in Appendix A.

APPENDIX A:
RAW DATA & STATISTICAL SUPPORT

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Hyalella azteca
42 Day Sediment Assay (page 1 of 2)

Study Number: 20801	Client: MACTEC Engineering & Consulting, Inc.	Project: Olin Site

Day	Date	Renew/Feed	Initial
0	04/06/11	✓/✓	AM/JTP
1	04/07/11	✓/✓	JTP
2	04/08/11	✓/✓	JTP/AM
3	4/9/11	✓/✓	SJ
4	4-10-11	✓/✓	DM
5	4/11/11	✓/✓	JTP
6	4/12/11	✓/✓	JTP/AM
7	4/13/11	✓/✓	AM
8	4/14/11	✓/✓	JTP/AM
9	4/15/11	✓/✓	JTP
10	4.16	✓/✓	DM
11	4/17/11	✓/✓	AM
12	4/18/11	✓/✓	JTP
13	4/19/11	✓/✓	AM/JTP
14	4/20/11	✓/✓	AM/JTP
15	4/21/11	✓/✓	AM/JTP
16	4/22/11	✓/✓	AM
17	4/23/11	✓/✓	SJ
18	4-24-11	✓/✓	DM
19	4/25/11	✓/✓	AM
20	4/26/11	✓/✓	AM/JTP
21	4/27/11	✓/✓	AM
22	4/28/11	✓/✓	AM
23	4/29/11	✓/✓	JTP/AM
24	4/30/11	✓/✓	LB/ES
25	5-1-11	✓/✓	DM
26	5/2/11	✓/✓	AM
27	5/3/11	✓/✓	AM
28	5/4/11	✓/✓	AM

Overlying Water: Alkalinity, Hardness & Ammonia on Days 0, 7, 14, 21 and 28 TOC on Days 0 and 28		
	Day 0	Initial: AM/JTP
	Day 7	Initial: AM
	Day 14	Initial: AM
	Day 21	Initial: AM
	Day 28	Initial: AM/JTP

Notes: 23 °C	Feed 1 mL of YCT food mixture	Aerate if DO is below 2.5 mg/L	Two Volume Additions Daily

Hyalella azteca
42 Day Sediment Assay (page 2 of 2)

Study Number: 20801	Client: MACTEC Engineering & Consulting, Inc.	Project: Olin Site

Day	Date	Renew/Feed	Initial
29	5/5/11	✓/✓	JTP/AM
30	5/6/11	✓/✓	JTP
31	5/7/11	✓/✓	SJ
32	5-8-11	—/—	DM
33	5/9/11	✓/✓	JTP
34	5/10/11	✓/✓	JTP
35	5/11/11	✓/✓	JTP/AM
36	5/12/11	✓/✓	JTP/AM
37	5/13/11	✓/✓	JTP
38	5/14/11	✓/✓	SJ
39	5/15/11	—/—	AM
40	5/16/11	✓/✓	JTP
41	5/17/11	✓/✓	JTP/AM
42	5/18/11	—/—	AM/JTP

Overlying Water: Alkalinity, Hardness & Ammonia on Days 35 and 42	Day 35	Initial: AM
	Day 42	Initial: AM

Notes: 23 °C	Feed 1 mL of YCT food mixture	Aerate if DO is below 2.5 mg/L	Two Volume Additions Daily

D.O.s in Lab surrogate vessel dropped below 2.5 mg/L on 04/28/11 AM. Aeration was added to all test vessels. Beaker tipped over in water bath during Day 35 counts. What could be recovered from positions 1-4 was counted. AM 05/11/11

YSI 556 MPS Sample Reading Order

Study: 20801

Client: MACTEC
Engineering & Consulting, Inc.

Project: Olin Site

Reading Number	Field ID	Receipt Number	Sample Number
0	Laboratory Control	20686-000	000
1	OC-SD-SDBK-002-XXX	20686-001	001
2	OC-SD-MMB-SW/SD-1-XXX	20686-002	002
3	OC-SD-ISCO.2-XXX	20686-003	003

STUDY: 20686
CLIENT: MACTEC Engineering & Consulting, Inc.
PROJECT: Olin Site, Massachusetts
ASSAY: Hyalella azteca Sediment Assay
TASK: Daily Overlying Water Qualities

	Temp	DO Conc	pH	SpCond	Salinity
Minimum:	22.38	2.06	6.54	279	0.13
Mean:	22.82	6.74		362	0.17
Maximum:	23.42	8.67	8.24	1344	0.67

Field ID	Sample Number	Day	DateTime M/D/Y	Temp C	DO Conc mg/L	pH SU	SpCond uS/cm	Salinity ppt
Laboratory Control Sample	000	0	04/06/11 11:42:19	23.00	6.50	6.83	354	0.17
OC-SD-SDBK-002-XXX	001	0	04/06/11 11:43:49	22.93	6.54	7.07	325	0.15
OC-SD-MMB-SW/SD-1-XXX	002	0	04/06/11 11:44:03	22.94	6.70	7.08	323	0.15
OC-SD-ISCO.2-XXX	003	0	04/06/11 11:44:42	22.96	6.16	6.96	355	0.17
Laboratory Control Sample	000	1	04/07/11 11:00:18	23.10	5.89	6.83	348	0.17
OC-SD-SDBK-002-XXX	001	1	04/07/11 11:02:14	23.13	6.25	7.02	327	0.16
OC-SD-MMB-SW/SD-1-XXX	002	1	04/07/11 11:02:46	23.12	6.46	7.04	318	0.15
OC-SD-ISCO.2-XXX	003	1	04/07/11 11:03:37	23.15	5.92	6.93	337	0.16
Laboratory Control Sample	000	2	04/08/11 11:08:39	22.91	6.14	7.24	337	0.16
OC-SD-SDBK-002-XXX	001	2	04/08/11 11:10:32	22.87	6.45	7.16	315	0.15
OC-SD-MMB-SW/SD-1-XXX	002	2	04/08/11 11:11:16	22.89	6.43	7.11	305	0.14
OC-SD-ISCO.2-XXX	003	2	04/08/11 11:12:15	22.88	5.94	7.01	323	0.15
Laboratory Control Sample	000	3	04/09/11 13:51:14	22.93	6.21	7.10	311	0.15
OC-SD-SDBK-002-XXX	001	3	04/09/11 13:53:36	22.88	6.14	7.02	290	0.14
OC-SD-MMB-SW/SD-1-XXX	002	3	04/09/11 13:54:05	22.87	6.22	7.01	279	0.13
OC-SD-ISCO.2-XXX	003	3	04/09/11 13:54:49	22.85	6.03	6.97	294	0.14
Laboratory Control Sample	000	4	04/10/11 14:02:48	23.07	6.69	7.30	333	0.16
OC-SD-SDBK-002-XXX	001	4	04/10/11 14:05:01	22.92	6.48	7.11	311	0.15
OC-SD-MMB-SW/SD-1-XXX	002	4	04/10/11 14:05:26	22.92	6.48	7.10	300	0.14
OC-SD-ISCO.2-XXX	003	4	04/10/11 14:05:56	22.92	6.14	7.02	315	0.15
Laboratory Control Sample	000	5	04/11/11 11:20:52	23.09	5.64	6.71	337	0.16
OC-SD-SDBK-002-XXX	001	5	04/11/11 11:23:10	23.09	5.95	7.00	319	0.15
OC-SD-MMB-SW/SD-1-XXX	002	5	04/11/11 11:23:44	23.11	6.31	7.08	309	0.15
OC-SD-ISCO.2-XXX	003	5	04/11/11 11:24:36	23.11	5.59	6.99	320	0.15
Laboratory Control Sample	000	6	04/12/11 07:29:39	23.42	5.14	7.07	323	0.15
OC-SD-SDBK-002-XXX	001	6	04/12/11 07:32:21	23.40	5.82	7.02	312	0.15
OC-SD-MMB-SW/SD-1-XXX	002	6	04/12/11 07:32:47	23.42	5.94	7.08	303	0.14
OC-SD-ISCO.2-XXX	003	6	04/12/11 07:33:33	23.42	5.21	6.94	310	0.15
Laboratory Control Sample	000	7	04/13/11 10:51:57	23.06	3.66	6.76	332	0.16
OC-SD-SDBK-002-XXX	001	7	04/13/11 10:55:11	23.07	5.67	7.10	319	0.15
OC-SD-MMB-SW/SD-1-XXX	002	7	04/13/11 10:56:06	23.11	5.88	7.11	306	0.15
OC-SD-ISCO.2-XXX	003	7	04/13/11 10:56:59	23.08	5.39	7.05	314	0.15
Laboratory Control Sample	000	8	04/14/11 10:12:37	23.12	4.72	6.99	339	0.16
OC-SD-SDBK-002-XXX	001	8	04/14/11 10:15:16	23.09	6.64	7.36	325	0.15

Field ID	Sample Number	Day	DateTime M/D/Y	Temp C	DO Conc mg/L	pH SU	SpCond uS/cm	Salinity ppt
OC-SD-MMB-SW/SD-1-XXX	002	8	04/14/11 10:15:53	23.09	6.46	7.24	313	0.15
OC-SD-ISCO.2-XXX	003	8	04/14/11 10:16:44	23.08	5.92	7.10	320	0.15
Laboratory Control Sample	000	9	04/15/11 11:07:17	22.91	2.89	6.89	345	0.16
OC-SD-SDBK-002-XXX	001	9	04/15/11 11:09:56	22.84	6.18	7.42	331	0.16
OC-SD-MMB-SW/SD-1-XXX	002	9	04/15/11 11:10:15	22.81	6.09	7.37	316	0.15
OC-SD-ISCO.2-XXX	003	9	04/15/11 11:11:11	22.81	5.40	7.15	323	0.15
Laboratory Control Sample	000	10	04/16/11 10:49:41	23.08	4.01	6.97	325	0.15
OC-SD-SDBK-002-XXX	001	10	04/16/11 10:53:04	22.90	6.02	7.39	312	0.15
OC-SD-MMB-SW/SD-1-XXX	002	10	04/16/11 10:54:03	22.92	6.02	7.27	298	0.14
OC-SD-ISCO.2-XXX	003	10	04/16/11 10:54:59	22.90	5.06	7.11	302	0.14
Laboratory Control Sample	000	11	04/17/11 10:05:07	23.20	3.66	6.62	388	0.19
OC-SD-SDBK-002-XXX	001	11	04/17/11 10:06:14	23.15	6.22	7.15	329	0.16
OC-SD-MMB-SW/SD-1-XXX	002	11	04/17/11 10:06:26	23.16	6.04	7.17	313	0.15
OC-SD-ISCO.2-XXX	003	11	04/17/11 10:06:38	23.18	5.84	7.13	317	0.15
Laboratory Control Sample	000	12	04/18/11 11:08:10	22.98	3.84	7.06	348	0.17
OC-SD-SDBK-002-XXX	001	12	04/18/11 11:11:19	22.79	6.00	7.44	329	0.16
OC-SD-MMB-SW/SD-1-XXX	002	12	04/18/11 11:11:58	22.80	5.97	7.33	310	0.15
OC-SD-ISCO.2-XXX	003	12	04/18/11 11:12:52	22.80	5.10	7.15	314	0.15
Laboratory Control Sample	000	13	04/19/11 10:46:37	23.05	3.73	6.54	348	0.17
OC-SD-SDBK-002-XXX	001	13	04/19/11 10:47:48	22.92	6.49	7.17	330	0.16
OC-SD-MMB-SW/SD-1-XXX	002	13	04/19/11 10:47:58	22.92	6.14	7.19	314	0.15
OC-SD-ISCO.2-XXX	003	13	04/19/11 10:48:07	22.92	6.03	7.15	317	0.15
Laboratory Control Sample	000	14	04/20/11 06:25:49	22.72	4.03	6.71	350	0.17
OC-SD-SDBK-002-XXX	001	14	04/20/11 06:29:15	22.62	6.23	7.37	328	0.16
OC-SD-MMB-SW/SD-1-XXX	002	14	04/20/11 06:29:43	22.58	6.27	7.33	313	0.15
OC-SD-ISCO.2-XXX	003	14	04/20/11 06:30:44	22.56	5.13	7.18	315	0.15
Laboratory Control Sample	000	15	04/21/11 06:46:11	22.72	3.32	6.98	344	0.16
OC-SD-SDBK-002-XXX	001	15	04/21/11 06:47:41	22.63	5.62	7.31	332	0.16
OC-SD-MMB-SW/SD-1-XXX	002	15	04/21/11 06:47:55	22.65	5.55	7.31	315	0.15
OC-SD-ISCO.2-XXX	003	15	04/21/11 06:48:06	22.65	5.57	7.28	320	0.15
Laboratory Control Sample	000	16	04/22/11 06:53:35	22.47	3.67	6.91	342	0.16
OC-SD-SDBK-002-XXX	001	16	04/22/11 06:55:02	22.38	6.85	7.46	332	0.16
OC-SD-MMB-SW/SD-1-XXX	002	16	04/22/11 06:55:23	22.42	6.22	7.40	312	0.15
OC-SD-ISCO.2-XXX	003	16	04/22/11 06:56:05	22.42	5.27	7.23	316	0.15
Laboratory Control Sample	000	17	04/23/11 10:01:39	22.62	3.16	6.56	318	0.15
OC-SD-SDBK-002-XXX	001	17	04/23/11 10:07:05	22.57	6.58	7.34	307	0.15
OC-SD-MMB-SW/SD-1-XXX	002	17	04/23/11 10:07:30	22.58	6.27	7.24	287	0.14
OC-SD-ISCO.2-XXX	003	17	04/23/11 10:08:21	22.60	5.77	7.05	291	0.14
Laboratory Control Sample	000	18	04/24/11 10:18:40	22.93	4.45	7.20	365	0.17
OC-SD-SDBK-002-XXX	001	18	04/24/11 10:20:49	22.79	5.98	7.35	348	0.17
OC-SD-MMB-SW/SD-1-XXX	002	18	04/24/11 10:21:20	22.81	6.43	7.32	324	0.15
OC-SD-ISCO.2-XXX	003	18	04/24/11 10:22:06	22.80	5.93	7.19	323	0.15
Laboratory Control Sample	000	19	04/25/11 12:05:19	22.73	3.85	6.96	355	0.17

Field ID	Sample Number	Day	DateTime M/D/Y	Temp C	DO Conc mg/L	pH SU	SpCond uS/cm	Salinity ppt
OC-SD-SDBK-002-XXX	001	19	04/25/11 12:06:33	22.67	6.49	7.31	343	0.16
OC-SD-MMB-SW/SD-1-XXX	002	19	04/25/11 12:06:46	22.72	6.30	7.31	323	0.15
OC-SD-ISCO.2-XXX	003	19	04/25/11 12:07:01	22.71	6.31	7.28	326	0.16
Laboratory Control Sample	000	20	04/26/11 11:56:04	22.96	2.90	7.05	388	0.19
OC-SD-SDBK-002-XXX	001	20	04/26/11 11:59:05	22.98	6.24	7.55	373	0.18
OC-SD-MMB-SW/SD-1-XXX	002	20	04/26/11 12:00:17	23.01	6.85	7.46	359	0.17
OC-SD-ISCO.2-XXX	003	20	04/26/11 12:01:05	22.98	6.40	7.35	366	0.17
Laboratory Control Sample	000	21	04/27/11 11:58:32	22.90	3.16	6.97	345	0.16
OC-SD-SDBK-002-XXX	001	21	04/27/11 11:59:31	22.94	5.95	7.33	342	0.16
OC-SD-MMB-SW/SD-1-XXX	002	21	04/27/11 11:59:41	22.96	5.99	7.35	321	0.15
OC-SD-ISCO.2-XXX	003	21	04/27/11 11:59:52	22.98	6.07	7.34	323	0.15
Laboratory Control Sample	000	22	04/28/11 10:26:13	23.18	2.06	6.81	330	0.16
OC-SD-SDBK-002-XXX	001	22	04/28/11 10:27:46	23.14	7.03	7.39	324	0.15
OC-SD-MMB-SW/SD-1-XXX	002	22	04/28/11 10:28:01	23.16	6.68	7.38	310	0.15
OC-SD-ISCO.2-XXX	003	22	04/28/11 10:28:24	23.18	6.27	7.31	313	0.15
Laboratory Control Sample	000	23	04/29/11 12:02:11	22.93	7.53	7.43	349	0.17
OC-SD-SDBK-002-XXX	001	23	04/29/11 12:04:00	22.81	8.05	7.58	328	0.16
OC-SD-MMB-SW/SD-1-XXX	002	23	04/29/11 12:04:22	22.81	8.15	7.60	314	0.15
OC-SD-ISCO.2-XXX	003	23	04/29/11 12:05:11	22.90	8.24	7.61	314	0.15
Laboratory Control Sample	000	24	04/30/11 09:51:03	22.74	7.26	7.10	368	0.18
OC-SD-SDBK-002-XXX	001	24	04/30/11 09:52:08	22.70	7.36	7.50	344	0.16
OC-SD-MMB-SW/SD-1-XXX	002	24	04/30/11 09:52:27	22.68	7.45	7.59	331	0.16
OC-SD-ISCO.2-XXX	003	24	04/30/11 09:53:04	22.63	7.52	7.70	317	0.15
Laboratory Control Sample	000	25	05/01/11 13:37:09	22.90	7.89	7.54	360	0.17
OC-SD-SDBK-002-XXX	001	25	05/01/11 13:38:31	22.70	8.03	7.61	333	0.16
OC-SD-MMB-SW/SD-1-XXX	002	25	05/01/11 13:38:55	22.73	7.97	7.61	324	0.15
OC-SD-ISCO.2-XXX	003	25	05/01/11 13:39:37	22.81	7.80	7.63	353	0.17
Laboratory Control Sample	000	26	05/02/11 08:36:18	22.88	7.25	6.67	332	0.16
OC-SD-SDBK-002-XXX	001	26	05/02/11 08:37:35	22.87	7.70	7.18	304	0.14
OC-SD-MMB-SW/SD-1-XXX	002	26	05/02/11 08:37:50	22.88	7.85	7.28	298	0.14
OC-SD-ISCO.2-XXX	003	26	05/02/11 08:38:01	22.93	7.89	7.32	307	0.15
Laboratory Control Sample	000	27	05/03/11 11:29:17	23.00	7.68	6.79	375	0.18
OC-SD-SDBK-002-XXX	001	27	05/03/11 11:30:56	22.92	8.08	7.40	327	0.16
OC-SD-MMB-SW/SD-1-XXX	002	27	05/03/11 11:31:29	22.95	8.20	7.50	317	0.15
OC-SD-ISCO.2-XXX	003	27	05/03/11 11:32:15	23.00	8.22	7.52	324	0.15
Laboratory Control Sample	000	28	05/04/11 07:49:23	23.01	7.19	6.92	346	0.16
OC-SD-SDBK-002-XXX	001	28	05/04/11 07:50:19	22.91	7.47	7.27	329	0.16
OC-SD-MMB-SW/SD-1-XXX	002	28	05/04/11 07:50:32	22.92	7.61	7.37	315	0.15
OC-SD-ISCO.2-XXX	003	28	05/04/11 07:50:42	22.95	7.68	7.43	321	0.15
Laboratory Control Sample	000	29	05/05/11 10:29:26	22.89	7.74	6.81	345	0.16
OC-SD-SDBK-002-XXX	001	29	05/05/11 10:30:23	22.92	7.72	7.19	326	0.15
OC-SD-MMB-SW/SD-1-XXX	002	29	05/05/11 10:30:56	22.92	7.78	7.36	321	0.15
OC-SD-ISCO.2-XXX	003	29	05/05/11 10:31:14	22.93	7.85	7.43	325	0.15

Field ID	Sample Number	Day	DateTime M/D/Y	Temp C	DO Conc mg/L	pH SU	SpCond uS/cm	Salinity ppt
Laboratory Control Sample	000	30	05/06/11 10:55:38	22.51	7.24	6.60	354	0.17
OC-SD-SDBK-002-XXX	001	30	05/06/11 10:57:03	22.56	7.65	7.21	328	0.16
OC-SD-MMB-SW/SD-1-XXX	002	30	05/06/11 10:57:26	22.56	7.81	7.35	325	0.15
OC-SD-ISCO.2-XXX	003	30	05/06/11 10:57:54	22.57	7.83	7.44	322	0.15
Laboratory Control Sample	000	31	05/07/11 14:07:59	22.79	8.22	6.94	319	0.15
OC-SD-SDBK-002-XXX	001	31	05/07/11 14:10:12	22.78	8.67	7.57	306	0.15
OC-SD-MMB-SW/SD-1-XXX	002	31	05/07/11 14:10:35	22.81	8.61	7.59	302	0.14
OC-SD-ISCO.2-XXX	003	31	05/07/11 14:10:54	22.82	8.66	7.59	300	0.14
Laboratory Control Sample	000	32	05/08/11 12:13:05	22.88	7.99	7.86	339	0.16
OC-SD-SDBK-002-XXX	001	32	05/08/11 12:14:13	22.87	7.90	7.85	333	0.16
OC-SD-MMB-SW/SD-1-XXX	002	32	05/08/11 12:14:26	22.87	7.93	7.86	330	0.16
OC-SD-ISCO.2-XXX	003	32	05/08/11 12:14:40	22.87	7.95	7.85	325	0.15
Laboratory Control Sample	000	33	05/09/11 11:21:54	22.60	7.86	7.19	361	0.17
OC-SD-SDBK-002-XXX	001	33	05/09/11 11:23:06	22.69	8.10	7.53	334	0.16
OC-SD-MMB-SW/SD-1-XXX	002	33	05/09/11 11:23:34	22.69	8.21	7.63	332	0.16
OC-SD-ISCO.2-XXX	003	33	05/09/11 11:23:57	22.69	8.25	7.66	327	0.16
Laboratory Control Sample	000	34	05/10/11 08:27:00	22.48	7.81	7.19	589	0.29
OC-SD-SDBK-002-XXX	001	34	05/10/11 08:29:00	22.59	8.08	7.64	577	0.28
OC-SD-MMB-SW/SD-1-XXX	002	34	05/10/11 08:29:33	22.58	8.15	7.71	565	0.27
OC-SD-ISCO.2-XXX	003	34	05/10/11 08:30:05	22.57	8.18	7.72	579	0.28
Laboratory Control Sample	000	35	05/11/11 07:23:14	22.51	7.63	7.08	431	0.21
OC-SD-SDBK-002-XXX	001	35	05/11/11 07:24:33	22.60	7.92	7.57	396	0.19
OC-SD-MMB-SW/SD-1-XXX	002	35	05/11/11 07:25:10	22.57	8.02	7.67	398	0.19
OC-SD-ISCO.2-XXX	003	35	05/11/11 07:25:34	22.57	8.05	7.70	383	0.18
Laboratory Control Sample	000	36	05/12/11 10:48:18	22.49	8.16	7.21	344	0.16
OC-SD-SDBK-002-XXX	001	36	05/12/11 10:49:12	22.49	8.14	7.46	433	0.21
OC-SD-MMB-SW/SD-1-XXX	002	36	05/12/11 10:49:31	22.48	8.15	7.49	427	0.20
OC-SD-ISCO.2-XXX	003	36	05/12/11 10:49:44	22.50	8.16	7.53	468	0.22
Laboratory Control Sample	000	37	05/13/11 08:36:44	22.49	8.01	7.01	901	0.44
OC-SD-SDBK-002-XXX	001	37	05/13/11 08:38:12	22.46	8.13	7.50	1344	0.67
OC-SD-MMB-SW/SD-1-XXX	002	37	05/13/11 08:38:37	22.41	8.20	7.66	375	0.18
OC-SD-ISCO.2-XXX	003	37	05/13/11 08:38:56	22.42	8.16	7.61	1134	0.56
Laboratory Control Sample	000	38	05/14/11 13:42:12	22.42	8.21	8.16	914	0.45
OC-SD-SDBK-002-XXX	001	38	05/14/11 13:44:48	22.50	8.43	8.04	717	0.35
OC-SD-MMB-SW/SD-1-XXX	002	38	05/14/11 13:45:33	22.51	8.45	8.01	442	0.21
OC-SD-ISCO.2-XXX	003	38	05/14/11 13:46:02	22.55	8.40	7.98	439	0.21
Laboratory Control Sample	000	39	05/15/11 08:50:34	22.65	8.18	7.05	358	0.17
OC-SD-SDBK-002-XXX	001	39	05/15/11 08:52:03	22.64	8.15	7.38	428	0.21
OC-SD-MMB-SW/SD-1-XXX	002	39	05/15/11 08:52:20	22.65	8.20	7.44	358	0.17
OC-SD-ISCO.2-XXX	003	39	05/15/11 08:52:32	22.66	8.23	7.48	365	0.17
Laboratory Control Sample	000	40	05/16/11 11:35:43	22.62	8.25	8.24	456	0.22
OC-SD-SDBK-002-XXX	001	40	05/16/11 11:37:18	22.58	8.23	8.02	409	0.20
OC-SD-MMB-SW/SD-1-XXX	002	40	05/16/11 11:37:49	22.55	8.19	7.98	384	0.18
OC-SD-ISCO.2-XXX	003	40	05/16/11 11:38:25	22.58	8.16	7.93	394	0.19

Field ID	Sample Number	Day	DateTime M/D/Y	Temp C	DO Conc mg/L	pH SU	SpCond uS/cm	Salinity ppt
Laboratory Control Sample	000	41	05/17/11 12:09:52	22.67	8.23	6.90	390	0.19
OC-SD-SDBK-002-XXX	001	41	05/17/11 12:10:47	22.70	8.06	7.22	365	0.17
OC-SD-MMB-SW/SD-1-XXX	002	41	05/17/11 12:11:00	22.67	8.19	7.27	357	0.17
OC-SD-ISCO.2-XXX	003	41	05/17/11 12:11:13	22.68	8.18	7.34	348	0.17
Laboratory Control Sample	000	42	05/18/11 11:48:00	22.49	8.08	7.49	371	0.18
OC-SD-SDBK-002-XXX	001	42	05/18/11 11:49:18	22.52	8.16	7.78	363	0.17
OC-SD-MMB-SW/SD-1-XXX	002	42	05/18/11 11:49:48	22.51	8.18	7.83	346	0.17
OC-SD-ISCO.2-XXX	003	42	05/18/11 11:50:12	22.52	8.22	7.83	335	0.16

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test **EnviroSystems, Inc.**

Start Date: 04 Mar-11 12:00 **Species:** Hyalella azteca **Sample Code:** 000
End Date: 15 Apr-11 12:00 **Protocol:** EPA/600/R-99/064 (2000) **Sample Source:** Olin Project Site
Sample Date: 01 Mar-11 **Material:** Laboratory Control Sediment **Sample Station:** Laboratory Control; 20686-000

Conc-NA	Rep	Pos	Exposed	Survivd	Survivd	Survivd	Total Weight-d	Tare Weight-d	Pan Cou	Total Weight-	Tare Weight-	42d Pan Count	# Females
001	1	1						0			0		0
000	1	2						0			0		0
003	1	3						0			0		0
002	1	4						0			0		0
000	2	5						0			0		0
002	2	6						0			0		0
003	2	7						0			0		0
001	2	8						0			0		0
000	3	9						0			0		0
002	3	10						0			0		0
003	3	11						0			0		0
001	3	12						0			0		0
001	4	13						0			0		0
002	4	14						0			0		0
003	4	15						0			0		0
000	4	16						0			0		0
002	5	17						0			0		0
000	5	18						0			0		0
003	5	19						0			0		0
001	5	20						0			0		0
002	6	21						0			0		0
000	6	22						0			0		0
001	6	23						0			0		0
003	6	24						0			0		0
003	7	25						0			0		0
000	7	26						0			0		0
001	7	27						0			0		0
002	7	28						0			0		0
000	8	29						0			0		0
002	8	30						0			0		0
003	8	31						0			0		0
001	8	32						0			0		0
002	9	33						0			0		0
003	9	34						0			0		0
001	9	35						0			0		0
000	9	36						0			0		0
000	10	37						0			0		0
002	10	38						0			0		0
001	10	39						0			0		0
003	10	40						0			0		0
002	11	41						0			0		0
003	11	42						0			0		0
000	11	43						0			0		0
001	11	44						0			0		0
001	12	45						0			0		0
002	12	46						0			0		0
000	12	47						0			0		0

Conc-NA	Rep	Pos	Exposed	Survivd	Survivd	Survivd	Total Weight-l	Tare Weight-d	Pan Cou	Total Weight-	Tare Weight-	42d Pan Count	# Females
003	12	48						0			0		0

Hyalella azteca Sediment Evaluation
Initial Weight

STUDY: 20801 **CLIENT:** MACTEC Engineering & Consulting, Inc.

PROJECT: Olin Site **START DATE:** 04/06/11

	REP	TARE WEIGHT (mg)	*H. azteca*+ FOIL (mg)	NET WEIGHT (mg)	# *H. azteca*	MEAN DRY WEIGHT PER Individual (mg)
START ORGANISMS	A	209.38	209.63	0.25	10	0.025
	B	207.77	207.95	0.18	10	0.018
	C	208.00	208.37	0.37	10	0.037
	D	207.09	207.32	0.23	10	0.023
RECORDED BY:		AM	AM	Overall Mean Dry Weight Per Individual: 0.02575		
DATE:		04/07/11	04/08/11			

NOTES: Start organisms preserved with formalin on 04/06/11 and prepped for weights on 04/07/11 AM 04/08/11

Hyalella azteca Day 28

STUDY NUMBER: 20686 **PROJECT: Olin Site, Massachusetts**

DATE: 05/04/11 **CLIENT: MACTEC Engineering & Consulting, Inc.**

Sample Code	Rep	Pos	Survived	Initials
001	1	1	9	AM
000	1	2	8	RAM
003	1	3	4	AM
002	1	4	8	AM
000	2	5	9	RAM
002	2	6	10	AM
003	2	7	6	AM
001	2	8	10	AM
000	3	9	9	RAM
002	3	10	10	AM
003	3	11	2	AM
001	3	12	9	AM
001	4	13	10	AM
002	4	14	10	AM
003	4	15	8	AM
000	4	16	10	RAM
002	5	17	10	AM
000	5	18	10	RAM
003	5	19	2	AM
001	5	20	8	AM
002	6	21	8	AM
000	6	22	9	RAM
001	6	23	10	AM
003	6	24	4 8 eggs	AM
003	7	25	6 3 eggs	AM
000	7	26	7	RAM
001	7	27	10	AM
002	7	28	10	AM
000	8	29	10	RAM
002	8	30	10	I
003	8	31	3	JTP
001	8	32	10	↓
002	9	33	10	↓
003	9	34	5	↓
001	9	35	10	↓
000	9	36	10	RAM
000	10	37	10	↓
002	10	38	9	JTP
001	10	39	10	↓
003	10	40	5	↓

Hyalella azteca Day 28

STUDY NUMBER: 20686 **PROJECT: Olin Site, Massachusetts**

DATE: 05/04/11 **CLIENT: MACTEC Engineering & Consulting, Inc.**

Sample Code	Rep	Pos	Survived	Initials
002	11	41	10	JTP
003	11	42	3	↓
000	11	43	10	RAM
001	11	44	11	JTP
001	12	45	9	↓
002	12	46	9	↓
000	12	47	10	RAM
003	12	48	2	JTP

STUDY: 20686
CLIENT: MACTEC Engineering & Consulting, Inc.
PROJECT: Olin Site, Massachusetts
ASSAY: Hyalella azteca Sediment Assay
TASK: Dry Weight Data - AccuSeries Balance Output File

Date/Init:			05/05/11 RAM	05/04/11 JTP	Duplicates	
Sample	**Rep.**	**Pos.**	**Total Wt (mg)**	**Tare Wt (mg)**	**Total Wt (mg)**	**Tare Wt (mg)**
000	9	36	218.18	210.15		
000	10	37	213.39	205.06		
000	11	43	217.00	209.03		
000	12	47	214.79	205.53		
001	9	35	208.40	204.59	208.38	
001	10	39	214.46	210.88		
001	11	44	214.38	210.51		
001	12	45	214.66	211.36		
002	9	33	210.42	205.43		
002	10	38	209.70	206.28		
002	11	41	209.77	205.22		
002	12	46	211.90	207.46		
003	9	34	208.68	207.80		
003	10	40	206.73	205.92		
003	11	42	210.78	210.32		
003	12	48	208.68	208.12		208.12

Hyalella azteca Day 35 Counts

STUDY NUMBER: 20686 **PROJECT: Olin Site, Massachusetts**

DATE: 05/11/11 **CLIENT: MACTEC Engineering & Consulting, Inc.**

Sample Code	Rep	Pos	Adult Count	Juvenile Count	Initials
001	1	1	2 *	1	JTP
000	1	2	0 *	0	"
003	1	3	0 *	0	"
002	1	4	8 *	13	"
000	2	5	8	1	"
002	2	6	10	7	"
003	2	7	6	0	"
001	2	8	10	4	"
000	3	9	8	9	"
002	3	10	10	13	"
003	3	11	2	0	"
001	3	12	8	6	"
001	4	13	10	7	"
002	4	14	9	5	"
003	4	15	6	0	"
000	4	16	10	18	"
002	5	17	10	16	"
000	5	18	10	7	"
003	5	19	1	0	"
001	5	20	8	5	"
002	6	21	8	12	"
000	6	22	9	9	"
001	6	23	10	1	"
003	6	24	4	0	"
003	7	25	5	0	"
000	7	26	6	4	"
001	7	27	10	5	"
002	7	28	10	12	"
000	8	29	10	5	"
002	8	30	8	4	"
003	8	31	3	0	"
001	8	32	10	7	"

* Beakers tipped over, all that was recovered. 05/11/11 AM/JTP

Hyalella azteca Day 42 Counts

STUDY NUMBER: 20686 **PROJECT: Olin Site, Massachusetts**

DATE: 05/18/11 **CLIENT: MACTEC Engineering & Consulting, Inc.**

Sample Code	Rep	Pos	Adult Count	Juvenile Count	Female Count	Initials
001	1	1	2	5	1	RAM
000	1	2	0	2	-	
003	1	3	0	0	-	
002	1	4	8	27	6	
000	2	5	8	11	3	
002	2	6	9	31	5	
003	2	7	6	5	3	
001	2	8	10	35	7	
000	3	9	8	22	5	
002	3	10	10	47	7	
003	3	11	2	0	1	
001	3	12	8	9	5	
001	4	13	10	56	9	
002	4	14	9	12	6	
003	4	15	6	1	1	
000	4	16	9	33	5	
002	5	17	10	41	8	
000	5	18	10	12	3	
003	5	19	1	4	0	
001	5	20	8	24	6	
002	6	21	7	25	5	
000	6	22	9	45	4	
001	6	23	10	11	5	
003	6	24	4	0	1	
003	7	25	4	0	2	
000	7	26	6	2	1	
001	7	27	8	14	5	
002	7	28	10	29	6	
000	8	29	10	62	5	
002	8	30	8	5	3	
003	8	31	3	1	3	
001	8	32	10	30	6	

STUDY: 20686
CLIENT: MACTEC Engineering & Consulting, Inc.
PROJECT: Olin Site, Massachusetts
ASSAY: Hyalella azteca Sediment Assay
TASK: Dry Weight Data - AccuSeries Balance Output File

Date/Init:			05/19/11 RAM	05/17/11 JTP	Duplicates	
Sample	**Rep.**	**Pos.**	**Total Wt (mg)**	**Tare Wt (mg)**	**Total Wt (mg)**	**Tare Wt (mg)**
000	1	2		208.26		
000	2	5	217.70	210.12	217.71	
000	3	9	217.17	209.86		
000	4	16	214.87	206.60		
000	5	18	220.28	211.54		
000	6	22	217.85	211.02		
000	7	26	215.02	208.32		214.99
000	8	29	219.09	210.32		
001	1	1	211.78	210.27	211.79	
001	2	8	214.51	207.93	214.51	
001	3	12	214.39	209.56	214.40	
001	4	13	214.04	208.44		208.43
001	5	20	213.73	209.59		
001	6	23	215.24	208.21		
001	7	27	212.09	207.61	212.07	
001	8	32	213.20	207.41		
002	1	4	218.12	211.85		
002	2	6	214.68	208.79		
002	3	10	215.95	209.89		
002	4	14	214.57	208.39	214.57	
002	5	17	215.08	208.79		
002	6	21	215.85	210.85	215.87	
002	7	28	213.95	207.10		
002	8	30	211.78	206.66		
003	1	3		208.77		
003	2	7	211.46	207.93		
003	3	11	211.89	210.68		
003	4	15	215.26	212.06		
003	5	19	208.23	207.99		
003	6	24	212.79	210.79		
003	7	25	208.25	206.86		
003	8	31	207.23	206.31		206.30

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test **EnviroSystems, Inc.**

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
000	01-3601-3005	01 Mar-11	01 Mar-11	84h	MACTEC	Ecological Risk Asse
001	02-1859-0695	17 Feb-11 11:30	17 Feb-11 16:00	15d 1h		
002	03-0917-9671	17 Feb-11 13:30	17 Feb-11 16:00	14d 22h		
003	20-3924-8060	17 Feb-11 09:40	17 Feb-11 16:00	15d 2h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
000	Laboratory Control S	Olin Project Site	Laboratory Control; 20686-000		
001	Freshwater Sediment	Olin Project Site	OC-SD-SDBK-002-XXX; 20686-00		
002	Freshwater Sediment	Olin Project Site	OC-SD-MMB-SW/SD-/-XXX; 2068 (OC-SD-MMB-SW/SD-1-XXX)		
003	Freshwater Sediment	Olin Project Site	OC-SD-ISCO.2-XXX; 20686-003		

Sample Code	vs	Sample Code	P-Value	Alpha	Decision	Analysis ID	Method
000		001	0.6647	0.05	Non-Significant Effect	19-1425-5631	Wilcoxon Rank Sum Two-Sample Test
		002	0.6224	0.05	Non-Significant Effect	20-6834-2507	Wilcoxon Rank Sum Two-Sample Test
		003	<0.0001	0.05	Significant Effect	11-5558-9809	Equal Variance t Two-Sample Test
001		003	<0.0001	0.05	Significant Effect	05-8463-9922	Equal Variance t Two-Sample Test
002		003	<0.0001	0.05	Significant Effect	12-0253-6904	Equal Variance t Two-Sample Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
11-5558-9809	28d Proportion Survived	Control Resp	0.9333	0.8 - NL	Yes	Passes Acceptibility Criteria
19-1425-5631	28d Proportion Survived	Control Resp	0.9333	0.8 - NL	Yes	Passes Acceptibility Criteria
20-6834-2507	28d Proportion Survived	Control Resp	0.9333	0.8 - NL	Yes	Passes Acceptibility Criteria

28d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	12	0.9333	0.8966	0.9701	0.7	1	0.02843	0.09847	10.55%	0.0%
001	12	0.9583	0.9334	0.9833	0.8	1	0.0193	0.06686	6.98%	-2.68%
002	12	0.95	0.9202	0.9798	0.8	1	0.02303	0.07977	8.4%	-1.79%
003	12	0.4167	0.3458	0.4876	0.2	0.8	0.05482	0.1899	45.58%	55.36%

28d Proportion Survived Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000	0.8	0.9	0.9	1	1	0.9	0.7	1	1	1
	1	1								
001	0.9	1	0.9	1	0.8	1	1	1	1	1
	1	0.9								
002	0.8	1	1	1	1	0.8	1	1	1	0.9
	1	0.9								
003	0.4	0.6	0.2	0.8	0.2	0.4	0.6	0.3	0.5	0.5
	0.3	0.2								

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test **EnviroSystems, Inc.**

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
000	01-3601-3005	01 Mar-11	01 Mar-11	84h	MACTEC	Ecological Risk Asse
001	02-1859-0695	17 Feb-11 11:30	17 Feb-11 16:00	15d 1h		
002	03-0917-9671	17 Feb-11 13:30	17 Feb-11 16:00	14d 22h		
003	20-3924-8060	17 Feb-11 09:40	17 Feb-11 16:00	15d 2h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
000	Laboratory Control S	Olin Project Site	Laboratory Control; 20686-000		
001	Freshwater Sediment	Olin Project Site	OC-SD-SDBK-002-XXX; 20686-00		
002	Freshwater Sediment	Olin Project Site	OC-SD-MMB-SW/SD-/-XXX; 2068 (OC-SD-MMB-SW/SD-1-XXX)		
003	Freshwater Sediment	Olin Project Site	OC-SD-ISCO.2-XXX; 20686-003		

Sample Code	vs	Sample Code	P-Value	Alpha	Decision	Analysis ID	Method
000		001	0.8391	0.05	Non-Significant Effect	12-2366-1260	Equal Variance t Two-Sample Test
		001	0.7894	0.05	Non-Significant Effect	08-1520-6878	Equal Variance t Two-Sample Test
		002	0.7789	0.05	Non-Significant Effect	19-9991-2262	Equal Variance t Two-Sample Test
		002	0.7263	0.05	Non-Significant Effect	02-3053-2760	Equal Variance t Two-Sample Test
		003	0.0001	0.05	Significant Effect	17-8938-5613	Equal Variance t Two-Sample Test
		003	<0.0001	0.05	Significant Effect	03-7603-9558	Equal Variance t Two-Sample Test
001		003	<0.0001	0.05	Significant Effect	20-2107-1588	Equal Variance t Two-Sample Test
		003	<0.0001	0.05	Significant Effect	06-0469-1421	Equal Variance t Two-Sample Test
002		003	<0.0001	0.05	Significant Effect	01-5007-9696	Equal Variance t Two-Sample Test
		003	<0.0001	0.05	Significant Effect	20-3336-0302	Equal Variance t Two-Sample Test

35d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8714	0.8156	0.9273	0.6	1	0.05654	0.1496	17.17%	0.0%
001	7	0.9429	0.9064	0.9793	0.8	1	0.03689	0.09759	10.35%	-8.2%
002	7	0.9286	0.8931	0.9641	0.8	1	0.03595	0.09512	10.24%	-6.56%
003	7	0.3857	0.3128	0.4586	0.1	0.6	0.07377	0.1952	50.6%	55.74%

42d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8571	0.805	0.9093	0.6	1	0.05281	0.1397	16.3%	0.0%
001	7	0.9143	0.8744	0.9542	0.8	1	0.04041	0.1069	11.69%	-6.67%
002	7	0.9	0.8569	0.9431	0.7	1	0.04364	0.1155	12.83%	-5.0%
003	7	0.3714	0.3009	0.442	0.1	0.6	0.07143	0.189	50.88%	56.67%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test **EnviroSystems, Inc.**

35d Proportion Survived Detail

Sample Code	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000	0.8	0.8	1	1	0.9	0.6	1		
001	1	0.8	1	0.8	1	1	1		
002	1	1	0.9	1	0.8	1	0.8		
003	0.6	0.2	0.6	0.1	0.4	0.5	0.3		

42d Proportion Survived Detail

Sample Code	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000	0.8	0.8	0.9	1	0.9	0.6	1		
001	1	0.8	1	0.8	1	0.8	1		
002	0.9	1	0.9	1	0.7	1	0.8		
003	0.6	0.2	0.6	0.1	0.4	0.4	0.3		

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	19-1425-5631	**Endpoint:**	28d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 28d proportion survived endpoint	5.33%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	Ties	P-Value	Decision(α:5%)
000		001	158		22	3	0.6647	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.599	4.695	0.1204	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.007643624	0.007643624	1	0.4833	0.4942	Non-Significant Effect
Error	0.3479507	0.01581594	22			
Total	0.3555943	0.02345956	23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.872	5.32	0.3132	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.791	0.884	0.0002	Non-normal Distribution

28d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	12	0.9333	0.8959	0.9708	0.7	1	0.02843	0.09847	10.55%	0.0%
001	12	0.9583	0.9329	0.9838	0.8	1	0.0193	0.06686	6.98%	-2.68%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	12	1.311	1.256	1.365	0.9912	1.412	0.04145	0.1436	10.95%	0.0%
001	12	1.346	1.307	1.386	1.107	1.419	0.0303	0.1049	7.79%	-2.72%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	20-6834-2507	**Endpoint:**	28d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:28	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 28d proportion survived endpoint	5.71%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	Ties	P-Value	Decision(α:5%)
000		002	156		22	3	0.6224	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.446	4.695	0.2172	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003242502	0.003242502	1	0.1816	0.6742	Non-Significant Effect
Error	0.392849	0.01785677	22			
Total	0.3960915	0.02109927	23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.366	5.32	0.6140	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7609	0.884	<0.0001	Non-normal Distribution

28d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	12	0.9333	0.8959	0.9708	0.7	1	0.02843	0.09847	10.55%	0.0%
002	12	0.95	0.9197	0.9803	0.8	1	0.02303	0.07977	8.4%	-1.79%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	12	1.311	1.256	1.365	0.9912	1.412	0.04145	0.1436	10.95%	0.0%
002	12	1.334	1.287	1.381	1.107	1.412	0.03547	0.1229	9.21%	-1.77%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	11-5558-9809	**Endpoint:**	28d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 28d proportion survived endpoint	7.79%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		003	8.587	1.717	22	0.1226	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.394	4.695	0.2616	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.256941	2.256941	1	73.74	<0.0001	Significant Effect
Error	0.6733559	0.03060709	22			
Total	2.930297	2.287548	23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.969	5.32	0.2765	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9395	0.884	0.1589	Normal Distribution

28d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	12	0.9333	0.8959	0.9708	0.7	1	0.02843	0.09847	10.55%	0.0%
003	12	0.4167	0.3444	0.4889	0.2	0.8	0.05482	0.1899	45.58%	55.36%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	12	1.311	1.256	1.365	0.9912	1.412	0.04145	0.1436	10.95%	0.0%
003	12	0.6975	0.6208	0.7741	0.4636	1.107	0.05816	0.2015	28.89%	46.79%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	05-8463-9922	**Endpoint:**	28d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 28d proportion survived endpoint	7.06%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
001		003	9.896	1.717	22	0.1126	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.608	4.695	0.1162	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.527272	2.527272	1	97.94	<0.0001	Significant Effect
Error	0.5677077	0.0258049	22			
Total	3.09498	2.553077	23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	3.686	5.32	0.0406	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9159	0.884	0.0474	Normal Distribution

28d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	12	0.9583	0.9329	0.9838	0.8	1	0.0193	0.06686	6.98%	0.0%
003	12	0.4167	0.3444	0.4889	0.2	0.8	0.05482	0.1899	45.58%	56.52%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	12	1.346	1.307	1.386	1.107	1.419	0.0303	0.1049	7.79%	0.0%
003	12	0.6975	0.6208	0.7741	0.4636	1.107	0.05816	0.2015	28.89%	48.2%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	12-0253-6904	**Endpoint:**	28d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:19	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 28d proportion survived endpoint	7.37%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
002		003	9.344	1.717	22	0.117	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.51	4.695	0.1706	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.431276	2.431276	1	87.31	<0.0001	Significant Effect
Error	0.612606	0.02784573	22			
Total	3.043882	2.459121	23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	2.689	5.32	0.1156	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9005	0.884	0.0220	Normal Distribution

28d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	12	0.95	0.9197	0.9803	0.8	1	0.02303	0.07977	8.4%	0.0%
003	12	0.4167	0.3444	0.4889	0.2	0.8	0.05482	0.1899	45.58%	56.14%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	12	1.334	1.287	1.381	1.107	1.412	0.03547	0.1229	9.21%	0.0%
003	12	0.6975	0.6208	0.7741	0.4636	1.107	0.05816	0.2015	28.89%	47.72%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	12-2366-1260	**Endpoint:**	35d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 35d proportion survived endpoint	13.0%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		001	-1.033	1.782	12	0.1697	0.8391	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.989	3.474	0.4540	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.03389972	0.03389972	1	1.068	0.3218	Non-Significant Effect
Error	0.3809115	0.03174262	12			
Total	0.4148112	0.06564234	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.869	11.07	0.4659	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8729	0.8239	0.0460	Normal Distribution

35d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8714	0.8145	0.9283	0.6	1	0.05654	0.1496	17.17%	0.0%
001	7	0.9429	0.9057	0.98	0.8	1	0.03689	0.09759	10.35%	-8.2%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	1.226	1.149	1.304	0.8861	1.412	0.07686	0.2034	16.58%	0.0%
001	7	1.325	1.268	1.381	1.107	1.412	0.05623	0.1488	11.23%	-8.02%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	19-9991-2262	**Endpoint:**	35d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 35d proportion survived endpoint	12.9%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		002	-0.7948	1.782	12	0.1685	0.7789	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.004	3.474	0.4321	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01975799	0.01975799	1	0.6318	0.4421	Non-Significant Effect
Error	0.3752856	0.0312738	12			
Total	0.3950436	0.05103179	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.951	11.07	0.4361	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.895	0.8239	0.0954	Normal Distribution

35d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8714	0.8145	0.9283	0.6	1	0.05654	0.1496	17.17%	0.0%
002	7	0.9286	0.8924	0.9648	0.8	1	0.03595	0.09512	10.24%	-6.56%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	1.226	1.149	1.304	0.8861	1.412	0.07686	0.2034	16.58%	0.0%
002	7	1.302	1.246	1.357	1.107	1.412	0.05502	0.1456	11.18%	-6.13%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	17-8938-5613	**Endpoint:**	35d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 35d proportion survived endpoint	16.0%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		003	5.078	1.782	12	0.1995	0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.692	3.474	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.130411	1.130411	1	25.78	0.0003	Significant Effect
Error	0.5260934	0.04384111	12			
Total	1.656504	1.174252	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.12	11.07	0.8939	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8971	0.8239	0.1024	Normal Distribution

35d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8714	0.8145	0.9283	0.6	1	0.05654	0.1496	17.17%	0.0%
003	7	0.3857	0.3115	0.46	0.1	0.6	0.07377	0.1952	50.6%	55.74%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	1.226	1.149	1.304	0.8861	1.412	0.07686	0.2034	16.58%	0.0%
003	7	0.6582	0.5763	0.7401	0.3218	0.8861	0.08135	0.2152	32.7%	46.34%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	20-2107-1588	**Endpoint:**	35d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 35d proportion survived endpoint	11.7%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
001		003	6.742	1.782	12	0.1763	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.893	3.474	0.6155	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.555823	1.555823	1	45.45	<0.0001	Significant Effect
Error	0.4107365	0.03422804	12			
Total	1.96656	1.590052	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	2.093	11.07	0.3904	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8903	0.8239	0.0818	Normal Distribution

35d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	7	0.9429	0.9057	0.98	0.8	1	0.03689	0.09759	10.35%	0.0%
003	7	0.3857	0.3115	0.46	0.1	0.6	0.07377	0.1952	50.6%	59.09%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	7	1.325	1.268	1.381	1.107	1.412	0.05623	0.1488	11.23%	0.0%
003	7	0.6582	0.5763	0.7401	0.3218	0.8861	0.08135	0.2152	32.7%	50.32%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	01-5007-9696	**Endpoint:**	35d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 35d proportion survived endpoint	12.2%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
002		003	6.552	1.782	12	0.175	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.906	3.474	0.5913	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.449064	1.449064	1	42.92	<0.0001	Significant Effect
Error	0.4051106	0.03375922	12			
Total	1.854175	1.482823	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	2.186	11.07	0.3638	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9121	0.8239	0.1689	Normal Distribution

35d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	7	0.9286	0.8924	0.9648	0.8	1	0.03595	0.09512	10.24%	0.0%
003	7	0.3857	0.3115	0.46	0.1	0.6	0.07377	0.1952	50.6%	58.46%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	7	1.302	1.246	1.357	1.107	1.412	0.05502	0.1456	11.18%	0.0%
003	7	0.6582	0.5763	0.7401	0.3218	0.8861	0.08135	0.2152	32.7%	49.43%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	08-1520-6878	**Endpoint:**	42d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 42d proportion survived endpoint	13.6%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		001	-0.8328	1.782	12	0.1672	0.7894	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.88	3.474	0.6390	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02137303	0.02137303	1	0.6936	0.4212	Non-Significant Effect
Error	0.3697634	0.03081362	12			
Total	0.3911364	0.05218665	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.321	11.07	0.7442	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9029	0.8239	0.1243	Normal Distribution

42d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8571	0.804	0.9103	0.6	1	0.05281	0.1397	16.3%	0.0%
001	7	0.9143	0.8736	0.955	0.8	1	0.04041	0.1069	11.69%	-6.67%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	1.203	1.132	1.274	0.8861	1.412	0.07078	0.1873	15.56%	0.0%
001	7	1.281	1.219	1.343	1.107	1.412	0.06159	0.163	12.72%	-6.5%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	02-3053-2760	**Endpoint:**	42d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 42d proportion survived endpoint	13.8%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		002	-0.6193	1.782	12	0.1685	0.7263	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.866	3.474	0.6678	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01200403	0.01200403	1	0.3835	0.5473	Non-Significant Effect
Error	0.3756155	0.03130129	12			
Total	0.3876195	0.04330532	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.274	11.07	0.7763	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9294	0.8239	0.2993	Normal Distribution

42d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8571	0.804	0.9103	0.6	1	0.05281	0.1397	16.3%	0.0%
002	7	0.9	0.8561	0.9439	0.7	1	0.04364	0.1155	12.83%	-5.0%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	1.203	1.132	1.274	0.8861	1.412	0.07078	0.1873	15.56%	0.0%
002	7	1.262	1.199	1.325	0.9912	1.412	0.06271	0.1659	13.15%	-4.87%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	03-7603-9558	**Endpoint:**	42d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 42d proportion survived endpoint	15.9%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		003	5.28	1.782	12	0.1888	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.691	3.474	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.095287	1.095287	1	27.88	0.0002	Significant Effect
Error	0.4714631	0.03928859	12			
Total	1.56675	1.134576	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.24	11.07	0.8003	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9187	0.8239	0.2108	Normal Distribution

42d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8571	0.804	0.9103	0.6	1	0.05281	0.1397	16.3%	0.0%
003	7	0.3714	0.2995	0.4433	0.1	0.6	0.07143	0.189	50.88%	56.67%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	1.203	1.132	1.274	0.8861	1.412	0.07078	0.1873	15.56%	0.0%
003	7	0.6438	0.5645	0.7231	0.3218	0.8861	0.07884	0.2086	32.4%	46.49%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	06-0469-1421	**Endpoint:**	42d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 42d proportion survived endpoint	12.9%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
001		003	6.373	1.782	12	0.1783	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.791	3.474	0.8291	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.422664	1.422664	1	40.61	<0.0001	Significant Effect
Error	0.4203652	0.03503044	12			
Total	1.843029	1.457695	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.638	11.07	0.5638	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9098	0.8239	0.1566	Normal Distribution

42d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	7	0.9143	0.8736	0.955	0.8	1	0.04041	0.1069	11.69%	0.0%
003	7	0.3714	0.2995	0.4433	0.1	0.6	0.07143	0.189	50.88%	59.38%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	7	1.281	1.219	1.343	1.107	1.412	0.06159	0.163	12.72%	0.0%
003	7	0.6438	0.5645	0.7231	0.3218	0.8861	0.07884	0.2086	32.4%	49.76%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	20-3336-0302	**Endpoint:**	42d Proportion Survived	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 42d proportion survived endpoint	13.4%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
002		003	6.134	1.782	12	0.1795	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.779	3.474	0.8581	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.336619	1.336619	1	37.63	<0.0001	Significant Effect
Error	0.4262173	0.03551811	12			
Total	1.762837	1.372138	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.58	11.07	0.5924	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9446	0.8239	0.4800	Normal Distribution

42d Proportion Survived Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	7	0.9	0.8561	0.9439	0.7	1	0.04364	0.1155	12.83%	0.0%
003	7	0.3714	0.2995	0.4433	0.1	0.6	0.07143	0.189	50.88%	58.73%

Angular (Corrected) Transformed Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	7	1.262	1.199	1.325	0.9912	1.412	0.06271	0.1659	13.15%	0.0%
003	7	0.6438	0.5645	0.7231	0.3218	0.8861	0.07884	0.2086	32.4%	48.98%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test **EnviroSystems, Inc.**

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
000	01-3601-3005	01 Mar-11	01 Mar-11	84h	MACTEC	Ecological Risk Asse
001	02-1859-0695	17 Feb-11 11:30	17 Feb-11 16:00	15d 1h		
002	03-0917-9671	17 Feb-11 13:30	17 Feb-11 16:00	14d 22h		
003	20-3924-8060	17 Feb-11 09:40	17 Feb-11 16:00	15d 2h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
000	Laboratory Control S	Olin Project Site	Laboratory Control; 20686-000		
001	Freshwater Sediment	Olin Project Site	OC-SD-SDBK-002-XXX; 20686-00		
002	Freshwater Sediment	Olin Project Site	OC-SD-MMB-SW/SD-/-XXX; 2068(OC-SD-MMB-SW/SD-1-XXX)		
003	Freshwater Sediment	Olin Project Site	OC-SD-ISCO.2-XXX; 20686-003		

Sample Code	vs	Sample Code	P-Value	Alpha	Decision	Analysis ID	Method
000		001	<0.0001	0.05	Significant Effect	15-7187-4877	Equal Variance t Two-Sample Test
		001	<0.0001	0.05	Significant Effect	09-6029-7908	Equal Variance t Two-Sample Test
		001	<0.0001	0.05	Significant Effect	08-6012-0232	Equal Variance t Two-Sample Test
		001	<0.0001	0.05	Significant Effect	12-4349-1206	Equal Variance t Two-Sample Test
		001	<0.0001	0.05	Significant Effect	13-9740-9784	Equal Variance t Two-Sample Test
		001	0.0005	0.05	Significant Effect	06-1906-3446	Equal Variance t Two-Sample Test
		002	0.0004	0.05	Significant Effect	11-2063-0270	Equal Variance t Two-Sample Test
		002	<0.0001	0.05	Significant Effect	11-8274-6299	Equal Variance t Two-Sample Test
		002	<0.0001	0.05	Significant Effect	06-2363-1695	Equal Variance t Two-Sample Test
		002	<0.0001	0.05	Significant Effect	01-5251-6918	Equal Variance t Two-Sample Test
		003	0.0143	0.05	Significant Effect	12-5107-1820	Wilcoxon Rank Sum Two-Sample Test
		003	<0.0001	0.05	Significant Effect	15-4467-8177	Equal Variance t Two-Sample Test
		003	<0.0001	0.05	Significant Effect	02-8707-6180	Equal Variance t Two-Sample Test
		003	<0.0001	0.05	Significant Effect	20-8596-8284	Equal Variance t Two-Sample Test
001		003	0.0135	0.05	Significant Effect	07-1114-2177	Equal Variance t Two-Sample Test
		003	<0.0001	0.05	Significant Effect	07-7488-0862	Equal Variance t Two-Sample Test
		003	0.0006	0.05	Significant Effect	08-5353-1692	Equal Variance t Two-Sample Test
		003	<0.0001	0.05	Significant Effect	06-9643-6169	Equal Variance t Two-Sample Test
002		003	0.0048	0.05	Significant Effect	02-6550-2301	Unequal Variance t Two-Sample Test
		003	<0.0001	0.05	Significant Effect	13-6775-4243	Equal Variance t Two-Sample Test
		003	0.0003	0.05	Significant Effect	07-8516-2592	Equal Variance t Two-Sample Test
		003	<0.0001	0.05	Significant Effect	14-6899-6147	Equal Variance t Two-Sample Test

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test **EnviroSystems, Inc.**

28d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	4	0.8397	0.8175	0.862	0.797	0.926	0.02981	0.05962	7.1%	0.0%
001	4	0.3552	0.3474	0.363	0.33	0.381	0.01049	0.02098	5.91%	57.7%
002	4	0.435	0.4102	0.4598	0.342	0.499	0.0332	0.0664	15.26%	48.2%
003	4	0.06775	0.06029	0.07521	0.046	0.088	0.009986	0.01997	29.48%	91.93%

28d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	4	0.8397	0.8175	0.862	0.797	0.926	0.02981	0.05962	7.1%	0.0%
001	4	0.3644	0.3596	0.3691	0.3518	0.381	0.006324	0.01265	3.47%	56.61%
002	4	0.4568	0.4364	0.4773	0.38	0.499	0.02741	0.05482	12.0%	45.6%
003	4	0.1928	0.1709	0.2148	0.1533	0.28	0.02943	0.05886	30.52%	77.04%

42d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.7743	0.7421	0.8065	0.67	0.877	0.03259	0.08624	11.14%	0.0%
001	7	0.5493	0.5091	0.5894	0.414	0.703	0.04065	0.1075	19.58%	29.06%
002	7	0.5913	0.5668	0.6158	0.5	0.685	0.02477	0.06552	11.08%	23.63%
003	7	0.1784	0.1334	0.2234	0.024	0.353	0.04555	0.1205	67.55%	76.96%

42d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.9152	0.8751	0.9554	0.7589	1.117	0.0406	0.1074	11.74%	0.0%
001	7	0.5973	0.5735	0.6211	0.5175	0.703	0.0241	0.06375	10.67%	34.74%
002	7	0.6593	0.6452	0.6735	0.606	0.7143	0.0143	0.03783	5.74%	27.96%
003	7	0.4458	0.3914	0.5003	0.24	0.605	0.05513	0.1459	32.72%	51.29%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test **EnviroSystems, Inc.**

28d Mean Dry Biomass Detail

Sample Code	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10	
000								0.803	0.833	0.797
	0.926									
001								0.381	0.358	0.3518
	0.33									
002								0.499	0.342	0.455
	0.444									
003								0.088	0.081	0.046
	0.056									

28d Mean Dry Weight Detail

Sample Code	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000	0.803	0.833	0.797	0.926					
001	0.381	0.358	0.3518	0.3667					
002	0.499	0.38	0.455	0.4933					
003	0.176	0.162	0.1533	0.28					

42d Mean Dry Biomass Detail

Sample Code	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000	0.758	0.731	0.827	0.874	0.683	0.67	0.877		
001	0.658	0.483	0.56	0.414	0.703	0.448	0.579		
002	0.589	0.606	0.618	0.629	0.5	0.685	0.512		
003	0.353	0.121	0.32	0.024	0.2	0.139	0.092		

42d Mean Dry Weight Detail

Sample Code	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000	0.9475	0.9137	0.9189	0.874	0.7589	1.117	0.877		
001	0.658	0.6038	0.56	0.5175	0.703	0.56	0.579		
002	0.6544	0.606	0.6867	0.629	0.7143	0.685	0.64		
003	0.5883	0.605	0.5333	0.24	0.5	0.3475	0.3067		

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	15-7187-4877	**Endpoint:**	28d Mean Dry Weight	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 28d mean dry weight endpoint	7.05%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		001	15.6	1.943	6	0.05921	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.162	2.475	0.0367	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.4519692	0.4519692	1	243.4	<0.0001	Significant Effect
Error	0.01114258	0.001857097	6			
Total	0.4631118	0.4538263	7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	22.22	47.47	0.0300	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8542	0.6451	0.1049	Normal Distribution

28d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	4	0.8397	0.8171	0.8624	0.797	0.926	0.02981	0.05962	7.1%	0.0%
001	4	0.3644	0.3596	0.3692	0.3518	0.381	0.006324	0.01265	3.47%	56.61%

28d Mean Dry Weight Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
001										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	06-2363-1695	**Endpoint:**	28d Mean Dry Weight	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 28d mean dry weight endpoint	9.37%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		002	9.456	1.943	6	0.07869	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.627	2.475	0.6124	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.2932505	0.2932505	1	89.41	<0.0001	Significant Effect
Error	0.01967963	0.003279938	6			
Total	0.3129301	0.2965304	7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.183	47.47	0.8937	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9767	0.6451	0.9447	Normal Distribution

28d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	4	0.8397	0.8171	0.8624	0.797	0.926	0.02981	0.05962	7.1%	0.0%
002	4	0.4568	0.436	0.4777	0.38	0.499	0.02741	0.05482	12.0%	45.6%

28d Mean Dry Weight Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
002										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	12-5107-1820	**Endpoint:**	28d Mean Dry Weight	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 28d mean dry weight endpoint	9.69%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	Ties	P-Value	Decision(α:5%)
000		003	10		6	0	0.0143	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.589	2.475	0.6879	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.8370064	0.8370064	1	238.5	<0.0001	Significant Effect
Error	0.0210551	0.003509184	6			
Total	0.8580615	0.8405156	7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.026	47.47	0.9837	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7353	0.6451	0.0056	Non-normal Distribution

28d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	4	0.8397	0.8171	0.8624	0.797	0.926	0.02981	0.05962	7.1%	0.0%
003	4	0.1928	0.1704	0.2152	0.1533	0.28	0.02943	0.05886	30.52%	77.04%

28d Mean Dry Weight Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	08-5353-1692	**Endpoint:**	28d Mean Dry Weight	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 28d mean dry weight endpoint	16.1%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
001		003	5.699	1.943	6	0.05849	0.0006	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.212	2.475	0.0222	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.05885183	0.05885183	1	32.48	0.0013	Significant Effect
Error	0.01087237	0.001812061	6			
Total	0.0697242	0.0606639	7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	21.65	47.47	0.0311	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8363	0.6451	0.0689	Normal Distribution

28d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	4	0.3644	0.3596	0.3692	0.3518	0.381	0.006324	0.01265	3.47%	0.0%
003	4	0.1928	0.1704	0.2152	0.1533	0.28	0.02943	0.05886	30.52%	47.08%

28d Mean Dry Weight Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
001										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	07-8516-2592	**Endpoint:**	28d Mean Dry Weight	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 28d mean dry weight endpoint	17.1%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
002		003	6.564	1.943	6	0.07815	0.0003	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.655	2.475	0.5578	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1393935	0.1393935	1	43.09	0.0006	Significant Effect
Error	0.01940942	0.003234903	6			
Total	0.158803	0.1426284	7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.153	47.47	0.9098	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9769	0.6451	0.9460	Normal Distribution

28d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	4	0.4568	0.436	0.4777	0.38	0.499	0.02741	0.05482	12.0%	0.0%
003	4	0.1928	0.1704	0.2152	0.1533	0.28	0.02943	0.05886	30.52%	57.79%

28d Mean Dry Weight Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
002										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	13-9740-9784	**Endpoint:**	28d Mean Dry Biomass	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 28d mean dry biomass endpoint	7.31%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		001	15.33	1.943	6	0.0614	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.085	2.475	0.0694	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.4695678	0.4695678	1	235.1	<0.0001	Significant Effect
Error	0.01198258	0.001997096	6			
Total	0.4815504	0.4715649	7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	8.078	47.47	0.1199	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8841	0.6451	0.2062	Normal Distribution

28d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	4	0.8397	0.8171	0.8624	0.797	0.926	0.02981	0.05962	7.1%	0.0%
001	4	0.3552	0.3472	0.3632	0.33	0.381	0.01049	0.02098	5.91%	57.7%

28d Mean Dry Biomass Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
001										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	01-5251-6918	**Endpoint:**	28d Mean Dry Biomass	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 28d mean dry biomass endpoint	10.3%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		002	9.072	1.943	6	0.0867	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.592	2.475	0.6824	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.3276452	0.3276452	1	82.29	0.0001	Significant Effect
Error	0.02388875	0.003981458	6			
Total	0.3515339	0.3316267	7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.24	47.47	0.8636	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9806	0.6451	0.9656	Normal Distribution

28d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	4	0.8397	0.8171	0.8624	0.797	0.926	0.02981	0.05962	7.1%	0.0%
002	4	0.435	0.4097	0.4603	0.342	0.499	0.0332	0.0664	15.26%	48.2%

28d Mean Dry Biomass Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
002										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	15-4467-8177	**Endpoint:**	28d Mean Dry Biomass	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 28d mean dry biomass endpoint	7.27%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		003	24.56	1.943	6	0.06109	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.095	2.475	0.0640	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.19197	1.19197	1	603.1	<0.0001	Significant Effect
Error	0.0118594	0.001976567	6			
Total	1.203829	1.193946	7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	8.91	47.47	0.1055	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8858	0.6451	0.2137	Normal Distribution

28d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	4	0.8397	0.8171	0.8624	0.797	0.926	0.02981	0.05962	7.1%	0.0%
003	4	0.06775	0.06015	0.07535	0.046	0.088	0.009986	0.01997	29.48%	91.93%

28d Mean Dry Biomass Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	06-9643-6169	**Endpoint:**	28d Mean Dry Biomass	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 28d mean dry biomass endpoint	7.92%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
001		003	19.85	1.943	6	0.02814	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.36	2.475	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1652613	0.1652613	1	394	<0.0001	Significant Effect
Error	0.002516667	0.0004194445	6			
Total	0.1677779	0.1656807	7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.103	47.47	0.9377	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.949	0.6451	0.7007	Normal Distribution

28d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	4	0.3552	0.3472	0.3632	0.33	0.381	0.01049	0.02098	5.91%	0.0%
003	4	0.06775	0.06015	0.07535	0.046	0.088	0.009986	0.01997	29.48%	80.93%

28d Mean Dry Biomass Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
001										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	14-6899-6147	**Endpoint:**	28d Mean Dry Biomass	**CETIS Version:**	CETISv1.8.0
Analyzed:	06 May-11 12:20	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 28d mean dry biomass endpoint	15.5%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
002		003	10.59	1.943	6	0.06737	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.049	2.475	0.0893	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.2697458	0.2697458	1	112.2	<0.0001	Significant Effect
Error	0.01442284	0.002403806	6			
Total	0.2841686	0.2721496	7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	11.05	47.47	0.0791	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9023	0.6451	0.3032	Normal Distribution

28d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	4	0.435	0.4097	0.4603	0.342	0.499	0.0332	0.0664	15.26%	0.0%
003	4	0.06775	0.06015	0.07535	0.046	0.088	0.009986	0.01997	29.48%	84.43%

28d Mean Dry Biomass Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
002										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	09-6029-7908	**Endpoint:**	42d Mean Dry Weight	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d mean dry weight endpoint	9.19%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		001	6.734	1.782	12	0.08415	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.374	3.474	0.0991	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.3537573	0.3537573	1	45.34	<0.0001	Significant Effect
Error	0.09362168	0.007801807	12			
Total	0.4473789	0.3615591	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	2.839	11.07	0.2297	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9358	0.8239	0.3671	Normal Distribution

42d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.9152	0.8744	0.9561	0.7589	1.117	0.0406	0.1074	11.74%	0.0%
001	7	0.5973	0.5731	0.6216	0.5175	0.703	0.0241	0.06375	10.67%	34.74%

42d Mean Dry Weight Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
001										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	11-8274-6299	**Endpoint:**	42d Mean Dry Weight	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d mean dry weight endpoint	8.38%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		002	5.945	1.782	12	0.07672	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.603	3.474	0.0285	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.2291957	0.2291957	1	35.34	<0.0001	Significant Effect
Error	0.07782534	0.006485444	12			
Total	0.307021	0.2356811	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	8.062	11.07	0.0226	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8845	0.8239	0.0675	Normal Distribution

42d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.9152	0.8744	0.9561	0.7589	1.117	0.0406	0.1074	11.74%	0.0%
002	7	0.6593	0.645	0.6737	0.606	0.7143	0.0143	0.03783	5.74%	27.96%

42d Mean Dry Weight Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
002										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	02-8707-6180	**Endpoint:**	42d Mean Dry Weight	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d mean dry weight endpoint	13.3%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		003	6.856	1.782	12	0.122	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.673	3.474	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.7712075	0.7712075	1	47.01	<0.0001	Significant Effect
Error	0.196878	0.0164065	12			
Total	0.9680855	0.7876139	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.844	11.07	0.4756	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.976	0.8239	0.9454	Normal Distribution

42d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.9152	0.8744	0.9561	0.7589	1.117	0.0406	0.1074	11.74%	0.0%
003	7	0.4458	0.3904	0.5013	0.24	0.605	0.05513	0.1459	32.72%	51.29%

42d Mean Dry Weight Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	07-1114-2177	**Endpoint:**	42d Mean Dry Weight	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d mean dry weight endpoint	18.0%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
001		003	2.518	1.782	12	0.1072	0.0135	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.903	3.474	0.5956	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.08032078	0.08032078	1	6.34	0.0270	Significant Effect
Error	0.1520248	0.01266874	12			
Total	0.2323456	0.09298951	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	5.235	11.07	0.0639	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9743	0.8239	0.9281	Normal Distribution

42d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	7	0.5973	0.5731	0.6216	0.5175	0.703	0.0241	0.06375	10.67%	0.0%
003	7	0.4458	0.3904	0.5013	0.24	0.605	0.05513	0.1459	32.72%	25.36%

42d Mean Dry Weight Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
001										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	02-6550-2301	**Endpoint:**	42d Mean Dry Weight	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d mean dry weight endpoint	16.8%

Unequal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
002		003	3.749	1.943	6	0.1107	0.0048	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.011	3.474	0.4217	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1595526	0.1595526	1	14.05	0.0028	Significant Effect
Error	0.1362285	0.01135237	12			
Total	0.295781	0.1709049	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	14.86	11.07	0.0045	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.9777	0.8239	0.9590	Normal Distribution

42d Mean Dry Weight Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	7	0.6593	0.645	0.6737	0.606	0.7143	0.0143	0.03783	5.74%	0.0%
003	7	0.4458	0.3904	0.5013	0.24	0.605	0.05513	0.1459	32.72%	32.38%

42d Mean Dry Weight Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
002										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	06-1906-3446	**Endpoint:**	42d Mean Dry Biomass	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d mean dry biomass endpoint	12.0%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		001	4.318	1.782	12	0.09286	0.0005	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.641	3.474	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1771875	0.1771875	1	18.65	0.0010	Significant Effect
Error	0.1140187	0.009501557	12			
Total	0.2912062	0.1866891	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.555	11.07	0.6051	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.942	0.8239	0.4448	Normal Distribution

42d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.7743	0.7415	0.8071	0.67	0.877	0.03259	0.08624	11.14%	0.0%
001	7	0.5493	0.5084	0.5902	0.414	0.703	0.04065	0.1075	19.58%	29.06%

42d Mean Dry Biomass Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
001										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	11-2063-0270	**Endpoint:**	42d Mean Dry Biomass	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d mean dry biomass endpoint	9.42%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		002	4.47	1.782	12	0.07296	0.0004	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.417	3.474	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1172112	0.1172112	1	19.99	0.0008	Significant Effect
Error	0.07037868	0.005864889	12			
Total	0.1875899	0.1230761	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.732	11.07	0.5211	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9234	0.8239	0.2458	Normal Distribution

42d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.7743	0.7415	0.8071	0.67	0.877	0.03259	0.08624	11.14%	0.0%
002	7	0.5913	0.5664	0.6162	0.5	0.685	0.02477	0.06552	11.08%	23.63%

42d Mean Dry Biomass Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
002										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	20-8596-8284	**Endpoint:**	42d Mean Dry Biomass	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d mean dry biomass endpoint	12.9%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		003	10.64	1.782	12	0.09983	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.734	3.474	0.9696	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.242659	1.242659	1	113.2	<0.0001	Significant Effect
Error	0.1317736	0.01098113	12			
Total	1.374432	1.25364	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.953	11.07	0.4355	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9538	0.8239	0.6214	Normal Distribution

42d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.7743	0.7415	0.8071	0.67	0.877	0.03259	0.08624	11.14%	0.0%
003	7	0.1784	0.1326	0.2243	0.024	0.353	0.04555	0.1205	67.55%	76.96%

42d Mean Dry Biomass Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	07-7488-0862	**Endpoint:**	42d Mean Dry Biomass	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d mean dry biomass endpoint	19.8%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
001		003	6.074	1.782	12	0.1088	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.591	3.474	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.4813717	0.4813717	1	36.9	<0.0001	Significant Effect
Error	0.1565538	0.01304615	12			
Total	0.6379255	0.4944178	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.256	11.07	0.7892	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.934	0.8239	0.3470	Normal Distribution

42d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	7	0.5493	0.5084	0.5902	0.414	0.703	0.04065	0.1075	19.58%	0.0%
003	7	0.1784	0.1326	0.2243	0.024	0.353	0.04555	0.1205	67.55%	67.52%

42d Mean Dry Biomass Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
001										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	13-6775-4243	**Endpoint:**	42d Mean Dry Biomass	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d mean dry biomass endpoint	15.6%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
002		003	7.963	1.782	12	0.09241	<0.0001	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.873	3.474	0.6531	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.5965783	0.5965783	1	63.4	<0.0001	Significant Effect
Error	0.1129138	0.009409485	12			
Total	0.7094921	0.6059878	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	3.383	11.07	0.1636	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9684	0.8239	0.8549	Normal Distribution

42d Mean Dry Biomass Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	7	0.5913	0.5664	0.6162	0.5	0.685	0.02477	0.06552	11.08%	0.0%
003	7	0.1784	0.1326	0.2243	0.024	0.353	0.04555	0.1205	67.55%	69.82%

42d Mean Dry Biomass Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
002										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test **EnviroSystems, Inc.**

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Sample Code	Sample ID	Sample Date	Receive Date	Sample Age	Client Name	Project
000	01-3601-3005	01 Mar-11	01 Mar-11	84h	MACTEC	Ecological Risk Asse
001	02-1859-0695	17 Feb-11 11:30	17 Feb-11 16:00	15d 1h		
002	03-0917-9671	17 Feb-11 13:30	17 Feb-11 16:00	14d 22h		
003	20-3924-8060	17 Feb-11 09:40	17 Feb-11 16:00	15d 2h		

Sample Code	Material Type	Sample Source	Station Location	Latitude	Longitude
000	Laboratory Control S	Olin Project Site	Laboratory Control; 20686-000		
001	Freshwater Sediment	Olin Project Site	OC-SD-SDBK-002-XXX; 20686-00		
002	Freshwater Sediment	Olin Project Site	OC-SD-MMB-SW/SD-/-XXX; 2068 (OC-SD-MMB-SW/SD-1-XXX)		
003	Freshwater Sediment	Olin Project Site	OC-SD-ISCO.2-XXX; 20686-003		

Sample Code	vs	Sample Code	P-Value	Alpha	Decision	Analysis ID	Method
000		001	0.0942	0.05	Non-Significant Effect	14-9684-5654	Equal Variance t Two-Sample Test
		001	0.0785	0.05	Non-Significant Effect	20-2181-4004	Equal Variance t Two-Sample Test
		001	0.3206	0.05	Non-Significant Effect	17-4351-2502	Equal Variance t Two-Sample Test
		002	0.7730	0.05	Non-Significant Effect	18-7781-1631	Equal Variance t Two-Sample Test
		002	0.1497	0.05	Non-Significant Effect	15-8313-8736	Equal Variance t Two-Sample Test
		002	0.5815	0.05	Non-Significant Effect	15-1651-3216	Equal Variance t Two-Sample Test
		003	0.0006	0.05	Significant Effect	14-4447-8324	Equal Variance t Two-Sample Test
		003	0.0045	0.05	Significant Effect	19-0252-0780	Unequal Variance t Two-Sample Test
		003	0.0067	0.05	Significant Effect	21-1058-6696	Equal Variance t Two-Sample Test
001		003	0.0003	0.05	Significant Effect	18-3124-3597	Wilcoxon Rank Sum Two-Sample Test
		003	0.0004	0.05	Significant Effect	11-4733-6843	Equal Variance t Two-Sample Test
		003	0.0056	0.05	Significant Effect	16-5121-5649	Equal Variance t Two-Sample Test
002		003	0.0005	0.05	Significant Effect	17-8179-7106	Unequal Variance t Two-Sample Test
		003	0.0003	0.05	Significant Effect	16-6520-9797	Equal Variance t Two-Sample Test
		003	0.0017	0.05	Significant Effect	17-9538-5153	Equal Variance t Two-Sample Test

35d Reproduction Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8452	0.6462	1.044	0.125	1.8	0.2015	0.533	63.06%	0.0%
001	7	0.5393	0.4534	0.6252	0.1	0.75	0.08692	0.23	42.64%	36.2%
002	7	1.051	0.8797	1.222	0.5	1.6	0.1732	0.4582	43.6%	-24.32%
003	7	0	0	0	0	0	0	0		100.0%

42 d Juveniles per Female Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	6.331	4.836	7.826	2	12.4	1.513	4.003	63.22%	0.0%
001	7	3.86	3.244	4.476	1.8	6.222	0.6234	1.649	42.73%	39.02%
002	7	4.506	3.777	5.234	1.667	6.714	0.7371	1.95	43.29%	28.83%
003	6	0.5	0.2419	0.7581	0	1.667	0.2822	0.6912	138.2%	92.1%

42d Reproduction-Overall Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	3.806	2.924	4.688	1	6.7	0.8928	2.362	62.07%	0.0%
001	7	3.282	2.655	3.909	1.2	6.3	0.6347	1.679	51.16%	13.76%
002	7	4.046	3.342	4.75	1.125	6	0.7123	1.885	46.58%	-6.31%
003	7	0.7619	0.2172	1.307	0	4	0.5514	1.459	191.5%	79.98%

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test **EnviroSystems, Inc.**

35d Reproduction Detail

Sample Code	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000	0.125	1.125	1.8	0.7	1	0.6667	0.5		
001	0.4	0.75	0.7	0.625	0.1	0.5	0.7		
002	0.7	1.3	0.5556	1.6	1.5	1.2	0.5		
003	0	0	0	0	0	0	0		

42 d Juveniles per Female Detail

Sample Code	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000	3.667	4.4	6.6	4	11.25	2	12.4		
001	5	1.8	6.222	4	2.2	2.8	5		
002	6.2	6.714	2	5.125	5	4.833	1.667		
003	1.667	0	1	0	0	0.3333			

42d Reproduction-Overall Detail

Sample Code	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000	1.5	3.875	5.667	1.9	6	1	6.7		
001	3.9	1.875	6.3	3.625	1.2	2.375	3.7		
002	4.222	6	1.889	5.7	5.286	4.1	1.125		
003	0.8333	0	0.1667	4	0	0	0.3333		

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	14-9684-5654	**Endpoint:**	35d Reproduction	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 35d reproduction endpoint	46.3%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		001	1.394	1.782	12	0.3911	0.0942	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.421	3.474	0.0787	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.327624	0.327624	1	1.944	0.1885	Non-Significant Effect
Error	2.022024	0.168502	12			
Total	2.349648	0.496126	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	5.372	11.07	0.0602	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9395	0.8239	0.4114	Normal Distribution

35d Reproduction Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8452	0.6425	1.048	0.125	1.8	0.2015	0.533	63.06%	0.0%
001	7	0.5393	0.4518	0.6268	0.1	0.75	0.08692	0.23	42.64%	36.2%

35d Reproduction Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
001										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	18-7781-1631	**Endpoint:**	35d Reproduction	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 35d reproduction endpoint	56.0%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		002	-0.7738	1.782	12	0.4735	0.7730	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.999	3.474	0.4381	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1478858	0.1478858	1	0.5987	0.4541	Non-Significant Effect
Error	2.964173	0.2470144	12			
Total	3.112059	0.3949002	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.354	11.07	0.7226	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9697	0.8239	0.8730	Normal Distribution

35d Reproduction Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8452	0.6425	1.048	0.125	1.8	0.2015	0.533	63.06%	0.0%
002	7	1.051	0.8765	1.225	0.5	1.6	0.1732	0.4582	43.6%	-24.32%

35d Reproduction Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
002										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	14-4447-8324	**Endpoint:**	35d Reproduction	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 35d reproduction endpoint	42.5%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		003	4.195	1.782	12	0.3591	0.0006	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.637	3.474	0.0231	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.500496	2.500496	1	17.6	0.0012	Significant Effect
Error	1.704702	0.1420585	12			
Total	4.205198	2.642555	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	8.295	10.04	0.0164	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8376	0.8239	0.0152	Normal Distribution

35d Reproduction Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	0.8452	0.6425	1.048	0.125	1.8	0.2015	0.533	63.06%	0.0%
003	7	0	0	0	0	0	0	0		100.0%

35d Reproduction Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	18-3124-3597	**Endpoint:**	35d Reproduction	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 35d reproduction endpoint	28.7%

Wilcoxon Rank Sum Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	Ties	P-Value	Decision(α:5%)
001		003	28		12	0	0.0003	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.812	3.474	0.0064	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	1.017902	1.017902	1	38.49	<0.0001	Significant Effect
Error	0.3173214	0.02644345	12			
Total	1.335223	1.044345	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	7.43	10.04	0.0213	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.805	0.8239	0.0058	Non-normal Distribution

35d Reproduction Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	7	0.5393	0.4518	0.6268	0.1	0.75	0.08692	0.23	42.64%	0.0%
003	7	0	0	0	0	0	0	0		100.0%

35d Reproduction Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
001										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	17-8179-7106	**Endpoint:**	35d Reproduction	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 35d reproduction endpoint	32.0%

Unequal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
002		003	6.068	1.943	6	0.3365	0.0005	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.77	3.474	0.8800	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.864586	3.864586	1	36.82	<0.0001	Significant Effect
Error	1.259471	0.1049559	12			
Total	5.124057	3.969542	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	23.33	10.04	0.0007	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.9011	0.8239	0.1170	Normal Distribution

35d Reproduction Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	7	1.051	0.8765	1.225	0.5	1.6	0.1732	0.4582	43.6%	0.0%
003	7	0	0	0	0	0	0	0		100.0%

35d Reproduction Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
002										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	17-4351-2502	**Endpoint:**	42d Reproduction-Overall	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d reproduction-overall endpoint	51.3%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		001	0.4782	1.782	12	1.952	0.3206	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.533	3.474	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.9603174	0.9603174	1	0.2286	0.6411	Non-Significant Effect
Error	50.39946	4.199955	12			
Total	51.35978	5.160273	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.979	11.07	0.4268	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9359	0.8239	0.3683	Normal Distribution

42d Reproduction-Overall Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	3.806	2.907	4.704	1	6.7	0.8928	2.362	62.07%	0.0%
001	7	3.282	2.643	3.921	1.2	6.3	0.6347	1.679	51.16%	13.76%

42d Reproduction-Overall Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
001										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	15-1651-3216	**Endpoint:**	42d Reproduction-Overall	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d reproduction-overall endpoint	53.5%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		002	-0.2101	1.782	12	2.036	0.5815	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.423	3.474	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.2016381	0.2016381	1	0.04416	0.8371	Non-Significant Effect
Error	54.78988	4.565824	12			
Total	54.99152	4.767462	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.571	11.07	0.5970	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8981	0.8239	0.1058	Normal Distribution

42d Reproduction-Overall Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	3.806	2.907	4.704	1	6.7	0.8928	2.362	62.07%	0.0%
002	7	4.046	3.329	4.763	1.125	6	0.7123	1.885	46.58%	-6.31%

42d Reproduction-Overall Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
002										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	21-1058-6696	**Endpoint:**	42d Reproduction-Overall	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d reproduction-overall endpoint	49.1%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		003	2.901	1.782	12	1.87	0.0067	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.717	3.474	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	32.43179	32.43179	1	8.415	0.0133	Significant Effect
Error	46.24966	3.854139	12			
Total	78.68146	36.28593	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	2.622	11.07	0.2659	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9269	0.8239	0.2759	Normal Distribution

42d Reproduction-Overall Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	3.806	2.907	4.704	1	6.7	0.8928	2.362	62.07%	0.0%
003	7	0.7619	0.207	1.317	0	4	0.5514	1.459	191.5%	79.98%

42d Reproduction-Overall Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	16-5121-5649	**Endpoint:**	42d Reproduction-Overall	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d reproduction-overall endpoint	45.7%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
001		003	2.998	1.782	12	1.498	0.0056	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.143	3.474	0.2635	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	22.2306	22.2306	1	8.985	0.0111	Significant Effect
Error	29.68948	2.474124	12			
Total	51.92008	24.70472	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.325	11.07	0.7413	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8595	0.8239	0.0300	Normal Distribution

42d Reproduction-Overall Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	7	3.282	2.643	3.921	1.2	6.3	0.6347	1.679	51.16%	0.0%
003	7	0.7619	0.207	1.317	0	4	0.5514	1.459	191.5%	76.79%

42d Reproduction-Overall Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
001										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	17-9538-5153	**Endpoint:**	42d Reproduction-Overall	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:40	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d reproduction-overall endpoint	39.7%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
002		003	3.646	1.782	12	1.605	0.0017	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2	3.474	0.4374	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	37.74791	37.74791	1	13.29	0.0034	Significant Effect
Error	34.0799	2.839992	12			
Total	71.82782	40.58791	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.669	11.07	0.5494	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9632	0.8239	0.7757	Normal Distribution

42d Reproduction-Overall Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	7	4.046	3.329	4.763	1.125	6	0.7123	1.885	46.58%	0.0%
003	7	0.7619	0.207	1.317	0	4	0.5514	1.459	191.5%	81.17%

42d Reproduction-Overall Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
002										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	20-2181-4004	**Endpoint:**	42 d Juveniles per Female	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42 d juveniles per female endpoint	46.1%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		001	1.51	1.782	12	2.916	0.0785	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.064	3.474	0.3517	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	21.36413	21.36413	1	2.28	0.1569	Non-Significant Effect
Error	112.4419	9.370161	12			
Total	133.8061	30.73429	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	5.889	11.07	0.0486	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9359	0.8239	0.3678	Normal Distribution

42 d Juveniles per Female Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	6.331	4.808	7.853	2	12.4	1.513	4.003	63.22%	0.0%
001	7	3.86	3.233	4.488	1.8	6.222	0.6234	1.649	42.73%	39.02%

42 d Juveniles per Female Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
001										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	15-8313-8736	**Endpoint:**	42 d Juveniles per Female	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42 d juveniles per female endpoint	47.4%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		002	1.085	1.782	12	2.999	0.1497	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.006	3.474	0.4280	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	11.66153	11.66153	1	1.177	0.2994	Non-Significant Effect
Error	118.9426	9.911882	12			
Total	130.6041	21.57342	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	4.212	11.07	0.1037	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.933	0.8239	0.3361	Normal Distribution

42 d Juveniles per Female Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	6.331	4.808	7.853	2	12.4	1.513	4.003	63.22%	0.0%
002	7	4.506	3.764	5.247	1.667	6.714	0.7371	1.95	43.29%	28.83%

42 d Juveniles per Female Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
002										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	19-0252-0780	**Endpoint:**	42 d Juveniles per Female	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42 d juveniles per female endpoint	47.2%

Unequal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		003	3.789	1.943	6	2.99	0.0045	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		2.118	3.328	0.2515	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	109.8462	109.8462	1	12.27	0.0050	Significant Effect
Error	98.50912	8.955375	11			
Total	208.3553	118.8015	12			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	33.53	14.51	0.0014	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.9076	0.8138	0.1700	Normal Distribution

42 d Juveniles per Female Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	6.331	4.808	7.853	2	12.4	1.513	4.003	63.22%	0.0%
003	6	0.5	0.2371	0.7629	0	1.667	0.2822	0.6912	138.2%	92.1%

42 d Juveniles per Female Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	11-4733-6843	**Endpoint:**	42 d Juveniles per Female	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42 d juveniles per female endpoint	38.8%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
001		003	4.631	1.796	11	1.303	0.0004	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.892	3.328	0.5553	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	36.48098	36.48098	1	21.45	0.0007	Significant Effect
Error	18.71058	1.700962	11			
Total	55.19157	38.18195	12			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	5.694	14.51	0.0758	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.972	0.8138	0.9170	Normal Distribution

42 d Juveniles per Female Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	7	3.86	3.233	4.488	1.8	6.222	0.6234	1.649	42.73%	0.0%
003	6	0.5	0.2371	0.7629	0	1.667	0.2822	0.6912	138.2%	87.05%

42 d Juveniles per Female Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
001										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	16-6520-9797	**Endpoint:**	42 d Juveniles per Female	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42 d juveniles per female endpoint	33.6%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
002		003	4.756	1.796	11	1.513	0.0003	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.959	3.328	0.4467	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	51.83746	51.83746	1	22.62	0.0006	Significant Effect
Error	25.21124	2.291931	11			
Total	77.04871	54.12939	12			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	7.961	14.51	0.0379	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9293	0.8138	0.3333	Normal Distribution

42 d Juveniles per Female Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	7	4.506	3.764	5.247	1.667	6.714	0.7371	1.95	43.29%	0.0%
003	6	0.5	0.2371	0.7629	0	1.667	0.2822	0.6912	138.2%	88.9%

42 d Juveniles per Female Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
002										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	14-1549-8068	**Endpoint:**	42d Reproduction per Female	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d reproduction per female endpoint	33.2%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		001	2.42	1.782	12	2.826	0.0162	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.748	3.474	0.9342	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	51.54014	51.54014	1	5.858	0.0323	Significant Effect
Error	105.5878	8.798985	12			
Total	157.128	60.33912	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	5.137	11.07	0.0668	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9406	0.8239	0.4267	Normal Distribution

42d Reproduction per Female Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	8.519	7.059	9.979	4	13.5	1.451	3.838	45.05%	0.0%
001	7	4.682	4.037	5.326	2.4	7	0.6401	1.693	36.17%	45.05%

42d Reproduction per Female Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
001										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	08-6368-0901	**Endpoint:**	42d Reproduction per Female	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:42	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d reproduction per female endpoint	35.4%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		002	1.374	1.782	12	3.016	0.0973	Non-Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.638	3.474	1.0000	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	18.90862	18.90862	1	1.887	0.1946	Non-Significant Effect
Error	120.2366	10.01971	12			
Total	139.1452	28.92833	13			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	2.775	11.07	0.2398	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9286	0.8239	0.2913	Normal Distribution

42d Reproduction per Female Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	8.519	7.059	9.979	4	13.5	1.451	3.838	45.05%	0.0%
002	7	6.195	5.318	7.071	2.833	8.571	0.8709	2.304	37.2%	27.28%

42d Reproduction per Female Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
002										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	20-2911-0245	**Endpoint:**	42d Reproduction per Female	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d reproduction per female endpoint	50.5%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
000		003	3.3	1.86	8	4.299	0.0054	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.577	2.846	0.9652	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	122.2606	122.2606	1	10.89	0.0109	Significant Effect
Error	89.78931	11.22366	8			
Total	212.0499	133.4842	9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	20.93	199.3	0.0926	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9316	0.7411	0.4641	Normal Distribution

42d Reproduction per Female Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
000	7	8.519	7.059	9.979	4	13.5	1.451	3.838	45.05%	0.0%
003	3	0.8889	0.5698	1.208	0	1.667	0.4843	0.8389	94.37%	89.57%

42d Reproduction per Female Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
000										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	03-0685-1616	**Endpoint:**	42d Reproduction per Female	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d reproduction per female endpoint	41.8%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
001		003	3.603	1.86	8	1.957	0.0035	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.612	2.846	0.8779	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	30.2083	30.2083	1	12.98	0.0069	Significant Effect
Error	18.61332	2.326665	8			
Total	48.82162	32.53497	9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	4.075	199.3	0.4202	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9784	0.7411	0.9560	Normal Distribution

42d Reproduction per Female Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
001	7	4.682	4.037	5.326	2.4	7	0.6401	1.693	36.17%	0.0%
003	3	0.8889	0.5698	1.208	0	1.667	0.4843	0.8389	94.37%	81.01%

42d Reproduction per Female Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
001										
003										

Hyalella 42-d Survival, Growth, and Reproduction Sediment Test — **EnviroSystems, Inc.**

Analysis ID:	18-6955-2623	**Endpoint:**	42d Reproduction per Female	**CETIS Version:**	CETISv1.8.0
Analyzed:	20 May-11 9:41	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Batch ID:	13-8121-2761	**Test Type:**	Hyalella (42d)	**Analyst:**	
Start Date:	04 Mar-11 12:00	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	15 Apr-11 12:00	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	42d 0h	**Source:**	ARO - Aquatic Research Organisms, NH	**Age:**	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes 42d reproduction per female endpoint	42.2%

Equal Variance t Two-Sample Test

Sample Code	vs	Sample Code	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
002		003	3.771	1.86	8	2.617	0.0027	Significant Effect

Auxiliary Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision
Extreme Value		1.749	2.846	0.5878	No Outliers Detected

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	59.11905	59.11905	1	14.22	0.0055	Significant Effect
Error	33.26207	4.157758	8			
Total	92.38112	63.27681	9			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	7.545	199.3	0.2433	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8638	0.7411	0.0847	Normal Distribution

42d Reproduction per Female Summary

Sample Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
002	7	6.195	5.318	7.071	2.833	8.571	0.8709	2.304	37.2%	0.0%
003	3	0.8889	0.5698	1.208	0	1.667	0.4843	0.8389	94.37%	85.65%

42d Reproduction per Female Detail

Sample Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
002										
003										

STUDY: 20686
CLIENT: MACTEC Engineering & Consulting, Inc.
PROJECT: Olin Site, Massachusetts
ASSAY: Hyalella azteca Sediment Assay
TASK: Overlying Water Alkalinity Summary
METHOD: EPA 310.2

Field ID	Sample Number	Day	LAB ID	MATRIX	RESULT	QLIMIT	UNITS	SAMPLED	ANALYZED
Laboratory Control Sample	000	0	20801-100	Water	73	2	mg/L	04/06/11 1100	04/08/11 1122
OC-SD-SDBK-002-XXX	001	0	20801-102	Water	58	2	mg/L	04/06/11 1100	04/08/11 1128
OC-SD-MMB-SW/SD-1-XXX	002	0	20801-103	Water	52	2	mg/L	04/06/11 1100	04/08/11 1130
OC-SD-ISCO.2-XXX	003	0	20801-104	Water	41	2	mg/L	04/06/11 1100	04/08/11 1131
Laboratory Control Sample	000	7	20801-200	Water	66	2	mg/L	04/13/11 1215	04/14/11 1438
OC-SD-SDBK-002-XXX	001	7	20801-202	Water	61	2	mg/L	04/13/11 1215	04/14/11 1443
OC-SD-MMB-SW/SD-1-XXX	002	7	20801-203	Water	52	2	mg/L	04/13/11 1215	04/14/11 1445
OC-SD-ISCO.2-XXX	003	7	20801-204	Water	48	2	mg/L	04/13/11 1215	04/14/11 1446
Laboratory Control Sample	000	14	20801-300	Water	70	2	mg/L	04/20/11 0745	04/22/11 1417
OC-SD-SDBK-002-XXX	001	14	20801-302	Water	66	2	mg/L	04/20/11 0745	04/22/11 1420
OC-SD-MMB-SW/SD-1-XXX	002	14	20801-303	Water	55	2	mg/L	04/20/11 0745	04/22/11 1421
OC-SD-ISCO.2-XXX	003	14	20801-304	Water	53	2	mg/L	04/20/11 0745	04/22/11 1426
Laboratory Control Sample	000	21	20801-400	Water	67	2	mg/L	04/27/11 1400	05/04/11 1326
OC-SD-SDBK-002-XXX	001	21	20801-402	Water	64	2	mg/L	04/27/11 1400	05/04/11 1332
OC-SD-MMB-SW/SD-1-XXX	002	21	20801-403	Water	53	2	mg/L	04/27/11 1400	05/04/11 1333
OC-SD-ISCO.2-XXX	003	21	20801-404	Water	55	2	mg/L	04/27/11 1400	05/04/11 1335
Laboratory Control Sample	000	28	20801-500	Water	62	2	mg/L	05/04/11 0845	05/04/11 1336
OC-SD-SDBK-002-XXX	001	28	20801-502	Water	55	2	mg/L	05/04/11 0845	05/04/11 1339
OC-SD-MMB-SW/SD-1-XXX	002	28	20801-503	Water	51	2	mg/L	05/04/11 0845	05/04/11 1340
OC-SD-ISCO.2-XXX	003	28	20801-504	Water	55	2	mg/L	05/04/11 0845	05/04/11 1439
Laboratory Control Sample	000	35	20801-600	Water	59	2	mg/L	05/11/11 0800	05/11/11 1346
OC-SD-SDBK-002-XXX	001	35	20801-602	Water	56	2	mg/L	05/11/11 0800	05/11/11 1352
OC-SD-MMB-SW/SD-1-XXX	002	35	20801-603	Water	57	2	mg/L	05/11/11 0800	05/11/11 1356
OC-SD-ISCO.2-XXX	003	35	20801-604	Water	54	2	mg/L	05/11/11 0800	05/11/11 1358
Laboratory Control Sample	000	42	20801-700	Water	60	2	mg/L	05/18/11 1230	05/23/11 1559
OC-SD-SDBK-002-XXX	001	42	20801-702	Water	59	2	mg/L	05/18/11 1230	05/23/11 1602
OC-SD-MMB-SW/SD-1-XXX	002	42	20801-703	Water	60	2	mg/L	05/18/11 1230	05/23/11 1603
OC-SD-ISCO.2-XXX	003	42	20801-704	Water	57	2	mg/L	05/18/11 1230	05/23/11 1605

STUDY: 20686
CLIENT: MACTEC Engineering & Consulting, Inc.
PROJECT: Olin Site, Massachusetts
ASSAY: Hyalella azteca Sediment Assay
TASK: Overlying Water Hardness Summary
METHOD: SW846 3rd Ed. 6020

Field ID	Sample Number	Day	LAB ID	MATRIX	RESULT	QLIMIT	UNITS	SAMPLED	ANALYZED
Laboratory Control Sample	000	0	20801-105	Water	100	0.4	mg/L	04/06/11 1100	04/11/11
OC-SD-SDBK-002-XXX	001	0	20801-107	Water	82	0.4	mg/L	04/06/11 1100	04/11/11
OC-SD-MMB-SW/SD-1-XXX	002	0	20801-108	Water	78	0.4	mg/L	04/06/11 1100	04/11/11
OC-SD-ISCO.2-XXX	003	0	20801-109	Water	91	0.4	mg/L	04/06/11 1100	04/11/11
Laboratory Control Sample	000	7	20801-205	Water	92	0.4	mg/L	04/13/11 1215	04/20/11
OC-SD-SDBK-002-XXX	001	7	20801-207	Water	84	0.4	mg/L	04/13/11 1215	04/20/11
OC-SD-MMB-SW/SD-1-XXX	002	7	20801-208	Water	77	0.4	mg/L	04/13/11 1215	04/20/11
OC-SD-ISCO.2-XXX	003	7	20801-209	Water	82	0.4	mg/L	04/13/11 1215	04/20/11
Laboratory Control Sample	000	14	20801-305	Water	90	0.4	mg/L	04/20/11 0745	04/20/11
OC-SD-SDBK-002-XXX	001	14	20801-307	Water	85	0.4	mg/L	04/20/11 0745	04/20/11
OC-SD-MMB-SW/SD-1-XXX	002	14	20801-308	Water	79	0.4	mg/L	04/20/11 0745	04/20/11
OC-SD-ISCO.2-XXX	003	14	20801-309	Water	80	0.4	mg/L	04/20/11 0745	04/20/11
Laboratory Control Sample	000	21	20801-405	Water	91	0.4	mg/L	04/27/11 1400	05/02/11
OC-SD-SDBK-002-XXX	001	21	20801-407	Water	90	0.4	mg/L	04/06/11 1100	05/02/11
OC-SD-MMB-SW/SD-1-XXX	002	21	20801-408	Water	78	0.4	mg/L	04/27/11 1400	05/02/11
OC-SD-ISCO.2-XXX	003	21	20801-409	Water	82	0.4	mg/L	04/27/11 1400	05/02/11
Laboratory Control Sample	000	28	20801-505	Water	81	0.4	mg/L	05/04/11 0845	05/09/11
OC-SD-SDBK-002-XXX	001	28	20801-507	Water	79	0.4	mg/L	05/04/11 0845	05/09/11
OC-SD-MMB-SW/SD-1-XXX	002	28	20801-508	Water	74	0.4	mg/L	05/04/11 0845	05/09/11
OC-SD-ISCO.2-XXX	003	28	20801-509	Water	75	0.4	mg/L	05/04/11 0845	05/09/11
Laboratory Control Sample	000	35	20801-605	Water	88	0.4	mg/L	05/11/11 0800	05/13/11
OC-SD-SDBK-002-XXX	001	35	20801-607	Water	89	0.4	mg/L	05/11/11 0800	05/13/11
OC-SD-MMB-SW/SD-1-XXX	002	35	20801-608	Water	89	0.4	mg/L	05/11/11 0800	05/13/11
OC-SD-ISCO.2-XXX	003	35	20801-609	Water	88	0.4	mg/L	05/11/11 0800	05/13/11
Laboratory Control Sample	000	42	20801-705	Water	84	0.4	mg/L	05/18/11 1230	05/26/11
OC-SD-SDBK-002-XXX	001	42	20801-707	Water	82	0.4	mg/L	05/18/11 1230	05/26/11
OC-SD-MMB-SW/SD-1-XXX	002	42	20801-708	Water	80	0.4	mg/L	05/18/11 1230	05/26/11
OC-SD-ISCO.2-XXX	003	42	20801-709	Water	79	0.4	mg/L	05/18/11 1230	05/26/11

STUDY: 20686
CLIENT: MACTEC Engineering & Consulting, Inc.
PROJECT: Olin Site, Massachusetts
ASSAY: Hyalella azteca Sediment Assay
TASK: Overlying Water Ammonia Summary
METHOD: SM 4500-NH3 G

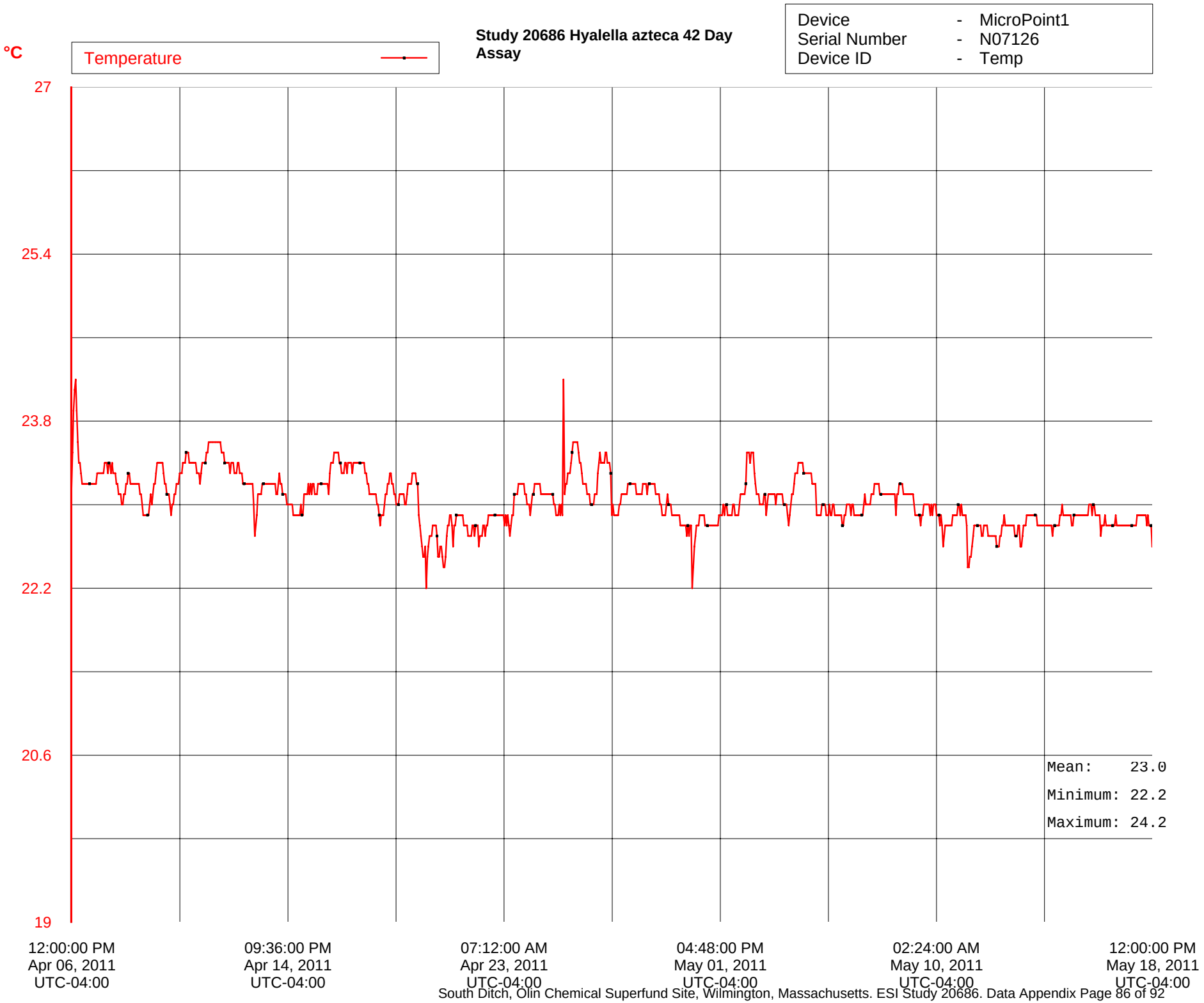
Field ID	Sample Number	Day	LAB ID	MATRIX	RESULT	QLIMIT	UNITS	SAMPLED	ANALYZED
Laboratory Control Sample	000	0	20801-110	Water	ND	0.1	mg/L as N	04/06/11 1100	04/07/11 1225
OC-SD-SDBK-002-XXX	001	0	20801-112	Water	ND	0.1	mg/L as N	04/06/11 1100	04/07/11 1226
OC-SD-MMB-SW/SD-1-XXX	002	0	20801-113	Water	ND	0.1	mg/L as N	04/06/11 1100	04/07/11 1227
OC-SD-ISCO.2-XXX	003	0	20801-114	Water	0.11	0.1	mg/L as N	04/06/11 1100	04/07/11 1233
Laboratory Control Sample	000	7	20801-210	Water	ND	0.1	mg/L as N	04/13/11 1215	04/18/11 1651
OC-SD-SDBK-002-XXX	001	7	20801-212	Water	ND	0.1	mg/L as N	04/13/11 1215	04/18/11 1659
OC-SD-MMB-SW/SD-1-XXX	002	7	20801-213	Water	ND	0.1	mg/L as N	04/13/11 1215	04/18/11 1700
OC-SD-ISCO.2-XXX	003	7	20801-214	Water	ND	0.1	mg/L as N	04/13/11 1215	04/18/11 1701
Laboratory Control Sample	000	14	20801-310	Water	ND	0.1	mg/L as N	04/20/11 0745	04/20/11 1244
OC-SD-SDBK-002-XXX	001	14	20801-312	Water	ND	0.1	mg/L as N	04/20/11 0745	04/20/11 1246
OC-SD-MMB-SW/SD-1-XXX	002	14	20801-313	Water	ND	0.1	mg/L as N	04/20/11 0745	04/20/11 1249
OC-SD-ISCO.2-XXX	003	14	20801-314	Water	ND	0.1	mg/L as N	04/20/11 0745	04/20/11 1250
Laboratory Control Sample	000	21	20801-410	Water	ND	0.1	mg/L as N	04/27/11 1400	05/03/11 1534
OC-SD-SDBK-002-XXX	001	21	20801-412	Water	ND	0.1	mg/L as N	04/27/11 1400	05/03/11 1540
OC-SD-MMB-SW/SD-1-XXX	002	21	20801-413	Water	ND	0.1	mg/L as N	04/27/11 1400	05/03/11 1541
OC-SD-ISCO.2-XXX	003	21	20801-414	Water	ND	0.1	mg/L as N	04/27/11 1400	05/03/11 1542
Laboratory Control Sample	000	28	20801-510	Water	ND	0.1	mg/L as N	05/04/11 0845	05/10/11 1536
OC-SD-SDBK-002-XXX	001	28	20801-512	Water	ND	0.1	mg/L as N	05/04/11 0845	05/10/11 1537
OC-SD-MMB-SW/SD-1-XXX	002	28	20801-513	Water	ND	0.1	mg/L as N	05/04/11 0845	05/10/11 1538
OC-SD-ISCO.2-XXX	003	28	20801-514	Water	ND	0.1	mg/L as N	05/04/11 0845	05/10/11 1544
Laboratory Control Sample	000	35	20801-601	Water	0.32	0.1	mg/L as N	05/11/11 0800	05/17/11 1511
OC-SD-SDBK-002-XXX	001	35	20801-612	Water	0.31	0.1	mg/L as N	05/11/11 0800	05/17/11 1512
OC-SD-MMB-SW/SD-1-XXX	002	35	20801-613	Water	0.29	0.1	mg/L as N	05/11/11 0800	05/17/11 1513
OC-SD-ISCO.2-XXX	003	35	20801-614	Water	0.11	0.1	mg/L as N	05/11/11 0800	05/17/11 1514
Laboratory Control Sample	000	42	20801-710	Water	0.35	0.1	mg/L as N	05/18/11 1230	05/25/11 1510
OC-SD-SDBK-002-XXX	001	42	20801-712	Water	ND	0.1	mg/L as N	05/18/11 1230	05/25/11 1513
OC-SD-MMB-SW/SD-1-XXX	002	42	20801-713	Water	ND	0.1	mg/L as N	05/18/11 1230	05/25/11 1514
OC-SD-ISCO.2-XXX	003	42	20801-714	Water	ND	0.1	mg/L as N	05/18/11 1230	05/25/11 1515

STUDY: 20686
CLIENT: MACTEC Engineering & Consulting, Inc.
PROJECT: Olin Site, Massachusetts
ASSAY: Hyalella azteca Sediment Assay
TASK: Overlying Water Total Organic Carbon Summary
METHOD: SM 5310 C

Field ID	Sample Number	Day	LAB ID	MATRIX	RESULT	QLIMIT	UNITS	SAMPLED	ANALYZED
Laboratory Control Sample	000	0	20801-115	Water	4.5	0.4	mg/L	04/06/11 1100	04/20/11
OC-SD-SDBK-002-XXX	001	0	20801-117	Water	4	0.4	mg/L	04/06/11 1100	04/20/11
OC-SD-MMB-SW/SD-1-XXX	002	0	20801-118	Water	4.2	0.4	mg/L	04/06/11 1100	04/20/11
OC-SD-ISCO.2-XXX	003	0	20801-119	Water	7	0.4	mg/L	04/06/11 1100	04/20/11
Laboratory Control Sample	000	28	20801-515	Water	6.5	0.4	mg/L	05/04/11 0845	05/06/11 1143
OC-SD-SDBK-002-XXX	001	28	20801-517	Water	5	0.4	mg/L	05/04/11 0845	05/06/11 1143
OC-SD-MMB-SW/SD-1-XXX	002	28	20801-518	Water	5	0.4	mg/L	05/04/11 0845	05/06/11 1143
OC-SD-ISCO.2-XXX	003	28	20801-519	Water	4.7	0.4	mg/L	05/04/11 0845	05/06/11 1143

STUDY: 20686
CLIENT: MACTEC Engineering & Consulting, Inc.
PROJECT: Olin Site, Massachusetts
ASSAY: Hyalella azteca Sediment Assay
TASK: Sediment Total Volatile Solids Summary
METHOD: AASHTO T 267-86 (2004)

Field ID	Sample Number	LAB ID	MATRIX	RESULT	QLIMIT	UNITS	SAMPLED	ANALYZED
OC-SD-SDBK-002-XXX	001	20686-001	Solid	2.7	0.1	% dry wt	02/17/11 1130	03/04/11
OC-SD-SDBK-002-XXX	001	20686-001D	Solid	2.7	0.1	% dry wt	02/17/11 1130	03/04/11
OC-SD-MMB-SW/SD-1-XXX	002	20686-002	Solid	6.9	0.1	% dry wt	02/17/11 1330	03/04/11
OC-SD-ISCO.2-XXX	003	20686-003	Solid	6.3	0.1	% dry wt	02/17/11 0940	03/04/11


°C
Temperature
Study 20686 Hyalella azteca 42 Day Assay
Device - MicroPoint1
Serial Number - N07126
Device ID - Temp
27
25.4
23.8
22.2
20.6
19
Mean: 23.0
Minimum: 22.2
Maximum: 24.2
12:00:00 PM Apr 06, 2011 UTC-04:00
09:36:00 PM Apr 14, 2011 UTC-04:00
07:12:00 AM Apr 23, 2011 UTC-04:00
04:48:00 PM May 01, 2011 UTC-04:00
02:24:00 AM May 10, 2011 UTC-04:00
12:00:00 PM May 18, 2011 UTC-04:00

Rec.
04/05/11

Aquatic Research Organisms

DATA SHEET

I. Organism History

Species Hyalella azteca

Source: Lab reared X Hatchery reared_____ Field collected_____

Hatch date 3/30/11 Receipt date_____

Lot number 033011 HA Strain ARO

Brood origination USFWS MO

II. Water Quality

Temperature 24 °C Salinity — ppt D.O. 597 ppm

pH 7.4 su Hardness ≈120 ppm Alkalinity ≈140 ppm

III. Culture Conditions

Freshwater X Saltwater_____ Other_____

Recirculating_____ Flow through_____ Static renewal X

DIET: Flake food X Phytoplankton_____ Trout chow X

Artemia_____ Rotifers_____ YCT_____ Other_____

Prophylactic treatments:_____

Comments:_____

IV. Shipping Information

Client: ESI # of Organisms 700+

Carrier: PICK UP Date shipped 4/5/11

Biologist: Stan Lenitski

PO BOX 1271 HAMPTON NH 03843-1271 (603) 926-1650 AROFISH@AOL.COM

Pre-Assay Monitoring
Hyalella azteca
42 Day Sediment Evaluation

Study: 20801	Client: MACTEC Engineering & Consulting, Inc.	Project: Olin Site

Day	Date	Renewed	Initial	Overlying Water Ammonia Checked
0	03/30/11	✓	JTP/AM	—
1	03/31/11	✓	JTP/AM	✓ with Kit ≈ 10mg/Lin 003
2	04/01/11	✓	JTP	—
3	04/02/11	✓	SJ	—
4	4-3-11	✓	DM	—
5	4/4/11	✓	AM/JTP	✓ with Kit ≈ 3mg/Lin 003
6	4/5/11	✓	AM	—
7				
8				
9				
10				
11				
12				
13				
14				

Two Volume Additions Daily	Overlying Water: MHR Pond	Temperature: 23°C

Test Sediment Preparation Notes

Study Number: 20686

Client: MACTEC
Engineering & Consulting, Inc.

Project: Olin

Field ID	ESI Code	Sample Number	Notes
OC-SD-SDBK-002-XXX	20686-001	001	Some headspace (1½"). Sandy ~~and~~ with some organics. Low % moisture. Seived to 2mm. Added to beakers after seiving event. *
OC-SD-MMB-SW/SD-/-XXX -1- RAM 06/21/11	20686-002	002	1-1½" head space. Rocks, twigs, debris. End result wet, dark pudding texture. 1 Gallon bucket ≈ 75% full after seiving.
OC-SD-ISCO.2-XXX	20686-003	003	70% recovered after seiving. Some headspace (1½") when opened. High percent moisture and organics Seived to 2mm and immediately added to beakers.

Date: 02/22/11
Initial: AM/JTP

* 80% recovered after seiving

ESI
EnviroSystems, Inc.
1 Lafayette Road
P.O. Box 778
Hampton, N.H. 03843
Voice: 603-926-3345
FAX: 603-926-3521

ESI Job No: 20686

CHAIN OF CUSTODY DOCUMENTATION

Client: Mactec	Contact: Janet Keating-Connolly	Project Name: Olin	Page 1 of 1
Report to: Mactec	Address: 107 Audubon Rd	Project Number: 6107110016	
Invoice to: Mactec	Address: Wakefield MA 01880	Project Manager: Janet Keating-Connolly	
Voice: 781 245 6606	Fax: 781 246 5060	email:	P.O. No: Quote No:

Protocol: RCRA SDWA NPDES USCOE Other

Lab Number (assigned by lab)	Your Field ID: (must agree with container)	Date Sampled	Time Sampled	Sampled By	Grab or composit (G/C)	Container Size (ml.)	Container Type (P/G/T)	Field Preservation	Matrix S=Solid W=Water	Filter N=Not needed F=Done in field L=Lab to do	Analyses Requested\ Special Instructions:
-001	OC-SD-SDBK-002-xxx	2/17/11	1130	CTM/DLC	G	1 Gal	P	–	S	N	Tox. Testing
-002	OC-SD-MMB-SW/SD-1-xxx	2/17/11	1330	CTM/DLC	G	1 Gal	P	–	S	N	Tox. Testing
-003	OC-SD-ISCO.2-xxx	2/17/11	0940	CTM/DLC	G	1 Gal	P	–	S	N	Tox. Testing

Relinquished By: [signature] Date: 2/17/11 Time: 1600 Received By: [signature] Date: 02/17/11 Time: 1600

Relinquished By: Date: Time: Received at Lab By: Date: Time:

Comments:

0°C

Sample Delivery Group No: Page of

COC Doc No: 422

SAMPLE RECEIPT AND CONDITION DOCUMENTATION

STUDY NO:	20686		
SDG No:			
Project:	Olin		
Delivered via:	**ESI**		
Date and Time Received:	02/17/11 1600	Date and TIme Logged into Lab:	02/17/11 1600
Recieved By:	RAM	Logged into Lab by:	RAM
Air bill / Way bill:	No	Air bill included in folder if received?	NA
Cooler on ice/packs:	Yes	Custody Seals present?	NA
Cooler Blank Temp (C) at arrival:	0C	Custody Seals intact?	NA
Number of COC Pages:	1		
COC Serial Number(s):			
COC Complete:	Yes	Does the info on the COC match the samples?	Yes
Sampled Date:	Yes	Were samples received within holding time?	Yes
Field ID complete:	Yes	Were all samples properly labeled?	Yes
Sampled Time:	Yes	Were proper sample containers used?	Yes
Analysis request:	Yes	Were samples received intact? (none broken or leaking)	Yes
COC Signed and dated:	Yes	Were sample volumes sufficient for requested analysis?	Yes
Were all samples received?	Yes	Were VOC vials free of headspace?	NA
Client notification/authorization:	Not required		

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
OC-SD-SDBK-002-XXX	20686-001	S	Ha42T;	3 x 1 gallon I	4C	Yes
OC-SD-MMB-SW/SD-1-XXX	20686-002	S	Ha42T;	3 x 1 gallon I	4C	Yes
OC-SD-ISCO.2-XXX	20686-003	S	Ha42T;	3 x 1 gallon I	4C	Yes

Notes and qualifications:

Subject: RE: Olin Sediment Evaluation
From: "Keating-Connolly, Janet" <JKEATING-CONNOLLY@mactec.com>
Date: Fri, 18 Feb 2011 13:55:51 -0500
To: Renee McIsaac <r.mcisaac@envirosystems.com>
CC: Kenneth Simon <ksimon@envirosystems.com>

2 reference samples: SD-BK002 and MMB-SD-001

Janet Keating-Connolly, LSP
MACTEC Engineering & Consulting, Inc.
107 Audubon Road, Suite 301
Wakefield, MA 01880
(781) 213-5654 office
(978) 855-1885 mobile
jkconnolly@mactec.com

From: Renee McIsaac [mailto:r.mcisaac@envirosystems.com]
Sent: Friday, February 18, 2011 12:39 PM
To: Keating-Connolly, Janet
Cc: Kenneth Simon
Subject: Olin Sediment Evaluation

Hello Janet,

Can you tell me which of the samples are reference sample(s) for the Olin sediment evaluation?
I would like to enter them into the statistical database so that tables can be generated.
Thanks,
Renee McIsaac
ERA Project Manager

EnviroSystems, Inc.
Specialists in Environmental Toxicology and Chemistry
PO Box 778 / 1 Lafayette Road
Hampton, NH 03843-0778

Voice: 603-926-3345 ext. 212 / Fax: 603-926-3521

http://www.envirosystems.com

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APPENDIX H

TEMPERATURE PROFILE TRIP REPORT/ PIEZOMETER DATA
(Provided on CD)

MACTEC
engineering and constructing a better tomorrow

January 27, 2011

Mr. Steve Morrow
Olin Corporation
3855 Ocoee Street N; Suite 200
Cleveland, TN 37312-4441

Subject: **Trip Report – Operable Unit 2**
Temperature Profile: Landfill Brook and Maple Meadow Brook Wetlands
Olin Chemical Superfund Site
51 Eames Street
Wilmington, Massachusetts

Dear Mr. Morrow:

A surface water temperature profile was conducted on the reach of Landfill Brook that occurs on the Town of Woburn Landfill Property on November 4, 2010. In addition, surface water temperature profiling was conducted in the Maple Meadow Brook Wetland (which includes Maple Meadow Brook and Sawmill Brook) on November 15 and 16, 2010. The location and cultural features surrounding Landfill Brook are shown on Figure 1. The setting of Maple Meadow Brook and Sawmill Brook is shown on Figure 2. The work was conducted in accordance with section 5.1.2 of the Field Sampling Plan contained in the USEPA-approved Olin Chemical Superfund Site RI/FS Work Plan dated August 14, 2009. The purpose of the surface water temperature profiling was to identify potential point discharge locations of groundwater along the reaches of the brooks surveyed. The work plan proposed that the results of the temperature profiling be used to adjust proposed surface water and sediment sample locations, by re-locating them to coincide with groundwater discharge areas, should they be identified. This trip report documents the survey measurement locations, the weather conditions at the time of the survey, measurement methodology, results, observations, and recommendations. Based on the results of this study, no groundwater point discharge locations were identified for Maple Meadow Brook, Saw Mill Brook or Landfill Brook. No changes are proposed for sampling locations for the Maple Meadow Brook or Saw Mill Brook. With respect to the Landfill Brook, no location adjustments are proposed due to the temperature survey results. There are two locations that are proposed for relocation due to access considerations and identified site features.

Survey Location

The temperature profiling was conducted along an approximately 1,750 foot reach of the Landfill Brook, which is shown in Figure 1. This figure also shows the original surface water and sediment sampling locations proposed in the RI/FS Work Plan. Revised locations are shown on a subsequent figure after discussion of the results. Properties where access could not be obtained were not profiled. Those properties included the stream channel that occurs within the NSTAR right-of-way and the portion of the Landfill Brook downstream of the Woburn Landfill property. In addition measurements could not be collected in wetland areas where there was no defined channel present (i.e., between sample station 12+00 and 14+30 shown on Figures 3 and 5). Exclusion of these areas does not materially affect the results of the temperature survey. The brook ranged from 6 to 10 feet in width and the depth of water ranged from approximately 6 inches to 1 foot. The stream bottom substrate was composed mostly of unconsolidated muck sediment. Representative photographs of the brook are provided in Attachment 1.

Temperature profiles along Maple Meadow Brook and Sawmill Brook in the Town of Wilmington, MA were conducted on November 15th and 16th, 2010. The temperature profile was started on Maple Meadow Brook where the former Middlesex Canal crosses the brook and continued approximately 1,830 feet upstream. The temperature profile on Sawmill Brook started at the intersection with Maple Meadow Brook and continued upstream approximately 2,230 feet. The portions of these two brooks where the temperature profile survey was conducted are shown on Figures 2 and 4. Figure 2 also shows the original surface water and sediment sampling locations proposed in the RI/FS Work Plan. The portions of the brooks surveyed ranged in width from a few feet to 15 feet. There were also segments where the brook channel becomes indistinct and indiscernible within emergent and scrub shrub vegetation that dominates the wetland. The depth of water ranged from approximately 6 inches to 4 feet. The bottom substrate was composed primarily of unconsolidated, decaying, organic material. Representative photographs of the Maple Meadow and Sawmill Brook survey are also presented in Attachment 1.

Prevailing Weather Conditions

The weather at the time of the Landfill Brook survey was overcast with a light rain falling. The air temperature at the beginning of the survey was 10.2 degrees Celsius (C°) and at the end was 9.1 C°. Air temperatures were measured with a Horiba U-10 Water Quality Meter. A light rain started at approximately 0830 and continued throughout the survey and became steady by the time the survey was

completed. During the entire day of temperature profiling approximately 0.38 inches of rainfall was recorded at a nearby weather station in Wilmington, MA. The rain event was not of sufficient duration or intensity to promote overland flow into the brook or cause a noticeable increase in flow during the survey event. Based on these observations, the data collected is suitable for its intended purpose of detecting changes in stream temperature that might be indicative of groundwater discharge.

The weather on the first day of Maple Meadow Brook and Sawmill Brook temperature profiling was overcast with a slight wind but no rain. The air temperature at the beginning of the survey was 11.5 C° and at the end was 9.1 C°. Survey field work on the first day started at approximately 1100 and ended at 1430. The weather on the second day of temperature profiling was similar to the first day, although there was a light rain in the morning which dissipated before field activities began. The air temperature at the beginning of the second day of survey was 10.0 C° and at the end was 10.9 C°. Survey field work was conducted from 0930 to 1600 on the second day.

Temperature Measurements and Observations

Figures 3 and 4 show the station locations and the measured water temperatures, in degrees Celsius, for the Landfill Brook, Maple Meadow Brook and Sawmill Brook, respectively. The temperature was measured using a Horiba U-10 Water Quality Meter. The temperature probe was attached to a ski pole with the temperature sensor set at 6 inches above bottom of the disk to provide a uniform measurement distance from the stream bottom. At each location the pole was set in the bottom of the stream so the disc was resting on the bottom, the meter was allowed to equilibrate, and the measurement was recorded. The temperature was measured approximately every 50 feet along the reach of the brook that was surveyed. All of the temperature probe locations were located using a TRIMBLE Geo XH Global Positioning System.

The measured Landfill Brook surface water temperature ranged from 5.7 C° to 8.8 C°. Based on recent groundwater sampling, the expected average groundwater temperature in the area is approximately 11 to 12 C°. The temperature measurements in the stream showed a slight increase moving upstream in the brook with the highest temperature (8.8 C°) being measured at the upstream end of the survey. The higher temperatures correlate with an area of slower moving water and are within an emergent palustrine wetland. The lower temperatures measured in the brook correlated with the faster moving shallower areas of the brook. No notable temperature spikes or anomalous areas of elevated temperature were observed

which would represent concentrated point discharges of groundwater (springs) along the reach of the brook surveyed.

As shown in Figure 4, temperatures recorded in both Sawmill Brook and Maple Meadow Brook increased progressively and steadily in the upstream direction. Temperatures in Sawmill Brook ranged from 6.8°C to 10.3°C and temperatures along Maple Meadow Brook ranged from 6.8°C to 12.2°C. Air temperatures ranged from 8.9°C to 14°C depending on the time and day of the observed measurements. Based on recent groundwater sampling, the expected average groundwater temperature in the area ranges from 9°C to 11°C. No notable temperature spikes or anomalous areas of elevated temperature were observed which would represent concentrated point discharges of groundwater (springs) along the reach of the brooks surveyed.

Recommendations

The temperature profiling along Landfill Brook, Maple Meadow Brook and Sawmill Brook did not identify any temperature anomalies that would indicate localized points of groundwater discharge which would require adjustment of the previously proposed surface water and sediment sample locations. Therefore there are no proposed changes to sample locations within Maple Meadow Brook and Sawmill Brook which are shown on Figure 2 and on Figure 5.1-3 of the August 14, 2009 RI/FS Work Plan. These sample locations will provide suitable data to assess surface water and sediment quality within Maple Meadow Brook and Sawmill Brook.

Based on observed conditions and property access considerations along Landfill Brook, it is recommended that two of Landfill Brook proposed sampling locations (shown in Figure 1 and Figure 5.1-2 of the August 14, 2009 RI/FS Work Plan) be adjusted. The most downstream surface water/sediment location (LB-SD/SW3) would be moved upstream to an alternate location on property owned by the Town of Woburn to provide a sample location on a property for which an access agreement exists. The mid-point stream sample location (LB-SD/SW2) would also be adjusted by moving it upstream to a point above manmade structures that were noted between stations 14+80 and 15+30 during the temperature profiling. The headwater stream location (LB-SD/SW1) would remain unchanged. These final, adjusted sample locations are shown on Figure 5 and will provide suitable locations to assess surface water and sediment quality within Landfill Brook.

In addition, in accordance with the approved RI/FS Work Plan, three drive point piezometers will be installed during surface water sediment sampling to evaluate shallow groundwater /surface water gradients in Maple Meadow Brook and Sawmill Brook. The piezometers will be installed by hand at surface water sediment sample locations near the midpoints of Maple Meadow Brook (MMB-SW/SD-3) and Sawmill Brook (MMB-SW/SD-5) and also down gradient (MMB-SW/SD-1) as shown on Figure 2.

Please feel free to contact me at (207) 828-3490 if you have any questions or comments.

Sincerely,

MACTEC ENGINEERING AND CONSULTING, INC.

Peter H. Thompson
Project Manager

Leah Jones (for MJM with permission)
Michael J. Murphy
Project Principal

cc: MACTEC File - 6107110016

ATTACHMENT 1
PHOTOGRAPHS

Photo 1: Landfill Brook – Typical stream channel lower survey area.

Photo 2: Landfill Brook – Typical stream channel middle of survey area.

Photo 3: Landfill Brook – Palustrine emergent marsh at upper end of survey.

Photo 4: Maple Meadow Brook – At beginning of temperature survey.

Photo 5: Sawmill Brook – Upper section of brook.

Photo 6: Maple Meadow Brook – Lower section within button bush scrub shrub wetland, where no channel is evident.

Photo 7: Sawmill Brook – Section just above button bush scrub shrub wetland.

Photo 8: Maple Meadow Brook – Typical open channel.

Photo 9: Sawmill Brook – Upper Section.

Photo 10: Sawmill Brook – Upper reach section at end of survey.

FIGURES

Figure 1 – Landfill Brook Overview
Figure 2 – Maple Meadow Brook and Sawmill Brook Overview
Figure 2 – Landfill Brook Temperature Profile Data
Figure 4 – Maple Meadow Brook and Sawmill Brook Temperature Profile Data
Figure 5 – Proposed Revised Landfill Brook Surface Water Sediment Sample Locations

Legend

- Proposed Sediment and Surface Water Location from RI/FS WP
- No agreement with property owner
- 4-1-7 Map-Block-Lot Number
- Approxamate Property Lines
- Railroad
- Paved Road
- Unpaved Road
- Sidewalks
- Surface Water
- Trails
- Wetland Symbol
- Wetland Boundary
- 51 Eames St. Property Boundary

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0 100 200 400 Feet

Figure 1
Landfill Brook Overview

Trip Report – Operable Unit 2
Olin Chemical Superfund Site
Wilmington, Massachusetts

Prepared by BJR | Checked by PHT

Document: P:\OLIN\Wilmington\GIS\MapDocuments\RI Field Work\LandfillBrook_11X17_LS.mxd PDF: P:\OLIN\Wilmington\GIS\Figures\Temperature Profile\Figure 1- Landfill Brook Overview.pdf 12/14/2010 9:34 AM bjroden

Legend

- Proposed Sediment and Surface Water Location from RI/FS WP
- Railroad
- Paved Road
- Unpaved Road
- Sidewalks
- Surface Water
- Trails
- Wetland Symbol
- Wetland Boundary
- 51 Eames St. Property Boundary

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Figure 2
Maple Meadow Brook and Sawmill Brook Overview

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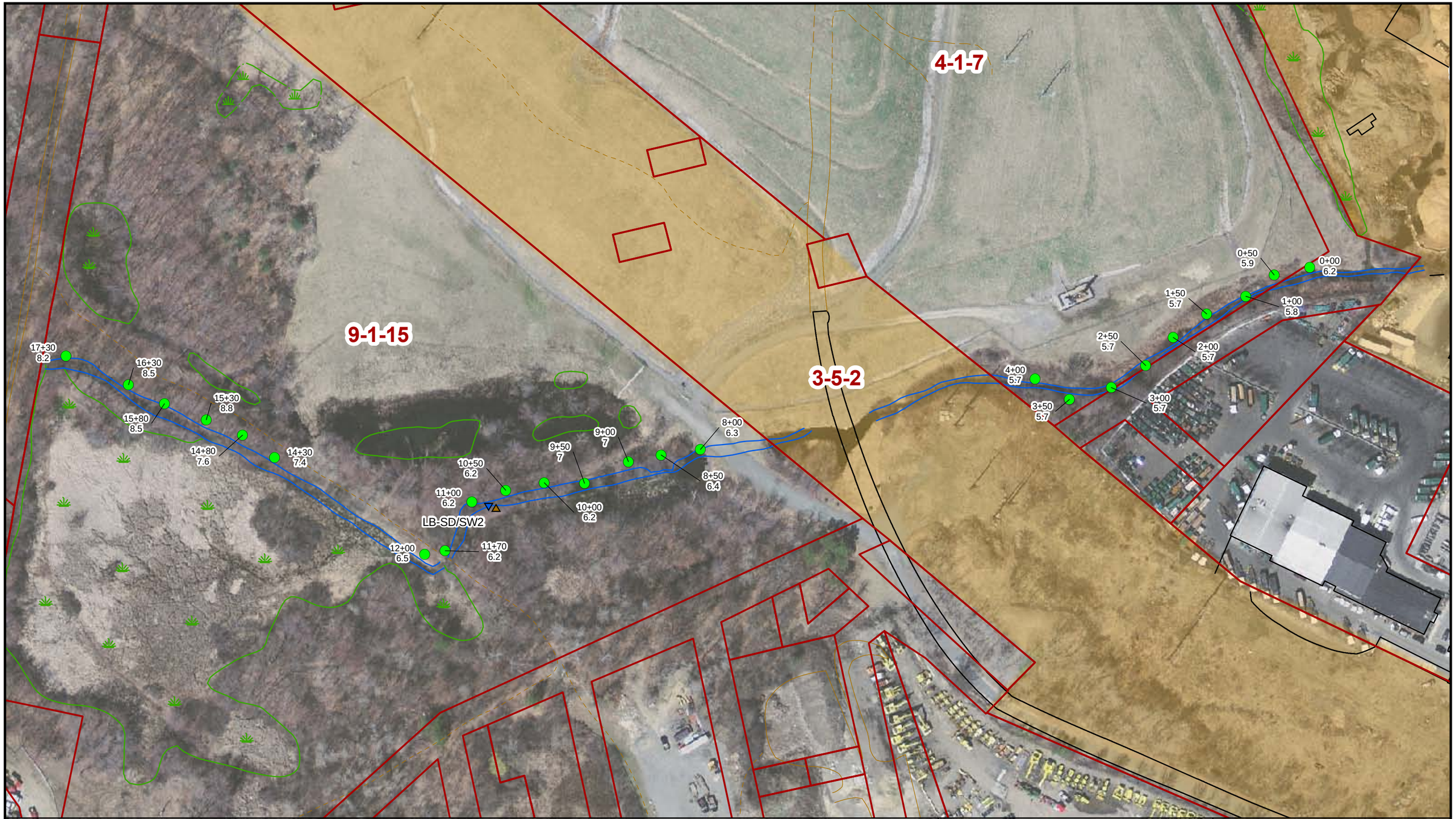
Document: P:\OLIN\Wilmington\GIS\MapDocuments\RI Field Work\LandfillBrook_11X17_LS.mxd PDF: P:\OLIN\Wilmington\GIS\Figures\Temperature Profile\Figure 2- Maple Meadow Brook and Sawmill Brook Overview.pdf 12/14/2010 9:46 AM bjroden



Legend

- Proposed Sediment and Surface Water Location from RI/FS WP
- Temperature Profile Location
- No agreement with property owner
- 4-1-7 Map-Block-Lot Number
- 7.2 - Temperature degrees Celsius
- Approxamate Property Lines
- Railroad
- Paved Road
- Unpaved Road
- Sidewalks
- Surface Water
- Trails
- Wetland Symbol
- Wetland Boundary
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Figure 3
Landfill Brook Temperature Profile Data

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Document: P:\OLIN\Wilmington\GIS\MapDocuments\RI Field Work\LandfillBrook_11X17_LS.mxd PDF: P:\OLIN\Wilmington\GIS\Figures\Temperature Profile\Figure 3 - Landfill Brook Temperature Profile Data.pdf 12/14/2010 9:38 AM bjroden

Legend

- Temperature Profile Location
- 7.2 - Temperature degrees Celsius
- Proposed Sediment and Surface Water Location from RI/FS WP
- Railroad
- Paved Road
- Unpaved Road
- Sidewalks
- Surface Water
- Trails
- Wetland Symbol
- Wetland Boundary
- 51 Eames St. Property Boundary

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Figure 4
Maple Meadow Brook and Sawmill Brook Temperature Profile Data

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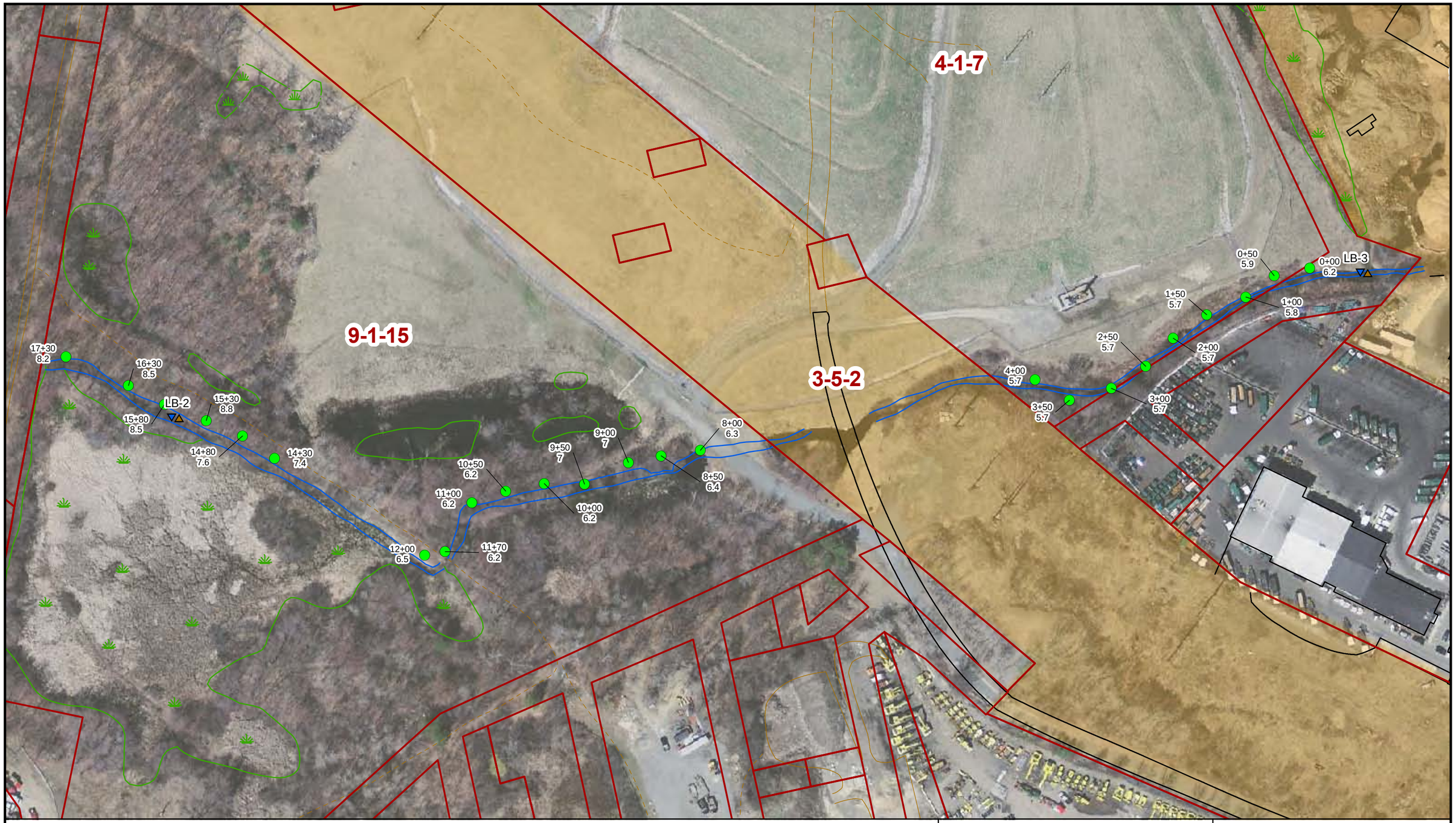
Document: P:\OLIN\Wilmington\GIS\MapDocuments\RI Field Work\LandfillBrook_11X17_LS.mxd PDF: P:\OLIN\Wilmington\GIS\Figures\Temperature Profile\Figure 4 - Maple Meadow Brook and Sawmill Brook Temperature Profile Data.pdf 12/14/2010 9:55 AM bjroden



Legend

- Proposed Sediment and Surface Water Location based on temperature profile
- Temperature Profile Location
- No agreement with property owner
- **4-1-7** Map-Block-Lot Number
- 7.2 - Temperature degrees Celsius
- Approxamate Property Lines
- Railroad
- Paved Road
- Unpaved Road
- Sidewalks
- Surface Water
- Trails
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- Wetland Boundary
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Figure 5
Proposed Revised Landfill Brook Surface Water/Sediment Sample Locations - OU2

Trip Report – Operable Unit 2
Olin Chemical Superfund Site
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Document: P:\OLIN\Wilmington\GIS\MapDocuments\RI Field Work\LandfillBrook_11X17_LS.mxd PDF: P:\OLIN\Wilmington\GIS\Figures\Temperature Profile\Figure 5 - Proposed Revised Landfill Brook Surface Water Sediment Sample Locations.pdf 01/17/2011 10:15 AM bjroden

PIEZOMETER DATA

Legend

- Piezometer Location
- Proposed Sediment and Surface Water Location from RI/FS WP
- No agreement with property owner
- Railroad
- Paved Road
- Unpaved Road
- Sidewalks
- Surface Water
- Trails
- Wetland Symbol
- Wetland Boundary
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Figure 1
Maple Meadow Brook and
Sawmill Brook Piezometer Locations

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Prepared by BJR | Checked by CHL

Document: P:\OLIN\Wilmington\GIS\MapDocuments\RI Field Work\LandfillBrook_11X17_LS.mxd PDF: P:\OLIN\Wilmington\GIS\Figures\RI Field Work\Figure 1 - Maple Meadow Brook and Sawmill Brook Piezometer Locations.pdf 03/03/2011 10:31 AM bjroden

Piezometer Water Level Measurements
Remedial Investigation Report - OU1 and OU2
Olin Chemical Superfund Site
Wilmington, Massachusetts

			December 2010 OU-2 Sampling		May 2011 Synoptic Round	Spring 2011 OU-2 Sampling			Fall 2011 Synoptic Round
		Date	12/2/2010	12/3/2011	5/10/2011	6/6/2011	6/7/2011	6/8/2011	10/10/2011
Confluence MMB & SMB	Piezometer #1	PZ-SW-1 in	3.87	-	3.65	3.83	-	-	2.75
		PZ-SW-1 out	3.88	-	3.71	3.85	-	-	2.82
Sawmill Brook (SMB)	Piezometer #2	PZ-SW-5 in	6.03	-	2.15	-	2.40	-	1.28
		PZ-SW-5 out	2.35	-	2.30	-	2.42	-	1.43
Maple Meadow Brook (MMB)	Piezometer #3	PZ-SW-3 in	-	5.94	-	-	-	4.27	3.19
		PZ-SW-3 out	-	4.25	-	-	-	4.29	3.28

Created by: CHL

Checked by: CTM

APPENDIX I

BACKGROUND SOIL DERIVATION
(Provided on CD)

DERIVATION OF BACKGROUND THRESHOLD VALUES

A total of 9 samples are included in the background soil dataset. The location of each sample is presented in Figure 1 of this attachment. Derivation of background threshold values (BTVs) for all detected analytes in the background dataset is described below.

I. Development of BTVs

A. Preprocessing of Dataset

The main objective of the statistical procedures used in derive BTVs is to model the majority of the data representing the dominant population, while not accommodating the few low or high probability outliers that may not be representative of background conditions. These types of outlying observations can distort the mean and standard deviation calculations, ultimately yielding imprecise estimates of BTVs (i.e., UPLs or UTLs). As such, and consistent with USEPA ProUCL technical guidance, it is highly desirable to identify and remove potential outliers prior to estimating background concentrations. This was first done through qualitative assessment of scatter plots for each analyte (Figure 2). These plots demonstrate a consistent dataset with minimal variability across most analytes. Although review of these scatter plots identified general consistency among a majority of the analytes, a more detailed quantitative analysis was required to identify potential outliers.

To support identification of outliers in this evaluation, the common inter-quartile range (IQR) approach (based on flagging upper and lower fences/thresholds) was followed. Essentially, the IQR is calculated as the 75th percentile – 25th percentile for each compound. The upper fence is calculated as the 75th percentile + (1.5 x IQR) while the lower fence is calculated as the 25th percentile – (1.5 x IQR). Data points that fall either above the upper fence or below the lower fence are identified as outliers and subsequently removed from the dataset.

All data points that were identified as outliers and consequently removed from the final background dataset are documented in Table 1 of this appendix. For further clarification, IQR calculations are presented (along with the upper and lower fence thresholds) at the bottom of this table. Note that for the purposes of outlier identification, all nondetect results were set at ½ their laboratory reporting limit.

B. Derivation of BTVs

Once the dataset was processed, USEPA's ProUCL software package (version 4.1) was used to determine the shape of each data distribution. Goodness-of-fit statistics were used to classify data as following a normal, lognormal, or nondiscernable (nonparametric) distribution. Once the distribution was established, BTVs were estimated using this same software. While USEPA does not provide any recommendations regarding the use of the BTVs, developers of ProUCL software suggest the use of 95% upper prediction limits (UPLs) to estimate background parameters (USEPA, 2010). UPLs are defined as the upper boundaries of a prediction interval for an independently obtained observation and are often used in background evaluations (USEPA, 2010). They are commonly referred to as reasonable, yet conservative estimates of background, particularly when planning to perform point-by-point comparisons of site and background concentrations. As such, 95% UPLs were selected to represent final background concentrations for each analyte at the site.

Based on the distribution of the datasets, 95% UPLs were estimated through the use parametric or nonparametric statistics. For datasets that fit either a normal or lognormal distribution and where at least 70% of the results were reported as detected concentrations, the corresponding normal or lognormal UPL was retained. For analytes that did not fit either distribution or for those which fit more than two distributions, nonparametric techniques (based on ranking) were employed in order to reliably estimate an upper limit. Per ProUCL guidance, nonparametric statistics were also used for all analytes that were infrequently detected (<70% detected) and/or reported with varying detection limits.

When nonparametric statistics are used, ProUCL guidance (USEPA, 2010) provides no specific recommendations regarding the most appropriate upper limit to use. However, the technical guidance document (USEPA, 2010) suggests the use of the Kaplan-Meier statistic (KM) estimates and their associated upper limits to estimate BTVs for datasets that are not highly left skewed and/or datasets with multiple detection limits. Since much of the data used in this evaluation fits both of these criteria, 95% KM estimates were retained for all datasets with nondetects requiring nonparametric statistics.

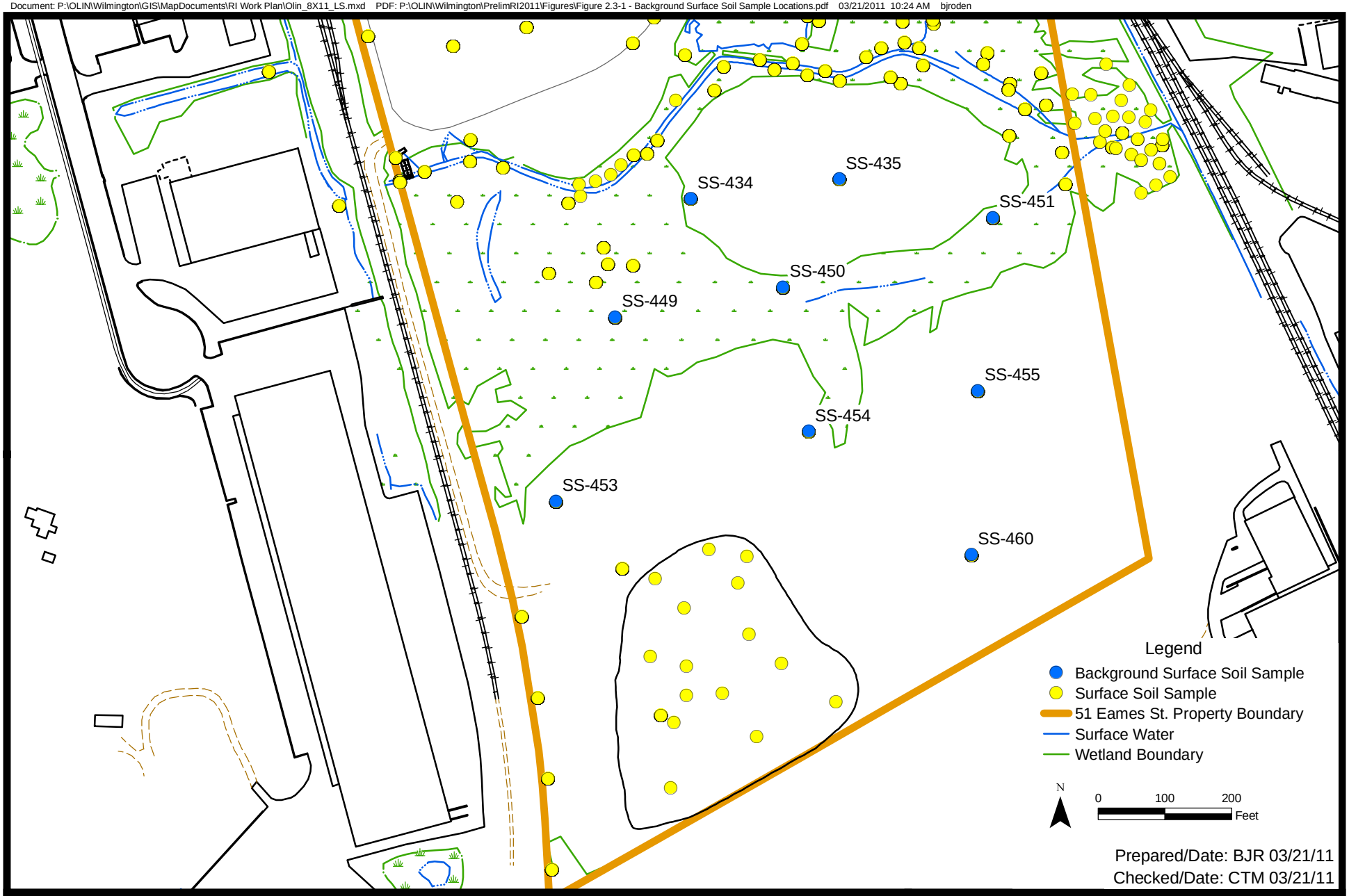
ProUCL outputs for estimating background concentrations are presented in Table 2 of this appendix. Note that when datasets for a certain analyte only included one distinct detected value (and could therefore not be processed by ProUCL), or when all results for a given analyte were reported as nondetect, BTVs were not estimated.

Summary statistics (after removing outliers) including the number of samples, frequency of detection, minimum detected concentrations, maximum detected concentrations, data distribution, and final 95% UPLs are presented in Table 3 of this appendix.

References:

USEPA, 2010. ProUCL Version 4.1.00 Technical Guide (Draft). Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations. EPA/600/R-07/041. May.

Document: P:\OLIN\Wilmington\GIS\MapDocuments\RI Work Plan\Olin_8X11_LS.mxd PDF: P:\OLIN\Wilmington\PrelimRI2011\Figures\Figure 2.3-1 - Background Surface Soil Sample Locations.pdf 03/21/2011 10:24 AM bjroden



Preliminary Remedial Investigation Report
Operable Unit 1 for the Olin Property
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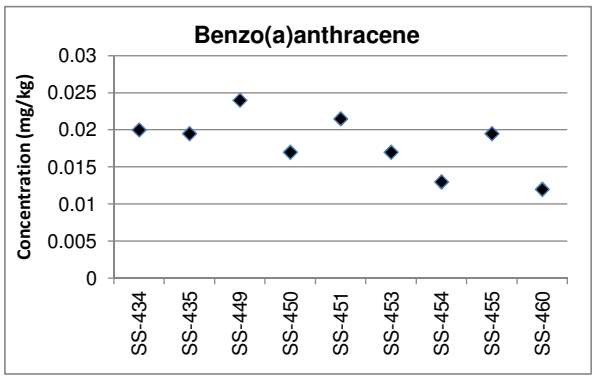
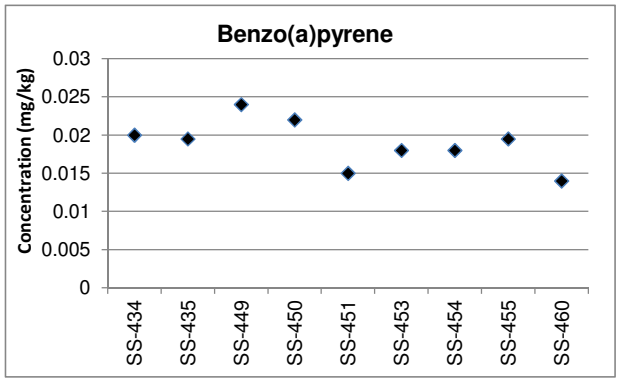
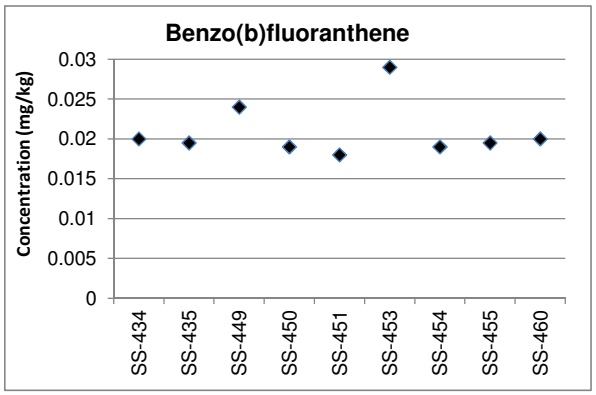
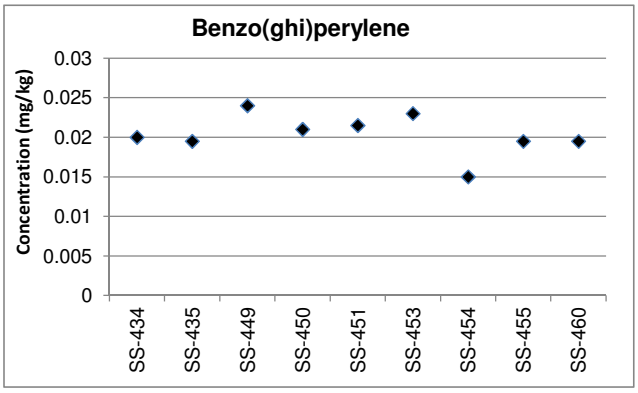
Figure 1
Background Surface Soil Sample Locations

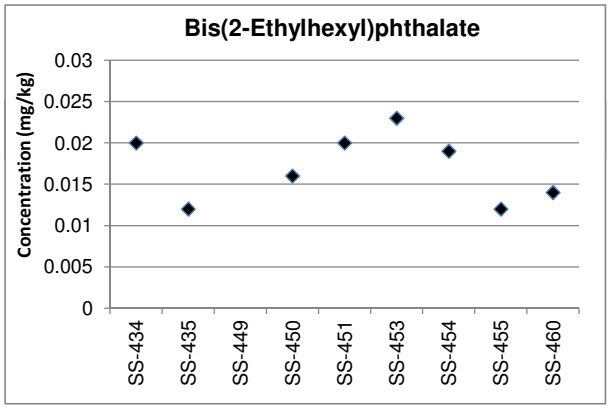
Figure 2: Plots of Background Surface Soil Data
OLIN Wilmington
OU1 Background Soil Samples

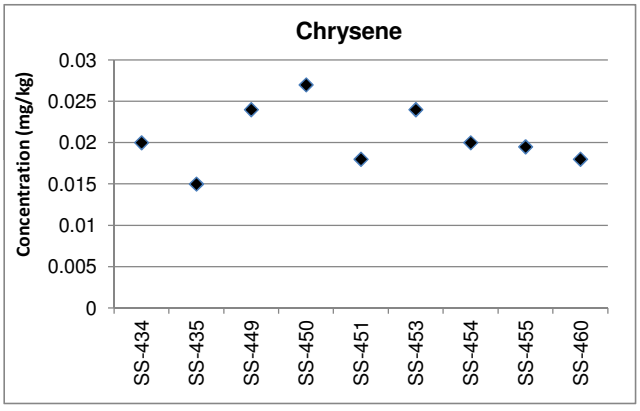


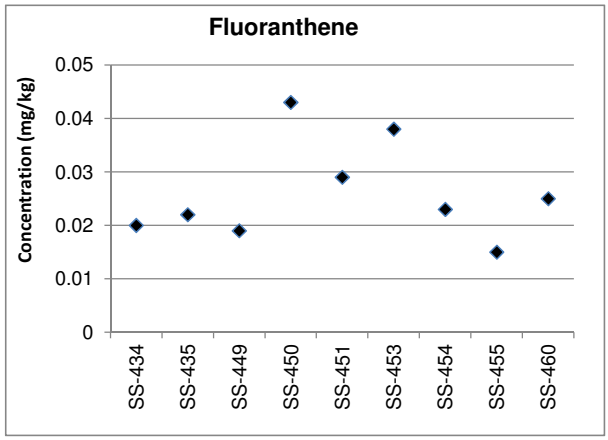


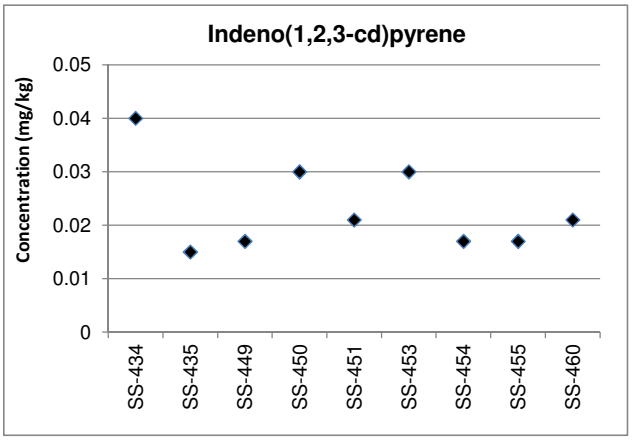






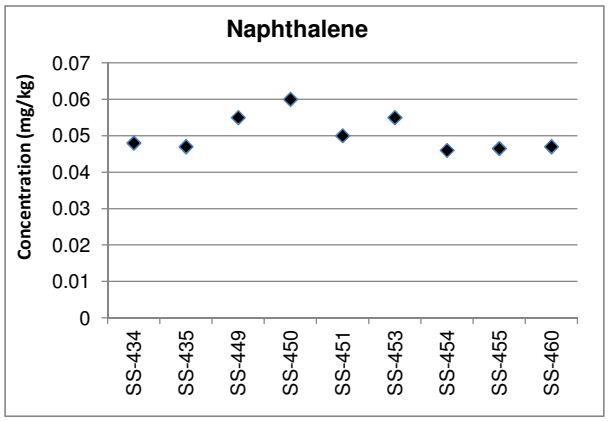


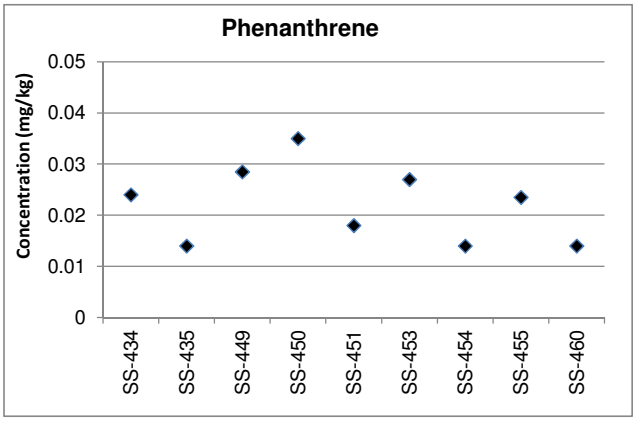


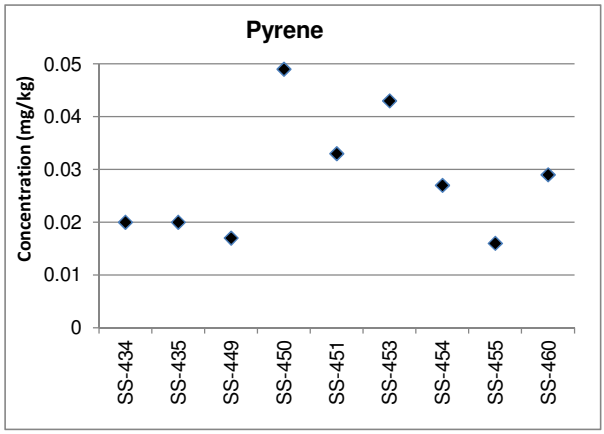


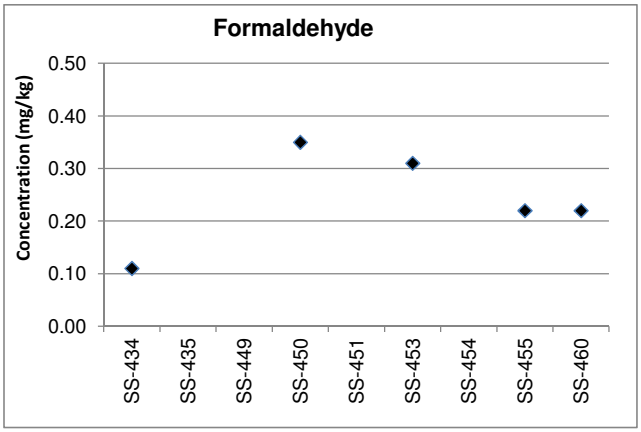
Notes: All nondetect results are presented at 1/2 the laboratory reporting limit in graphs.

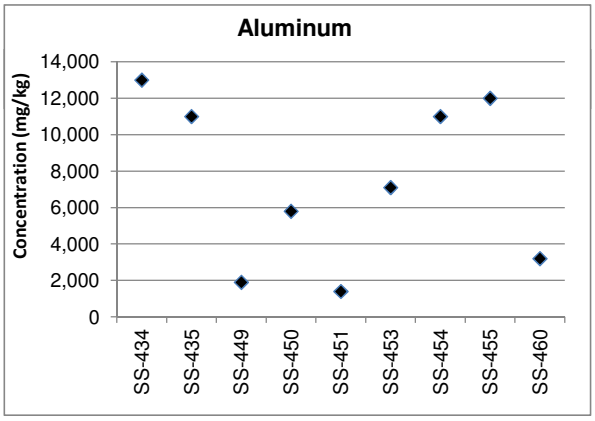
Figure 2: Plots of Background Surface Soil Data
OLIN Wilmington
OU1 Background Soil Samples

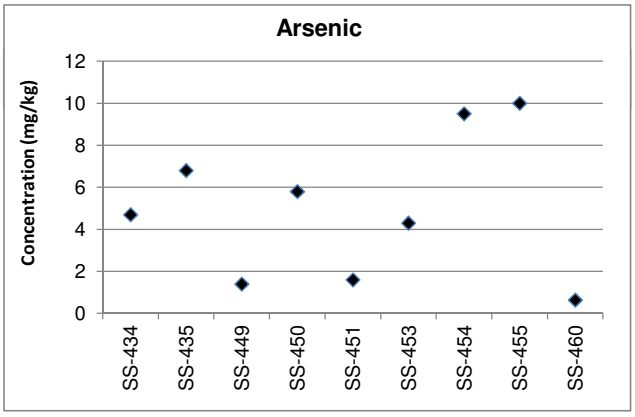


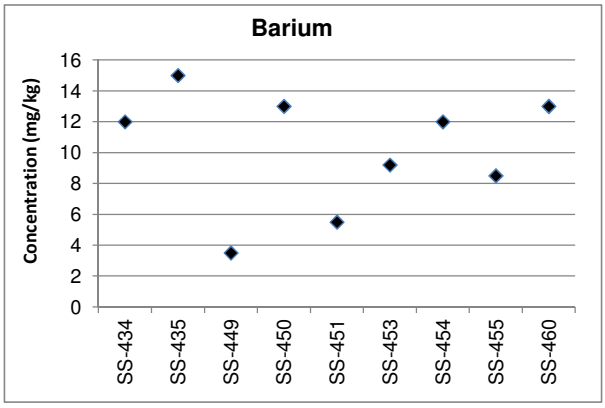


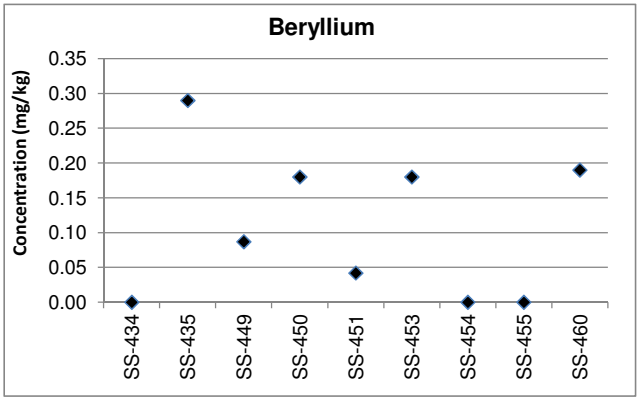






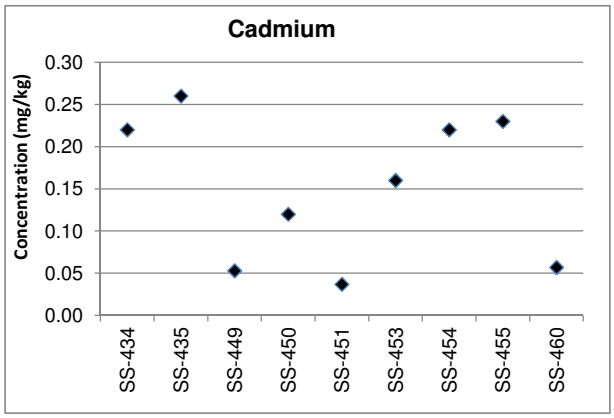


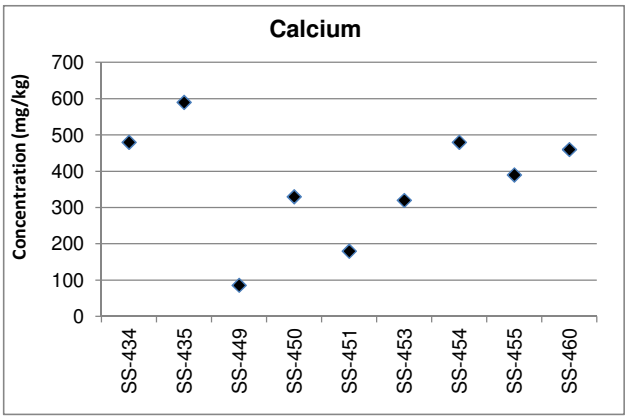


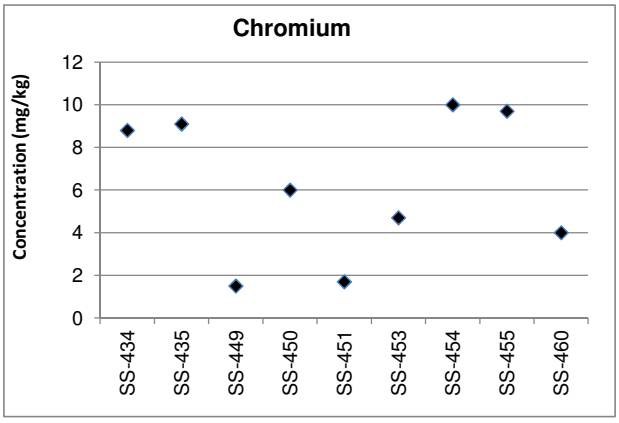


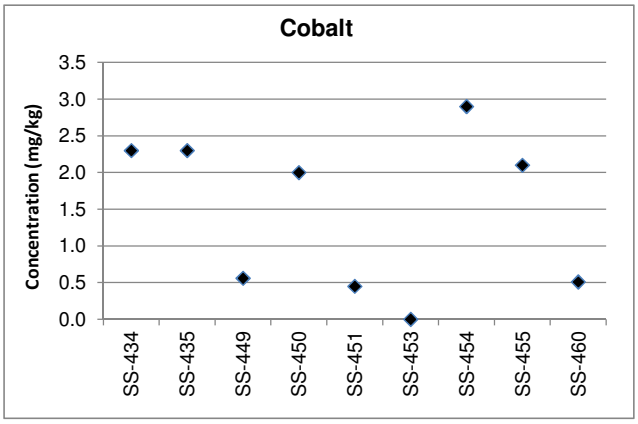
Notes: All nondetect results are presented at 1/2 the laboratory reporting limit in graphs.

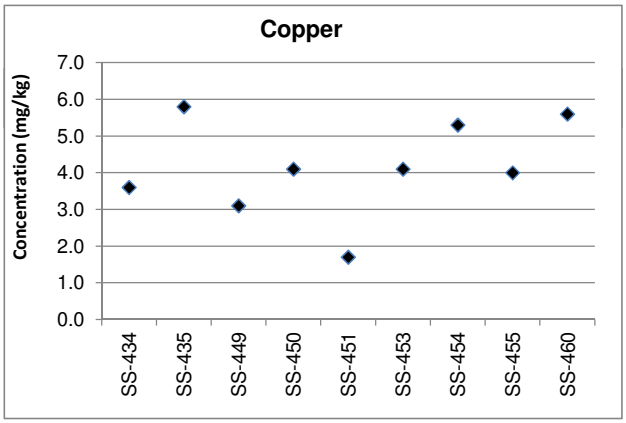
Figure 2: Plots of Background Surface Soil Data
OLIN Wilmington
OU1 Background Soil Samples

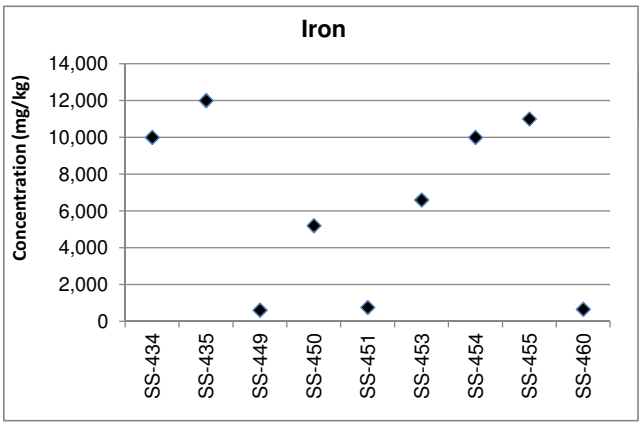


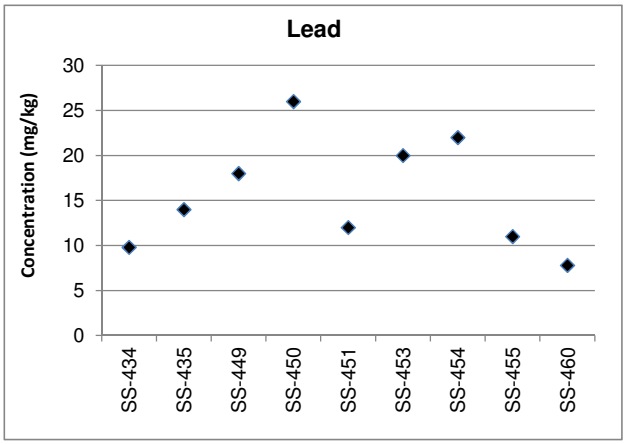


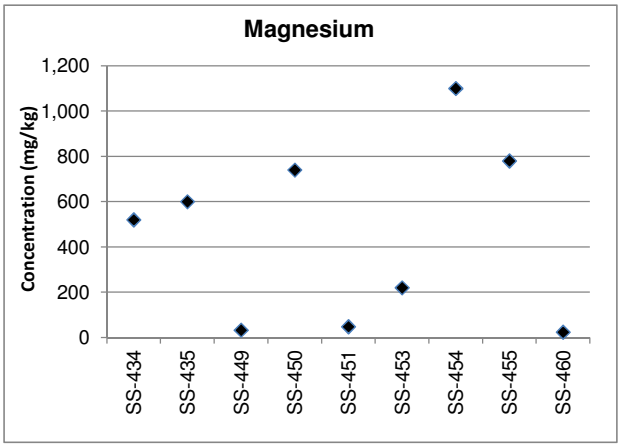






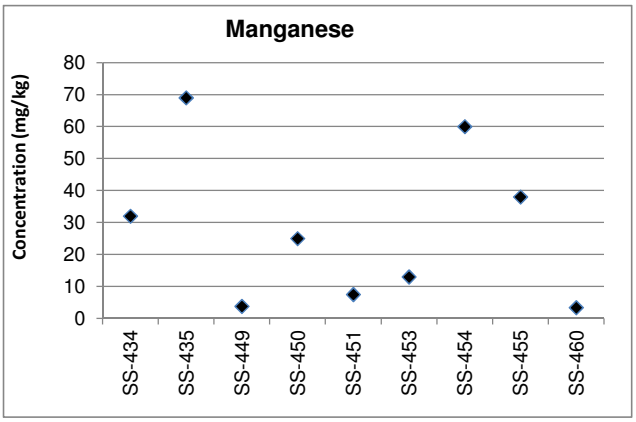


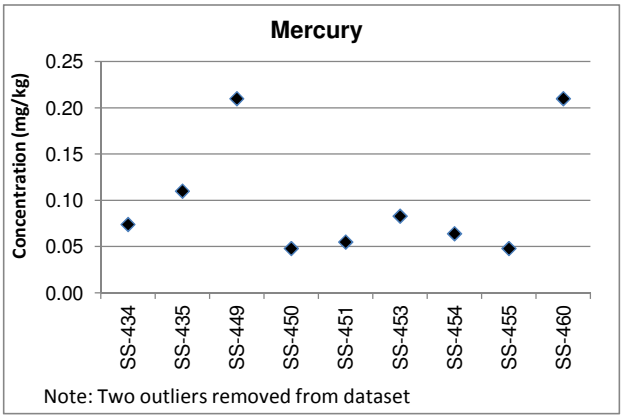


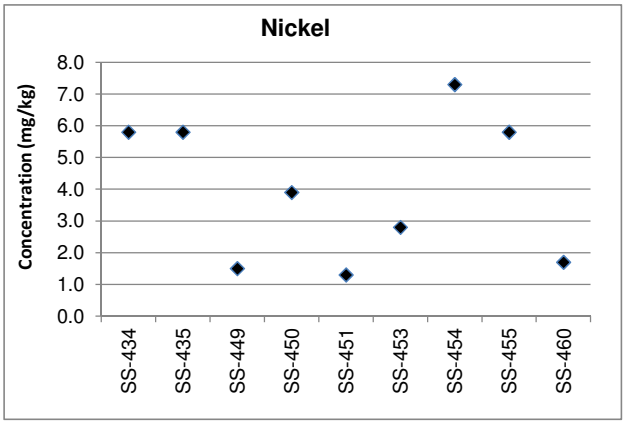


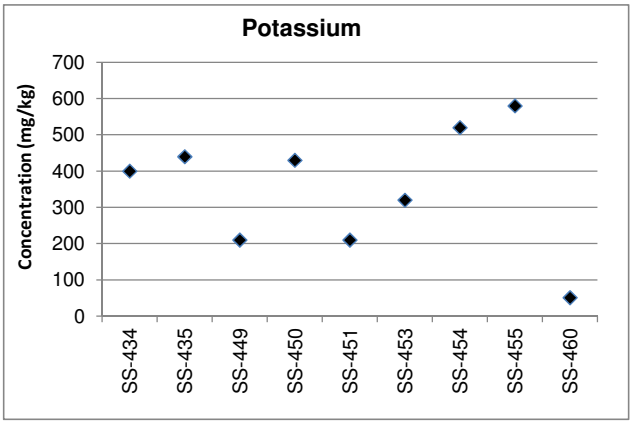
Notes: All nondetect results are presented at 1/2 the laboratory reporting limit in graphs.

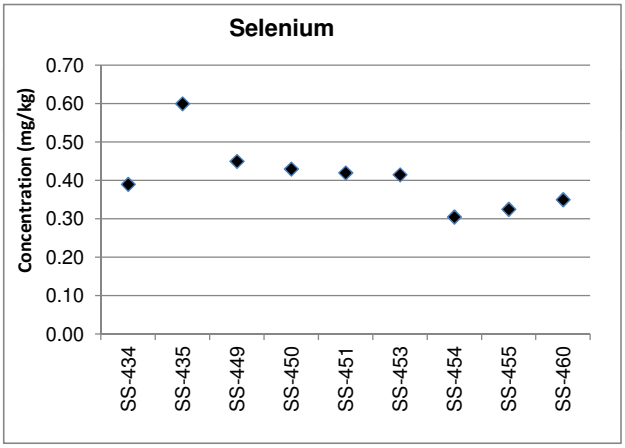
Figure 2: Plots of Background Surface Soil Data
OLIN Wilmington
OU1 Background Soil Samples

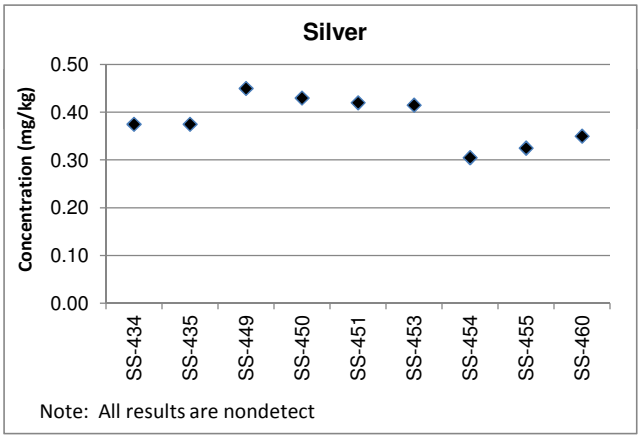


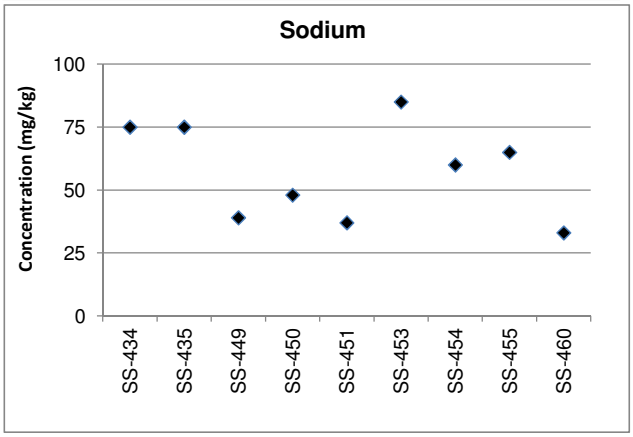


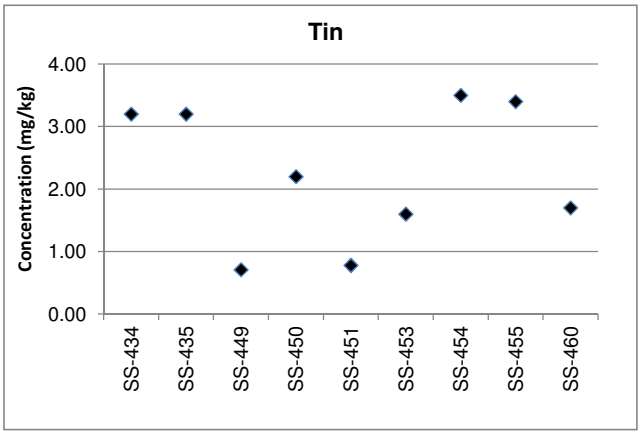






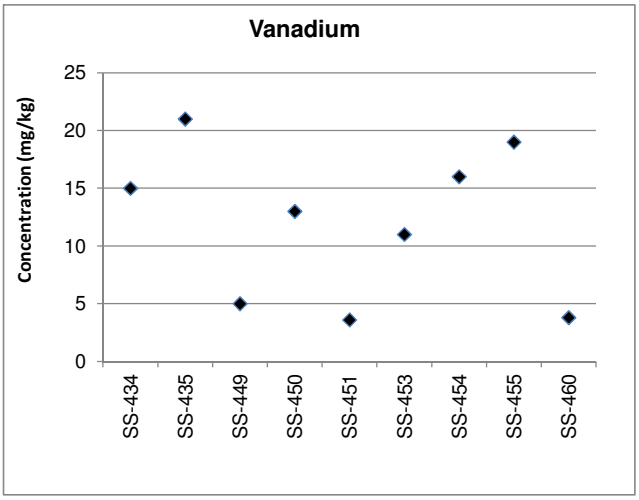


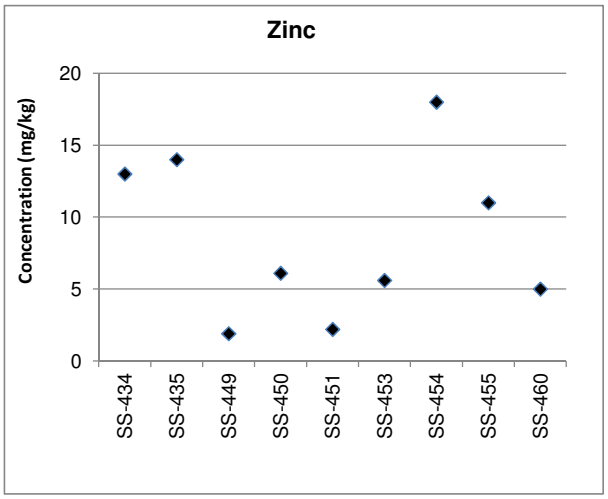


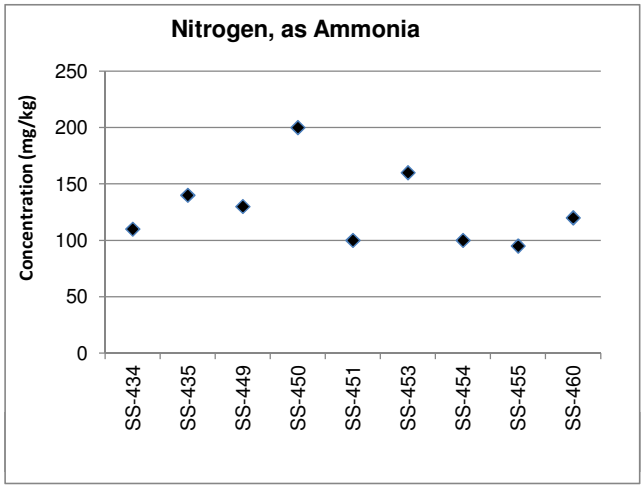


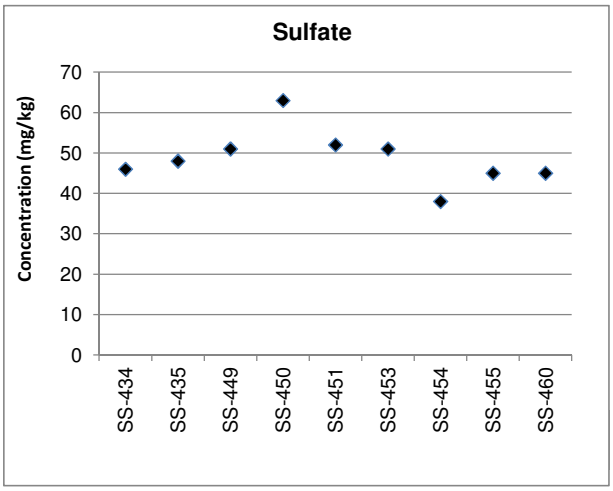
Notes: All nondetect results are presented at 1/2 the laboratory reporting limit in graphs.

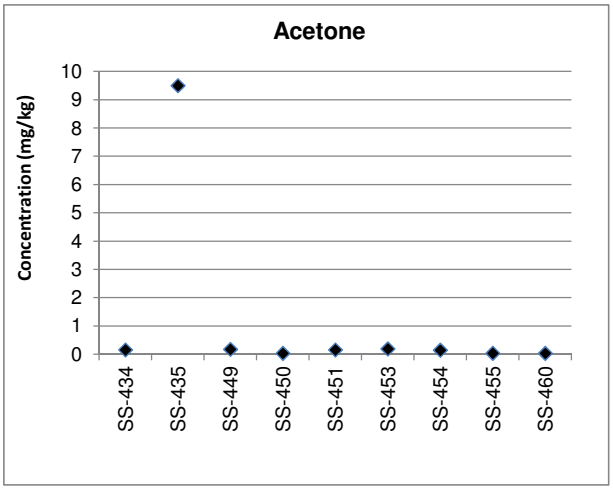
Figure 2: Plots of Background Surface Soil Data
OLIN Wilmington
OU1 Background Soil Samples

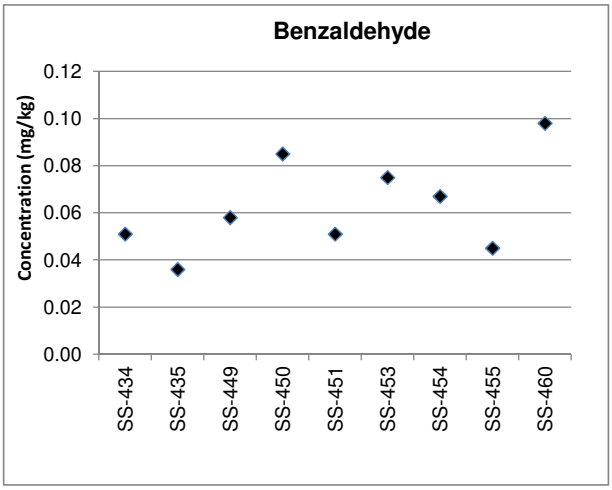












Notes: All nondetect results are presented at 1/2 the laboratory reporting limit in graphs.

Table 1: Identification of Outliers in Background Soil

Sample ID	Benzo(a)anthracene		Benzo(a)pyrene		Benzo(b)fluor.		Benzo(ghi)per.		BEHP		Chrysene		Fluoranthene		Indeno(1,2,3-cd)py.	
SS-434	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	UJ
SS-435	0.039	U	0.039	U	0.039	U	0.039	U	0.012	J	0.015	J	0.022	J	0.015	J
SS-449	0.048	U	0.048	U	0.048	U	0.048	U	0.031	J	0.048	U	0.019	J	0.017	J
SS-450	0.017	J	0.022	J	0.019	J	0.021	J	0.016	J	0.027	J	0.043	J	0.03	J
SS-451	0.043	U	0.015	J	0.018	J	0.043	U	0.02	J	0.018	J	0.029	J	0.021	J
SS-453	0.017	J	0.018	J	0.029	J	0.046	U	0.046	U	0.024	J	0.038	J	0.03	J
SS-454	0.013	J	0.018	J	0.019	J	0.015	J	0.038	U	0.02	J	0.023	J	0.017	J
SS-455	0.039	U	0.039	U	0.039	U	0.039	U	0.012	J	0.039	U	0.015	J	0.017	J
SS-460	0.012	J	0.014	J	0.02	J	0.039	U	0.014	J	0.018	J	0.025	J	0.021	J
IQR REVIEW																
Max	0.048		0.048		0.048		0.048		0.046		0.048		0.043		0.04	
25%	0.017		0.018		0.019		0.039		0.014		0.018		0.022		0.017	
50%	0.039		0.022		0.029		0.039		0.02		0.024		0.025		0.021	
75%	0.04		0.039		0.039		0.043		0.038		0.039		0.038		0.03	
90%	0.044		0.0416		0.0416		0.0464		0.0412		0.0416		0.0406		0.032	
95%	0.046		0.0448		0.0448		0.0472		0.0436		0.0448		0.0418		0.036	
IQR	0.023		0.021		0.02		0.004		0.024		0.021		0.016		0.013	
Upper IQR	0.0745		0.0705		0.069		0.049		0.074		0.0705		0.062		0.0495	
Lower IQR	-0.09475		-0.08775		-0.0845		-0.0345		-0.097		-0.08775		-0.071		-0.05725	

Notes:
All results reported in milligrams per kilogram (mg/kg)
U - analyte not detected; concentration presented represents laboratory reporting limit
J - concentration is estimated
IQR - interquartile range
Highlighted cells indicate outliers. Outliers identified as results reported above the calculated Upper IQR or below the calculated Lower IQR

Table 1: Identification of Outliers in Background Soil

Sample ID	Naphthalene		Phenanthrene		Pyrene		Formaldehyde		Aluminum	Arsenic		Barium	Beryllium	
SS-434	0.096	U	0.048	U	0.04	U	0.11	J	13000	4.7		12	0.3	
SS-435	0.094	U	0.014	J	0.02	J			11000	6.8		15	0.29	J
SS-449	0.11	U	0.057	U	0.017	J			1900	1.4	J	3.5	0.087	J
SS-450	0.12	U	0.035	J	0.049	J	0.35		5800	5.8		13	0.18	J
SS-451	0.1	U	0.018	J	0.033	J			1400	1.6	J	5.5	0.042	J
SS-453	0.11	U	0.027	J	0.043	J	0.31		7100	4.3		9.2	0.18	J
SS-454	0.092	U	0.014	J	0.027	J			11000	9.5		12	0.32	
SS-455	0.093	U	0.047	U	0.016	J	0.22		12000	10		8.5	0.28	
SS-460	0.094	U	0.014	J	0.029	J	0.22		3200	0.64	J	13	0.19	J
IQR REVIEW														
Max	0.12		0.057		0.049		0.35		13000	10		15	0.32	
25%	0.094		0.014		0.02		0.22		3200	1.6		8.5	0.18	
50%	0.096		0.027		0.029		0.22		7100	4.7		12	0.19	
75%	0.11		0.047		0.04		0.31		11000	6.8		13	0.29	
90%	0.112		0.0498		0.0442		0.334		12200	9.6		13.4	0.304	
95%	0.116		0.0534		0.0466		0.342		12600	9.8		14.2	0.312	
IQR	0.016		0.033		0.02		0.09		7800	5.2		4.5	0.11	
Upper IQR	0.134		0.0965		0.07		0.445		22700	14.6		19.75	0.455	
Lower IQR	-0.107		-0.13075		-0.085		-0.4475		-30850	-20.3		-21.125	-0.5025	

Notes:
All results reported in milligrams per kilogram (mg/kg)
U - analyte not detected; concentration presented represents laboratory reporting limit
J - concentration is estimated
IQR - interquartile range
Highlighted cells indicate outliers. Outliers identified as results reported above the calculated Upper IQR or below the calculated Lower IQR

Table 1: Identification of Outliers in Background Soil

Sample ID	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium
SS-434	0.22 J	480	8.8	2.3	3.6	10000	9.8	520
SS-435	0.26 J	590	9.1	2.3	5.8	12000	14	600
SS-449	0.053 J	86	1.5	0.56 J	3.1	610	18	33
SS-450	0.12 J	330	6	2	4.1	5200	26	740
SS-451	0.037 J	180	1.7	0.45 J	1.7 J	760	12	48
SS-453	0.16 J	320	4.7	0.91	4.1	6600	20	220
SS-454	0.22 J	480	10	2.9	5.3	10000	22	1100
SS-455	0.23 J	390	9.7	2.1	4	11000	11	780
SS-460	0.057 J	460	4	0.51 J	5.6	660	7.8	24
IQR REVIEW								
Max	0.26	590	10	2.9	5.8	12000	26	1100
25%	0.057	320	4	0.56	3.6	760	11	48
50%	0.16	390	6	2	4.1	6600	14	520
75%	0.22	480	9.1	2.3	5.3	10000	20	740
90%	0.236	502	9.76	2.42	5.64	11200	22.8	844
95%	0.248	546	9.88	2.66	5.72	11600	24.4	972
IQR	0.163	160	5.1	1.74	1.7	9240	9	692
Upper IQR	0.4645	720	16.75	4.91	7.85	23860	33.5	1778
Lower IQR	-0.63975	-760	-21.125	-6.805	-8.175	-35030	-39.25	-2619

Notes:
All results reported in milligrams per kilogram (mg/kg)
U - analyte not detected; concentration presented represents laboratory reporting limit
J - concentration is estimated
IQR - interquartile range
Highlighted cells indicate outliers. Outliers identified as results reported above the calculated Upper IQR or below the calculated Lower IQR

Table 1: Identification of Outliers in Background Soil

Sample ID	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Tin
SS-434	32	0.074 J	5.8	400	0.39 J	0.75 U	150 U	3.2 J
SS-435	69	0.11 J	5.8	440	0.6 J	0.75 U	150 U	3.2 J
SS-449	3.8	0.21 U	1.5 J	210 J	0.9 U	0.9 U	39 J	0.71 J
SS-450	25	0.048 J	3.9	430	0.86 U	0.86 U	48 J	2.2 J
SS-451	7.5	0.055 J	1.3 J	210 J	0.84 U	0.84 U	37 J	0.78 J
SS-453	13	0.083 J	2.8	320 J	0.83 U	0.83 U	170 U	1.6 J
SS-454	60	0.064 J	7.3	520	0.61 U	0.61 U	120 U	3.5 J
SS-455	38	0.048 J	5.8	580	0.65 U	0.65 U	130 U	3.4 J
SS-460	3.4	0.21 U	1.7	51 J	0.7 U	0.7 U	33 J	1.7 J
IQR REVIEW								
Max	69	0.21	7.3	580	0.9	0.9	170	3.5
25%	7.5	0.055	1.7	210	0.61	0.7	39	1.6
50%	25	0.074	3.9	400	0.7	0.75	120	2.2
75%	38	0.11	5.8	440	0.84	0.84	150	3.2
90%	61.8	0.21	6.1	532	0.868	0.868	154	3.42
95%	65.4	0.21	6.7	556	0.884	0.884	162	3.46
IQR	30.5	0.055	4.1	230	0.23	0.14	111	1.6
Upper IQR	83.75	0.1925	11.95	785	1.185	1.05	316.5	5.6
Lower IQR	-118.125	-0.23375	-16.225	-967.5	-1.1675	-0.875	-435.75	-6.8

Notes:
All results reported in milligrams per kilogram (mg/kg)
U - analyte not detected; concentration presented represents laboratory reporting limit
J - concentration is estimated
IQR - interquartile range
Highlighted cells indicate outliers. Outliers identified as results reported above the calculated Upper IQR or below the calculated Lower IQR

Table 1: Identification of Outliers in Background Soil

Sample ID	Vanadium	Zinc	Nitrogen, as Ammonia	Sulfate	Acetone	Benzaldehyde
SS-434	15	13	110	46 U	0.31 UJ	0.051
SS-435	21	14	140	48 U	19 UJ	0.036 J
SS-449	5	1.9 J	130	51 U	0.35 UJ	0.058
SS-450	13	6.1	200	63	0.034 J	0.085
SS-451	3.6	2.2 J	100	52 U	0.31 UJ	0.051
SS-453	11	5.6	160	51 U	0.38 UJ	0.075
SS-454	16	18	100	38 U	0.29 UJ	0.067
SS-455	19	11	95	45 U	0.035 J	0.045
SS-460	3.8	5	120	45 U	0.034 J	0.098
IQR REVIEW						
Max	21	18	200	63	19	0.098
25%	5	5	100	45	0.035	0.051
50%	13	6.1	120	48	0.31	0.058
75%	16	13	140	51	0.35	0.075
90%	19.4	14.8	168	54.2	4.104	0.0876
95%	20.2	16.4	184	58.6	11.552	0.0928
IQR	11	8	40	6	0.315	0.024
Upper IQR	32.5	25	200	60	0.8225	0.111
Lower IQR	-43.75	-32.5	-200	-45	-1.19875	-0.1155

Notes:
All results reported in milligrams per kilogram (mg/kg)
U - analyte not detected; concentration presented represents laboratory reporting limit
J - concentration is estimated
IQR - interquartile range
Highlighted cells indicate outliers. Outliers identified as results reported above the calculated Upper IQR or below the calculated Lower IQR

Prepared By/Date: EYM 10/1/12
Checked By/Date: RRD 10/1/12

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Benzo(a)anthracene

General Statistics

Number of Valid Data	9	Number of Detected Data	4
Number of Distinct Detected Data	3	Number of Non-Detect Data	5
Tolerance Factor	2.454	Percent Non-Detects	55.56%

Raw Statistics

Minimum Detected	0.012
Maximum Detected	0.017
Mean of Detected	0.0148
SD of Detected	0.00263
Minimum Non-Detect	0.039
Maximum Non-Detect	0.048

Log-transformed Statistics

Minimum Detected	-4.423
Maximum Detected	-4.075
Mean of Detected	-4.229
SD of Detected	0.181
Minimum Non-Detect	-3.244
Maximum Non-Detect	-3.037

Data with Multiple Detection Limits

Note: Data have multiple DLs - Use of KM Method is recommende
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Single Detection Limit Scenario

Number treated as Non-Detect with Single DL	9
Number treated as Detected with Single DL	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

Background Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.813
5% Shapiro Wilk Critical Value	0.748

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.823
5% Shapiro Wilk Critical Value	0.748

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method

	Mean	0.0182
	SD	0.00386
95% UTL	90% Coverage	0.0277
	95% UPL (t)	0.0257
	90% Percentile (z)	0.0231
	95% Percentile (z)	0.0245
	99% Percentile (z)	0.0272

Maximum Likelihood Estimate(MLE) Method N/A

Assuming Lognormal Distribution

DL/2 Substitution Method

	Mean (Log Scale)	-4.03
	SD (Log Scale)	0.227
95% UTL	90% Coverage	0.0311
	95% UPL (t)	0.0278
	90% Percentile (z)	0.0238
	95% Percentile (z)	0.0258
	99% Percentile (z)	0.0302

Log ROS Method

	Mean in Original Scale	0.0147
	SD in Original Scale	0.00177
	Mean in Log Scale	-4.229
	SD in Log Scale	0.122
95% UTL	90% Coverage	0.0196
	95% UPL (t)	0.0185
	90% Percentile (z)	0.017
	95% Percentile (z)	0.0178
	99% Percentile (z)	0.0193

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	10.48
Theta Star	0.00141
nu star	83.82
A-D Test Statistic	0.536
5% A-D Critical Value	0.656
K-S Test Statistic	0.338
5% K-S Critical Value	0.394

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data

Mean	0.0149
Median	0.0151
SD	0.00178
k star	50.99
Theta star	0.000292
Nu star	917.8
95% Percentile of Chisquare (2k)	126.6
90% Percentile	0.0176
95% Percentile	0.0185
99% Percentile	0.0202

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean		0.0148
SD		0.00228
SE of Mean		0.00131
95% KM UTL with	90% Coverage	0.0203
95% KM Chebyshev UPL		0.0252
95% KM UPL (t)		0.0192
90% Percentile (z)		0.0177
95% Percentile (z)		0.0185
99% Percentile (z)		0.02

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0187
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0187
95% WH Approx. Gamma UTL with	90% Coverage	0.0197
95% HW Approx. Gamma UTL with	90% Coverage	0.0198

Note: DL/2 is not a recommended method.

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Benzo(a)pyrene

General Statistics

Number of Valid Data	9	Number of Detected Data	5
Number of Distinct Detected Data	4	Number of Non-Detect Data	4
Tolerance Factor	2.454	Percent Non-Detects	44.44%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.014	Minimum Detected	-4.269
Maximum Detected	0.022	Maximum Detected	-3.817
Mean of Detected	0.0174	Mean of Detected	-4.064
SD of Detected	0.00313	SD of Detected	0.177
Minimum Non-Detect	0.039	Minimum Non-Detect	-3.244
Maximum Non-Detect	0.048	Maximum Non-Detect	-3.037

Data with Multiple Detection Limits

Note: Data have multiple DLs - Use of KM Method is recommende
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Single Detection Limit Scenario

Number treated as Non-Detect with Single DL	9
Number treated as Detected with Single DL	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.931
5% Shapiro Wilk Critical Value	0.762

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method

Mean		0.0189
SD		0.00313
95% UTL	90% Coverage	0.0266
	95% UPL (t)	0.025
	90% Percentile (z)	0.0229
	95% Percentile (z)	0.024
	99% Percentile (z)	0.0262

Maximum Likelihood Estimate(MLE) Method N/A

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.943
5% Shapiro Wilk Critical Value	0.762

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method

Mean (Log Scale)		-3.982
SD (Log Scale)		0.17
95% UTL	90% Coverage	0.0283
	95% UPL (t)	0.026
	90% Percentile (z)	0.0232
	95% Percentile (z)	0.0247
	99% Percentile (z)	0.0277

Log ROS Method

Mean in Original Scale		0.0173
SD in Original Scale		0.00237
Mean in Log Scale		-4.064
SD in Log Scale		0.135
95% UTL	90% Coverage	0.0239
	95% UPL (t)	0.0224
	90% Percentile (z)	0.0204
	95% Percentile (z)	0.0214
	99% Percentile (z)	0.0235

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	15.96
Theta Star	0.00109
nu star	159.6
A-D Test Statistic	0.306
5% A-D Critical Value	0.678
K-S Test Statistic	0.205
5% K-S Critical Value	0.357

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data	
Mean	0.0176
Median	0.0179
SD	0.00238
k star	41.22
Theta star	0.000426
Nu star	742
95% Percentile of Chisquare (2k)	104.6
90% Percentile	0.0211
95% Percentile	0.0223
99% Percentile	0.0245

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method		
Mean		0.0174
SD		0.0028
SE of Mean		0.0014
95% KM UTL with	90% Coverage	0.0243
95% KM Chebyshev UPL		0.0303
95% KM UPL (t)		0.0229
90% Percentile (z)		0.021
95% Percentile (z)		0.022
99% Percentile (z)		0.0239

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0225
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0226
95% WH Approx. Gamma UTL with	90% Coverage	0.0239
95% HW Approx. Gamma UTL with	90% Coverage	0.024

Note: DL/2 is not a recommended method.

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Benzo(b)fluoranthene

General Statistics

Total Number of Observations	9	Number of Distinct Observations	7
Tolerance Factor	2.454		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	0.018	Minimum	-4.017
Maximum	0.048	Maximum	-3.037
Second Largest	0.04	Second Largest	-3.219
First Quartile	0.019	First Quartile	-3.963
Median	0.029	Median	-3.54
Third Quartile	0.039	Third Quartile	-3.244
Mean	0.0301	Mean	-3.571
Geometric Mean	0.0281	SD	0.395
SD	0.0116		
Coefficient of Variation	0.385		
Skewness	0.263		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.852	Shapiro Wilk Test Statistic	0.841
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	0.0585	95% UTL with 90% Coverage	0.0741
95% UPL (t)	0.0528	95% UPL (t)	0.061
90% Percentile (z)	0.045	90% Percentile (z)	0.0467
95% Percentile (z)	0.0492	95% Percentile (z)	0.0538
99% Percentile (z)	0.0571	99% Percentile (z)	0.0705

Table 2: ProUCL Output for Background Soil UPLs

OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Gamma Distribution Test

k star	5.064
Theta Star	0.00595
MLE of Mean	0.0301
MLE of Standard Deviation	0.0134
nu star	91.15
A-D Test Statistic	0.732
5% A-D Critical Value	0.722
K-S Test Statistic	0.266
5% K-S Critical Value	0.28

Data follow Appx. Gamma Distribution at 5% Significance Leve

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	0.0416
95% Percentile	0.0448
99% Percentile	0.0474

Assuming Gamma Distribution

90% Percentile	0.048
95% Percentile	0.055
99% Percentile	0.0696
95% WH Approx. Gamma UPL	0.0572
95% HW Approx. Gamma UPL	0.058
95% WH Approx. Gamma UTL with 90% Coverage	0.0666
95% HW Approx. Gamma UTL with 90% Coverage	0.0681

95% UTL with 90% Coverage	0.048
95% Percentile Bootstrap UTL with 90% Coverage	0.048
95% BCA Bootstrap UTL with 90% Coverage	0.048
95% UPL	0.048
95% Chebyshev UPL	0.0833
Upper Threshold Limit Based upon IQR	0.069

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Benzo(ghi)perylene

General Statistics

Number of Valid Data	9	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	7

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful and reliable test statistics and estimates.
No statistics will be produced!

Tolerance Factor	2.454	Percent Non-Detects	77.78%

Raw Statistics

Minimum Detected	0.015
Maximum Detected	0.021
Mean of Detected	0.018
SD of Detected	0.00424
Minimum Non-Detect	0.039
Maximum Non-Detect	0.048

Log-transformed Statistics

Minimum Detected	-4.2
Maximum Detected	-3.863
Mean of Detected	-4.031
SD of Detected	0.238
Minimum Non-Detect	-3.244
Maximum Non-Detect	-3.037

Data with Multiple Detection Limits

Note: Data have multiple DLs - Use of KM Method is recommende
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Single Detection Limit Scenario

Number treated as Non-Detect with Single DL	9
Number treated as Detected with Single DL	0
Single DL Non-Detect Percentage	100.00%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Background Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method		
Mean		0.0203
SD		0.00257
95% UTL	90% Coverage	0.0266
95% UPL (t)		0.0254
90% Percentile (z)		0.0236
95% Percentile (z)		0.0246
99% Percentile (z)		0.0263
Maximum Likelihood Estimate(MLE) Method		N/A

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A

Data not Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method		
Mean (Log Scale)		-3.903
SD (Log Scale)		0.134
95% UTL	90% Coverage	0.0281
95% UPL (t)		0.0263
90% Percentile (z)		0.024
95% Percentile (z)		0.0252
99% Percentile (z)		0.0276
Log ROS Method		
Mean in Original Scale		N/A
SD in Original Scale		N/A
Mean in Log Scale		N/A
SD in Log Scale		N/A
95% UTL	90% Coverage	N/A
95% UPL (t)		N/A
90% Percentile (z)		N/A
95% Percentile (z)		N/A
99% Percentile (z)		N/A

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	N/A
Theta Star	N/A
nu star	N/A
A-D Test Statistic	N/A
5% A-D Critical Value	N/A
K-S Test Statistic	N/A
5% K-S Critical Value	N/A

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data	
Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
95% Percentile of Chisquare (2k)	N/A
90% Percentile	N/A
95% Percentile	N/A
99% Percentile	N/A

Data Distribution Test with Detected Values Only

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

Kaplan-Meier (KM) Method		
Mean		0.018
SD		0.003
SE of Mean		0.003
95% KM UTL with	90% Coverage	0.0254
95% KM Chebyshev UPL		0.0318
95% KM UPL (t)		0.0239
90% Percentile (z)		0.0218
95% Percentile (z)		0.0229
99% Percentile (z)		0.025

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL		N/A
95% Hawkins Wixley (HW) Approx. Gamma UPL		N/A
95% WH Approx. Gamma UTL with	90% Coverage	N/A
95% HW Approx. Gamma UTL with	90% Coverage	N/A

Note: DL/2 is not a recommended method.

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Bis(2-Ethylhexyl)phthalate

General Statistics

Number of Valid Data	9	Number of Detected Data	6
Number of Distinct Detected Data	5	Number of Non-Detect Data	3
Tolerance Factor	2.454	Percent Non-Detects	33.33%

Raw Statistics

Minimum Detected	0.012
Maximum Detected	0.031
Mean of Detected	0.0175
SD of Detected	0.00726
Minimum Non-Detect	0.038
Maximum Non-Detect	0.046

Log-transformed Statistics

Minimum Detected	-4.423
Maximum Detected	-3.474
Mean of Detected	-4.106
SD of Detected	0.365
Minimum Non-Detect	-3.27
Maximum Non-Detect	-3.079

Data with Multiple Detection Limits

Note: Data have multiple DLs - Use of KM Method is recommende
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Single Detection Limit Scenario

Number treated as Non-Detect with Single DL	9
Number treated as Detected with Single DL	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.813
5% Shapiro Wilk Critical Value	0.788

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method

Mean		0.0186
SD		0.00604
95% UTL	90% Coverage	0.0334
	95% UPL (t)	0.0304
	90% Percentile (z)	0.0263
	95% Percentile (z)	0.0285
	99% Percentile (z)	0.0326

Maximum Likelihood Estimate(MLE) Method N/A

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.88
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method

Mean (Log Scale)		-4.031
SD (Log Scale)		0.313
95% UTL	90% Coverage	0.0383
	95% UPL (t)	0.0328
	90% Percentile (z)	0.0265
	95% Percentile (z)	0.0297
	99% Percentile (z)	0.0368

Log ROS Method

Mean in Original Scale		0.0172
SD in Original Scale		0.00576
Mean in Log Scale		-4.106
SD in Log Scale		0.288
95% UTL	90% Coverage	0.0334
	95% UPL (t)	0.029
	90% Percentile (z)	0.0238
	95% Percentile (z)	0.0265
	99% Percentile (z)	0.0322

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	4.336
Theta Star	0.00404
nu star	52.03
A-D Test Statistic	0.451
5% A-D Critical Value	0.698
K-S Test Statistic	0.223
5% K-S Critical Value	0.333

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data

Mean	0.0178
Median	0.0183
SD	0.00575
k star	8.421
Theta star	0.00211
Nu star	151.6
95% Percentile of Chisquare (2k)	27.38
90% Percentile	0.0259
95% Percentile	0.0289
99% Percentile	0.035

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean		0.0175
SD		0.00663
SE of Mean		0.00296
95% KM UTL with	90% Coverage	0.0338
95% KM Chebyshev UPL		0.0479
95% KM UPL (t)		0.0305
90% Percentile (z)		0.026
95% Percentile (z)		0.0284
99% Percentile (z)		0.0329

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0297
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0298
95% WH Approx. Gamma UTL with	90% Coverage	0.0336
95% HW Approx. Gamma UTL with	90% Coverage	0.0339

Note: DL/2 is not a recommended method.

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Chrysene

General Statistics

Number of Valid Data	9	Number of Detected Data	6
Number of Distinct Detected Data	5	Number of Non-Detect Data	3
Tolerance Factor	2.454	Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.015	Minimum Detected	-4.2
Maximum Detected	0.027	Maximum Detected	-3.612
Mean of Detected	0.0203	Mean of Detected	-3.915
SD of Detected	0.00441	SD of Detected	0.214
Minimum Non-Detect	0.039	Minimum Non-Detect	-3.244
Maximum Non-Detect	0.048	Maximum Non-Detect	-3.037

Data with Multiple Detection Limits

Note: Data have multiple DLs - Use of KM Method is recommende
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Single Detection Limit Scenario

Number treated as Non-Detect with Single DL	9
Number treated as Detected with Single DL	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.942
5% Shapiro Wilk Critical Value	0.788

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method		
Mean		0.0206
SD		0.00372
95% UTL	90% Coverage	0.0297
	95% UPL (t)	0.0279
	90% Percentile (z)	0.0254
	95% Percentile (z)	0.0267
	99% Percentile (z)	0.0293
Maximum Likelihood Estimate(MLE) Method		N/A

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.959
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method		
Mean (Log Scale)		-3.896
SD (Log Scale)		0.18
95% UTL	90% Coverage	0.0316
	95% UPL (t)	0.0289
	90% Percentile (z)	0.0256
	95% Percentile (z)	0.0273
	99% Percentile (z)	0.0309
Log ROS Method		
Mean in Original Scale		0.0202
SD in Original Scale		0.00349
Mean in Log Scale		-3.915
SD in Log Scale		0.169
95% UTL	90% Coverage	0.0302
	95% UPL (t)	0.0278
	90% Percentile (z)	0.0248
	95% Percentile (z)	0.0263
	99% Percentile (z)	0.0295

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	13.22
Theta Star	0.00154
nu star	158.6
A-D Test Statistic	0.274
5% A-D Critical Value	0.697
K-S Test Statistic	0.207
5% K-S Critical Value	0.332

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data

Mean	0.0206
Median	0.021
SD	0.0035
k star	25.99
Theta star	0.000791
Nu star	467.8
95% Percentile of Chisquare (2k)	69.81
90% Percentile	0.0259
95% Percentile	0.0276
99% Percentile	0.0311

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean		0.0203
SD		0.00403
SE of Mean		0.0018
95% KM UTL with	90% Coverage	0.0302
95% KM Chebyshev UPL		0.0388
95% KM UPL (t)		0.0282
90% Percentile (z)		0.0255
95% Percentile (z)		0.027
99% Percentile (z)		0.0297

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.028
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0281
95% WH Approx. Gamma UTL with	90% Coverage	0.0302
95% HW Approx. Gamma UTL with	90% Coverage	0.0303

Note: DL/2 is not a recommended method.

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Fluoranthene

General Statistics

Number of Valid Data	9	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	1
Tolerance Factor	2.454	Percent Non-Detects	11.11%

Raw Statistics

Minimum Detected	0.015
Maximum Detected	0.043
Mean of Detected	0.0268
SD of Detected	0.00951
Minimum Non-Detect	0.04
Maximum Non-Detect	0.04

Log-transformed Statistics

Minimum Detected	-4.2
Maximum Detected	-3.147
Mean of Detected	-3.675
SD of Detected	0.348
Minimum Non-Detect	-3.219
Maximum Non-Detect	-3.219

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.931
5% Shapiro Wilk Critical Value	0.818

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method

Mean		0.026
SD		0.00918
95% UTL	90% Coverage	0.0485
	95% UPL (t)	0.044
	90% Percentile (z)	0.0378
	95% Percentile (z)	0.0411
	99% Percentile (z)	0.0474

Maximum Likelihood Estimate(MLE) Method N/A

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.974
5% Shapiro Wilk Critical Value	0.818

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method

Mean (Log Scale)		-3.701
SD (Log Scale)		0.335
95% UTL	90% Coverage	0.0562
	95% UPL (t)	0.0477
	90% Percentile (z)	0.038
	95% Percentile (z)	0.0429
	99% Percentile (z)	0.0539

Log ROS Method

Mean in Original Scale		0.0264
SD in Original Scale		0.00896
Mean in Log Scale		-3.683
SD in Log Scale		0.327
95% UTL	90% Coverage	0.0561
	95% UPL (t)	0.0477
	90% Percentile (z)	0.0382
	95% Percentile (z)	0.0431
	99% Percentile (z)	0.0538

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	6.023
Theta Star	0.00444
nu star	96.36
A-D Test Statistic	0.231
5% A-D Critical Value	0.715
K-S Test Statistic	0.164
5% K-S Critical Value	0.294

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data

Mean	0.0267
Median	0.025
SD	0.0089
k star	7.187
Theta star	0.00372
Nu star	129.4
95% Percentile of Chisquare (2k)	24.18
90% Percentile	0.04
95% Percentile	0.0449
99% Percentile	0.0552

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean	0.0265
SD	0.00873
SE of Mean	0.00323
95% KM UTL with 90% Coverage	0.0479
95% KM Chebyshev UPL	0.0666
95% KM UPL (t)	0.0436
90% Percentile (z)	0.0377
95% Percentile (z)	0.0408
99% Percentile (z)	0.0468

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0464
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0468
95% WH Approx. Gamma UTL with 90% Coverage	0.0528
95% HW Approx. Gamma UTL with 90% Coverage	0.0536

Note: DL/2 is not a recommended method.

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	9	Number of Detected Data	8
Number of Distinct Detected Data	4	Number of Non-Detect Data	1
Tolerance Factor	2.454	Percent Non-Detects	11.11%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.015	Minimum Detected	-4.2
Maximum Detected	0.03	Maximum Detected	-3.507
Mean of Detected	0.021	Mean of Detected	-3.895
SD of Detected	0.00593	SD of Detected	0.265
Minimum Non-Detect	0.04	Minimum Non-Detect	-3.219
Maximum Non-Detect	0.04	Maximum Non-Detect	-3.219

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.81	Shapiro Wilk Test Statistic	0.851
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution			Assuming Lognormal Distribution		
DL/2 Substitution Method			DL/2 Substitution Method		
	Mean	0.0209		Mean (Log Scale)	-3.897
	SD	0.00556		SD (Log Scale)	0.248
95% UTL	90% Coverage	0.0345	95% UTL	90% Coverage	0.0373
	95% UPL (t)	0.0318		95% UPL (t)	0.033
	90% Percentile (z)	0.028		90% Percentile (z)	0.0279
	95% Percentile (z)	0.03		95% Percentile (z)	0.0305
	99% Percentile (z)	0.0338		99% Percentile (z)	0.0362
Maximum Likelihood Estimate(MLE) Method		N/A	Log ROS Method		
			Mean in Original Scale		0.0209
			SD in Original Scale		0.00555
			Mean in Log Scale		-3.895
			SD in Log Scale		0.248
			95% UTL	90% Coverage	0.0374
				95% UPL (t)	0.0331
				90% Percentile (z)	0.028
				95% Percentile (z)	0.0306
				99% Percentile (z)	0.0362

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	9.912
Theta Star	0.00212
nu star	158.6
A-D Test Statistic	0.681
5% A-D Critical Value	0.716
K-S Test Statistic	0.265
5% K-S Critical Value	0.294

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data

Mean	0.0211
Median	0.021
SD	0.00555
k star	11.82
Theta star	0.00178
Nu star	212.8
95% Percentile of Chisquare (2k)	35.97
90% Percentile	0.0292
95% Percentile	0.0321
99% Percentile	0.0379

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean		0.021
SD		0.00555
SE of Mean		0.0021
95% KM UTL with	90% Coverage	0.0346
95% KM Chebyshev UPL		0.0465
95% KM UPL (t)		0.0319
90% Percentile (z)		0.0281
95% Percentile (z)		0.0301
99% Percentile (z)		0.0339

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0328
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.033
95% WH Approx. Gamma UTL with	90% Coverage	0.0365
95% HW Approx. Gamma UTL with	90% Coverage	0.0368

Note: DL/2 is not a recommended method.

Table 2: ProUCL Output for Background Soil UPLs

OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Naphthalene

General Statistics

Number of Valid Data	9	Number of Detected Data	0
Number of Distinct Detected Data	0	Number of Non-Detect Data	9

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Naphthalene was not processed!

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Phenanthrene

General Statistics

Number of Valid Data	9	Number of Detected Data	6
Number of Distinct Detected Data	4	Number of Non-Detect Data	3
Tolerance Factor	2.454	Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.014	Minimum Detected	-4.269
Maximum Detected	0.035	Maximum Detected	-3.352
Mean of Detected	0.0203	Mean of Detected	-3.965
SD of Detected	0.00878	SD of Detected	0.395
Minimum Non-Detect	0.047	Minimum Non-Detect	-3.058
Maximum Non-Detect	0.057	Maximum Non-Detect	-2.865

Data with Multiple Detection Limits

Note: Data have multiple DLs - Use of KM Method is recommende
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Single Detection Limit Scenario

Number treated as Non-Detect with Single DL	9
Number treated as Detected with Single DL	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.795
5% Shapiro Wilk Critical Value	0.788

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.812
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method		
Mean		0.022
SD		0.0075
95% UTL	90% Coverage	0.0404
95% UPL (t)		0.0367
90% Percentile (z)		0.0316
95% Percentile (z)		0.0343
99% Percentile (z)		0.0395

Assuming Lognormal Distribution

DL/2 Substitution Method		
Mean (Log Scale)		-3.87
SD (Log Scale)		0.347
95% UTL	90% Coverage	0.0489
95% UPL (t)		0.0412
90% Percentile (z)		0.0326
95% Percentile (z)		0.0369
99% Percentile (z)		0.0468

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000
Maximum Likelihood Estimate(MLE) Method	N/A

Log ROS Method	
Mean in Original Scale	0.0199
SD in Original Scale	0.00697
Mean in Log Scale	-3.965
SD in Log Scale	0.312
95% UTL 90% Coverage	0.0408
95% UPL (t)	0.035
90% Percentile (z)	0.0283
95% Percentile (z)	0.0317
99% Percentile (z)	0.0392

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	3.808
Theta Star	0.00534
nu star	45.7
A-D Test Statistic	0.645
5% A-D Critical Value	0.698
K-S Test Statistic	0.296
5% K-S Critical Value	0.333

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.0203
SD	0.00801
SE of Mean	0.00358
95% KM UTL with 90% Coverage	0.04
95% KM Chebyshev UPL	0.0572
95% KM UPL (t)	0.036
90% Percentile (z)	0.0306
95% Percentile (z)	0.0335
99% Percentile (z)	0.039

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data	
Mean	0.0207
Median	0.0213
SD	0.00696
k star	7.377
Theta star	0.0028
Nu star	132.8
95% Percentile of Chisquare (2k)	24.67
90% Percentile	0.0308
95% Percentile	0.0345
99% Percentile	0.0423

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0356
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0359
95% WH Approx. Gamma UTL with 90% Coverage	0.0405
95% HW Approx. Gamma UTL with 90% Coverage	0.0411

Note: DL/2 is not a recommended method.

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Pyrene

General Statistics

Number of Valid Data	9	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	1
Tolerance Factor	2.454	Percent Non-Detects	11.11%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.016	Minimum Detected	-4.135
Maximum Detected	0.049	Maximum Detected	-3.016
Mean of Detected	0.0293	Mean of Detected	-3.606
SD of Detected	0.012	SD of Detected	0.413
Minimum Non-Detect	0.04	Minimum Non-Detect	-3.219
Maximum Non-Detect	0.04	Maximum Non-Detect	-3.219

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.926
5% Shapiro Wilk Critical Value	0.818

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method		
	Mean	0.0282
	SD	0.0116
95% UTL	90% Coverage	0.0568
	95% UPL (t)	0.0511
	90% Percentile (z)	0.0432
	95% Percentile (z)	0.0474
	99% Percentile (z)	0.0553

Maximum Likelihood Estimate(MLE) Method N/A

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.944
5% Shapiro Wilk Critical Value	0.818

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method		
	Mean (Log Scale)	-3.64
	SD (Log Scale)	0.4
95% UTL	90% Coverage	0.07
	95% UPL (t)	0.0575
	90% Percentile (z)	0.0438
	95% Percentile (z)	0.0507
	99% Percentile (z)	0.0665

Log ROS Method		
Mean in Original Scale		0.0286
SD in Original Scale		0.0114
Mean in Log Scale		-3.623
SD in Log Scale		0.39
95% UTL	90% Coverage	0.0695
	95% UPL (t)	0.0573
	90% Percentile (z)	0.044
	95% Percentile (z)	0.0507
	99% Percentile (z)	0.0661

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	4.402
Theta Star	0.00664
nu star	70.43
A-D Test Statistic	0.255
5% A-D Critical Value	0.718
K-S Test Statistic	0.166
5% K-S Critical Value	0.295

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data

Mean	0.0289
Median	0.027
SD	0.0113
k star	5.201
Theta star	0.00556
Nu star	93.61
95% Percentile of Chisquare (2k)	18.86
90% Percentile	0.0459
95% Percentile	0.0524
99% Percentile	0.0662

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean		0.0286
SD		0.0109
SE of Mean		0.00398
95% KM UTL with	90% Coverage	0.0555
95% KM Chebyshev UPL		0.0789
95% KM UPL (t)		0.0501
90% Percentile (z)		0.0427
95% Percentile (z)		0.0466
99% Percentile (z)		0.0541

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL		0.0545
95% Hawkins Wixley (HW) Approx. Gamma UPL		0.0552
95% WH Approx. Gamma UTL with	90% Coverage	0.0633
95% HW Approx. Gamma UTL with	90% Coverage	0.0647

Note: DL/2 is not a recommended method.

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Formaldehyde

General Statistics

Total Number of Observations	5	Number of Distinct Observations	4
Tolerance Factor	3.407		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	0.11	Minimum	-2.207
Maximum	0.35	Maximum	-1.05
Second Largest	0.31	Second Largest	-1.171
First Quartile	0.22	First Quartile	-1.514
Median	0.22	Median	-1.514
Third Quartile	0.31	Third Quartile	-1.171
Mean	0.242	Mean	-1.491
Geometric Mean	0.225	SD	0.45
SD	0.0931		
Coefficient of Variation	0.385		
Skewness	-0.386		

Warning: There are only 4 Distinct Values in this data
There are insufficient Distinct Values to perform some GOF tests and bootstrap methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values to compute bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10-15 or more observations for accurate and meaningful bootstrap results.

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.947	Shapiro Wilk Test Statistic	0.895
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	0.559	95% UTL with 90% Coverage	1.044
95% UPL (t)	0.459	95% UPL (t)	0.644
90% Percentile (z)	0.361	90% Percentile (z)	0.401
95% Percentile (z)	0.395	95% Percentile (z)	0.472
99% Percentile (z)	0.459	99% Percentile (z)	0.642

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Gamma Distribution Test

k star	2.957
Theta Star	0.0818
MLE of Mean	0.242
MLE of Standard Deviation	0.141
nu star	29.57
A-D Test Statistic	0.345
5% A-D Critical Value	0.68
K-S Test Statistic	0.251
5% K-S Critical Value	0.358

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile	0.431
95% Percentile	0.51
99% Percentile	0.682
95% WH Approx. Gamma UPL	0.547
95% HW Approx. Gamma UPL	0.566
95% WH Approx. Gamma UTL with 90% Coverage	0.757
95% HW Approx. Gamma UTL with 90% Coverage	0.806

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	0.334
95% Percentile	0.342
99% Percentile	0.348
95% UTL with 90% Coverage	0.35
95% Percentile Bootstrap UTL with 90% Coverage	0.35
95% BCA Bootstrap UTL with 90% Coverage	0.35
95% UPL	0.35
95% Chebyshev UPL	0.687
Upper Threshold Limit Based upon IQR	0.445

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Aluminum

General Statistics

Total Number of Observations	9	Number of Distinct Observations	8
Tolerance Factor	2.454		

Raw Statistics

Minimum	1400
Maximum	13000
Second Largest	12000
First Quartile	3200
Median	7100
Third Quartile	11000
Mean	7378
Geometric Mean	5726
SD	4541
Coefficient of Variation	0.616
Skewness	-0.143

Log-Transformed Statistics

Minimum	7.244
Maximum	9.473
Second Largest	9.393
First Quartile	8.071
Median	8.868
Third Quartile	9.306
Mean	8.653
SD	0.841

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.893
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage	18522
95% UPL (t)	16279
90% Percentile (z)	13197
95% Percentile (z)	14847
99% Percentile (z)	17942

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.867
Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% UTL with 90% Coverage	45097
95% UPL (t)	29769
90% Percentile (z)	16824
95% Percentile (z)	22836
99% Percentile (z)	40506

Gamma Distribution Test

k star	1.49
Theta Star	4951
MLE of Mean	7378
MLE of Standard Deviation	6044
nu star	26.83
A-D Test Statistic	0.509
5% A-D Critical Value	0.729
K-S Test Statistic	0.246
5% K-S Critical Value	0.282

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile	15398
95% Percentile	19260
99% Percentile	27985
95% WH Approx. Gamma UPL	21345
95% HW Approx. Gamma UPL	22705
95% WH Approx. Gamma UTL with 90% Coverage	27191
95% HW Approx. Gamma UTL with 90% Coverage	29765

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	12200
95% Percentile	12600
99% Percentile	12920
95% UTL with 90% Coverage	13000
95% Percentile Bootstrap UTL with 90% Coverage	13000
95% BCA Bootstrap UTL with 90% Coverage	13000
95% UPL	13000
95% Chebyshev UPL	28243
Upper Threshold Limit Based upon IQR	22700

Table 2: ProUCL Output for Background Soil UPLs

OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Arsenic

General Statistics

Total Number of Observations	9	Number of Distinct Observations	9
Tolerance Factor	2.454		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	0.64	Minimum	-0.446
Maximum	10	Maximum	2.303
Second Largest	9.5	Second Largest	2.251
First Quartile	1.6	First Quartile	0.47
Median	4.7	Median	1.548
Third Quartile	6.8	Third Quartile	1.917
Mean	4.971	Mean	1.288
Geometric Mean	3.627	SD	0.952
SD	3.414		
Coefficient of Variation	0.687		
Skewness	0.248		

Warning: There are only 9 Values in this data

Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.929	Shapiro Wilk Test Statistic	0.899
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	13.35	95% UTL with 90% Coverage	37.52
95% UPL (t)	11.66	95% UPL (t)	23.44
90% Percentile (z)	9.346	90% Percentile (z)	12.29
95% Percentile (z)	10.59	95% Percentile (z)	17.36
99% Percentile (z)	12.91	99% Percentile (z)	33.23

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Gamma Distribution Test

k star	1.23
Theta Star	4.042
MLE of Mean	4.971
MLE of Standard Deviation	4.482
nu star	22.14
A-D Test Statistic	0.354
5% A-D Critical Value	0.732
K-S Test Statistic	0.195
5% K-S Critical Value	0.283

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile	10.88
95% Percentile	13.85
99% Percentile	20.67
95% WH Approx. Gamma UPL	15.57
95% HW Approx. Gamma UPL	16.74
95% WH Approx. Gamma UTL with 90% Coverage	20.18
95% HW Approx. Gamma UTL with 90% Coverage	22.42

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	9.6
95% Percentile	9.8
99% Percentile	9.96
95% UTL with 90% Coverage	10
95% Percentile Bootstrap UTL with 90% Coverage	10
95% BCA Bootstrap UTL with 90% Coverage	10
95% UPL	10
95% Chebyshev UPL	20.66
Upper Threshold Limit Based upon IQR	14.6

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Barium

General Statistics

Total Number of Observations	9	Number of Distinct Observations	7
Tolerance Factor	2.454		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	3.5	Minimum	1.253
Maximum	15	Maximum	2.708
Second Largest	13	Second Largest	2.565
First Quartile	8.5	First Quartile	2.14
Median	12	Median	2.485
Third Quartile	13	Third Quartile	2.565
Mean	10.19	Mean	2.236
Geometric Mean	9.356	SD	0.477
SD	3.809		
Coefficient of Variation	0.374		
Skewness	-0.699		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.924	Shapiro Wilk Test Statistic	0.851
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	19.54	95% UTL with 90% Coverage	30.18
95% UPL (t)	17.66	95% UPL (t)	23.84
90% Percentile (z)	15.07	90% Percentile (z)	17.25
95% Percentile (z)	16.45	95% Percentile (z)	20.51
99% Percentile (z)	19.05	99% Percentile (z)	28.39

Gamma Distribution Test		**Data Distribution Test**
k star	4.093	**Data appear Normal at 5% Significance Level**
Theta Star	2.49	
MLE of Mean	10.19	
MLE of Standard Deviation	5.037	
nu star	73.67	
A-D Test Statistic	0.555	
5% A-D Critical Value	0.723	
K-S Test Statistic	0.263	
5% K-S Critical Value	0.28	

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Statistics	
90% Percentile	13.4
95% Percentile	14.2
99% Percentile	14.84

Assuming Gamma Distribution			
90% Percentile	16.94	95% UTL with 90% Coverage	15
95% Percentile	19.63	95% Percentile Bootstrap UTL with 90% Coverage	15
99% Percentile	25.37	95% BCA Bootstrap UTL with 90% Coverage	15
		95% UPL	15
95% WH Approx. Gamma UPL	20.6	95% Chebyshev UPL	27.69
95% HW Approx. Gamma UPL	21.22	Upper Threshold Limit Based upon IQR	19.75
95% WH Approx. Gamma UTL with 90% Coverage	24.27		
95% HW Approx. Gamma UTL with 90% Coverage	25.35		

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Beryllium

General Statistics

Total Number of Observations	9	Number of Distinct Observations	8
Tolerance Factor	2.454		

Raw Statistics

Minimum	0.042
Maximum	0.32
Second Largest	0.3
First Quartile	0.18
Median	0.19
Third Quartile	0.29
Mean	0.208
Geometric Mean	0.178
SD	0.0981
Coefficient of Variation	0.472
Skewness	-0.546

Log-Transformed Statistics

Minimum	-3.17
Maximum	-1.139
Second Largest	-1.204
First Quartile	-1.715
Median	-1.661
Third Quartile	-1.238
Mean	-1.729
SD	0.677

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.905
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.82
Shapiro Wilk Critical Value	0.829

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% UTL with	90% Coverage	0.448
	95% UPL (t)	0.4
	90% Percentile (z)	0.333
	95% Percentile (z)	0.369
	99% Percentile (z)	0.436

Assuming Lognormal Distribution

95% UTL with	90% Coverage	0.934
	95% UPL (t)	0.669
	90% Percentile (z)	0.423
	95% Percentile (z)	0.54
	99% Percentile (z)	0.857

Gamma Distribution Test

k star	2.307
Theta Star	0.09
MLE of Mean	0.208
MLE of Standard Deviation	0.137
nu star	41.52
A-D Test Statistic	0.606
5% A-D Critical Value	0.726
K-S Test Statistic	0.25
5% K-S Critical Value	0.281

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	0.304
95% Percentile	0.312
99% Percentile	0.318

Assuming Gamma Distribution

90% Percentile		0.391
95% Percentile		0.471
99% Percentile		0.648
95% WH Approx. Gamma UPL		0.507
95% HW Approx. Gamma UPL		0.534
95% WH Approx. Gamma UTL with	90% Coverage	0.622
95% HW Approx. Gamma UTL with	90% Coverage	0.67

95% UTL with	90% Coverage	0.32
95% Percentile Bootstrap UTL with	90% Coverage	0.32
95% BCA Bootstrap UTL with	90% Coverage	0.32
	95% UPL	0.32
	95% Chebyshev UPL	0.658
Upper Threshold Limit Based upon IQR		0.455

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Cadmium

General Statistics

Total Number of Observations	9	Number of Distinct Observations	8
Tolerance Factor	2.454		

Raw Statistics

Minimum	0.037
Maximum	0.26
Second Largest	0.23
First Quartile	0.057
Median	0.16
Third Quartile	0.22
Mean	0.151
Geometric Mean	0.122
SD	0.0867
Coefficient of Variation	0.575
Skewness	-0.197

Log-Transformed Statistics

Minimum	-3.297
Maximum	-1.347
Second Largest	-1.47
First Quartile	-2.865
Median	-1.833
Third Quartile	-1.514
Mean	-2.1
SD	0.745

Warning: There are only 9 Values in this data
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Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.883
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.855
Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

95% UTL with	90% Coverage	0.364
	95% UPL (t)	0.321
	90% Percentile (z)	0.262
	95% Percentile (z)	0.293
	99% Percentile (z)	0.352

Assuming Lognormal Distribution

95% UTL with	90% Coverage	0.762
	95% UPL (t)	0.528
	90% Percentile (z)	0.318
	95% Percentile (z)	0.417
	99% Percentile (z)	0.693

Gamma Distribution Test

k star	1.782
Theta Star	0.0846
MLE of Mean	0.151
MLE of Standard Deviation	0.113
nu star	32.07
A-D Test Statistic	0.609
5% A-D Critical Value	0.728
K-S Test Statistic	0.246
5% K-S Critical Value	0.282

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	0.236
95% Percentile	0.248
99% Percentile	0.258

Assuming Gamma Distribution

90% Percentile		0.301
95% Percentile		0.371
99% Percentile		0.527
95% WH Approx. Gamma UPL		0.406
95% HW Approx. Gamma UPL		0.427
95% WH Approx. Gamma UTL with	90% Coverage	0.509
95% HW Approx. Gamma UTL with	90% Coverage	0.549

95% UTL with	90% Coverage	0.26
95% Percentile Bootstrap UTL with	90% Coverage	0.26
95% BCA Bootstrap UTL with	90% Coverage	0.26
	95% UPL	0.26
	95% Chebyshev UPL	0.549
Upper Threshold Limit Based upon IQR		0.465

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Calcium

General Statistics

Total Number of Observations	9	Number of Distinct Observations	8
Tolerance Factor	2.454		

Raw Statistics

Minimum	86
Maximum	590
Second Largest	480
First Quartile	320
Median	390
Third Quartile	480
Mean	368.4
Geometric Mean	324.5
SD	158.9
Coefficient of Variation	0.431
Skewness	-0.6

Log-Transformed Statistics

Minimum	4.454
Maximum	6.38
Second Largest	6.174
First Quartile	5.768
Median	5.966
Third Quartile	6.174
Mean	5.782
SD	0.605

Warning: There are only 9 Values in this data
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Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.95
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage	758.3
95% UPL (t)	679.9
90% Percentile (z)	572.1
95% Percentile (z)	629.8
99% Percentile (z)	738

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.834
Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% UTL with 90% Coverage	1433
95% UPL (t)	1063
90% Percentile (z)	704.8
95% Percentile (z)	878.1
99% Percentile (z)	1326

Gamma Distribution Test

k star	2.803
Theta Star	131.4
MLE of Mean	368.4
MLE of Standard Deviation	220.1
nu star	50.45
A-D Test Statistic	0.536
5% A-D Critical Value	0.725
K-S Test Statistic	0.233
5% K-S Critical Value	0.28

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile	663.5
95% Percentile	788.6
99% Percentile	1061
95% WH Approx. Gamma UPL	839.5
95% HW Approx. Gamma UPL	878.7
95% WH Approx. Gamma UTL with 90% Coverage	1015
95% HW Approx. Gamma UTL with 90% Coverage	1083

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	502
95% Percentile	546
99% Percentile	581.2
95% UTL with 90% Coverage	590
95% Percentile Bootstrap UTL with 90% Coverage	590
95% BCA Bootstrap UTL with 90% Coverage	590
95% UPL	590
95% Chebyshev UPL	1098
Upper Threshold Limit Based upon IQR	720

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Chromium

General Statistics

Total Number of Observations	9	Number of Distinct Observations	9
Tolerance Factor	2.454		

Raw Statistics

Minimum	1.5
Maximum	10
Second Largest	9.7
First Quartile	4
Median	6
Third Quartile	9.1
Mean	6.167
Geometric Mean	5.075
SD	3.379
Coefficient of Variation	0.548
Skewness	-0.251

Log-Transformed Statistics

Minimum	0.405
Maximum	2.303
Second Largest	2.272
First Quartile	1.386
Median	1.792
Third Quartile	2.208
Mean	1.624
SD	0.733

Warning: There are only 9 Values in this data
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Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.886
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage	14.46
95% UPL (t)	12.79
90% Percentile (z)	10.5
95% Percentile (z)	11.72
99% Percentile (z)	14.03

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.844
Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% UTL with 90% Coverage	30.65
95% UPL (t)	21.34
90% Percentile (z)	12.98
95% Percentile (z)	16.94
99% Percentile (z)	27.91

Gamma Distribution Test

k star	1.889
Theta Star	3.265
MLE of Mean	6.167
MLE of Standard Deviation	4.487
nu star	34
A-D Test Statistic	0.546
5% A-D Critical Value	0.728
K-S Test Statistic	0.239
5% K-S Critical Value	0.282

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile	12.16
95% Percentile	14.9
99% Percentile	20.99
95% WH Approx. Gamma UPL	16.23
95% HW Approx. Gamma UPL	17.1
95% WH Approx. Gamma UTL with 90% Coverage	20.25
95% HW Approx. Gamma UTL with 90% Coverage	21.86

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	9.76
95% Percentile	9.88
99% Percentile	9.976
95% UTL with 90% Coverage	10
95% Percentile Bootstrap UTL with 90% Coverage	10
95% BCA Bootstrap UTL with 90% Coverage	10
95% UPL	10
95% Chebyshev UPL	21.69
Upper Threshold Limit Based upon IQR	16.75

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Cobalt

General Statistics

Total Number of Observations	9	Number of Distinct Observations	8
Tolerance Factor	2.454		

Raw Statistics

Minimum	0.45
Maximum	2.9
Second Largest	2.3
First Quartile	0.56
Median	2
Third Quartile	2.3
Mean	1.559
Geometric Mean	1.252
SD	0.944
Coefficient of Variation	0.606
Skewness	-0.0605

Log-Transformed Statistics

Minimum	-0.799
Maximum	1.065
Second Largest	0.833
First Quartile	-0.58
Median	0.693
Third Quartile	0.833
Mean	0.224
SD	0.753

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Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.862
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage	3.876
95% UPL (t)	3.41
90% Percentile (z)	2.769
95% Percentile (z)	3.112
99% Percentile (z)	3.756

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.833
Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% UTL with 90% Coverage	7.941
95% UPL (t)	5.475
90% Percentile (z)	3.285
95% Percentile (z)	4.318
99% Percentile (z)	7.213

Gamma Distribution Test

k star	1.695
Theta Star	0.92
MLE of Mean	1.559
MLE of Standard Deviation	1.198
nu star	30.5
A-D Test Statistic	0.744
5% A-D Critical Value	0.728
K-S Test Statistic	0.287
5% K-S Critical Value	0.282

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile	3.154
95% Percentile	3.9
99% Percentile	5.572
95% WH Approx. Gamma UPL	4.283
95% HW Approx. Gamma UPL	4.494
95% WH Approx. Gamma UTL with 90% Coverage	5.398
95% HW Approx. Gamma UTL with 90% Coverage	5.804

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	2.42
95% Percentile	2.66
99% Percentile	2.852
95% UTL with 90% Coverage	2.9
95% Percentile Bootstrap UTL with 90% Coverage	2.9
95% BCA Bootstrap UTL with 90% Coverage	2.9
95% UPL	2.9
95% Chebyshev UPL	5.897
Upper Threshold Limit Based upon IQR	4.91

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Copper

General Statistics

Total Number of Observations	9	Number of Distinct Observations	8
Tolerance Factor	2.454		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	1.7	Minimum	0.531
Maximum	5.8	Maximum	1.758
Second Largest	5.6	Second Largest	1.723
First Quartile	3.6	First Quartile	1.281
Median	4.1	Median	1.411
Third Quartile	5.3	Third Quartile	1.668
Mean	4.144	Mean	1.367
Geometric Mean	3.922	SD	0.377
SD	1.303		
Coefficient of Variation	0.314		
Skewness	-0.49		

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Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.939	Shapiro Wilk Test Statistic	0.868
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	7.342	95% UTL with 90% Coverage	9.89
95% UPL (t)	6.698	95% UPL (t)	8.21
90% Percentile (z)	5.814	90% Percentile (z)	6.358
95% Percentile (z)	6.288	95% Percentile (z)	7.29
99% Percentile (z)	7.176	99% Percentile (z)	9.426

Gamma Distribution Test		**Data Distribution Test**
k star	6.227	**Data appear Normal at 5% Significance Level**
Theta Star	0.666	
MLE of Mean	4.144	
MLE of Standard Deviation	1.661	
nu star	112.1	
A-D Test Statistic	0.416	
5% A-D Critical Value	0.722	
K-S Test Statistic	0.168	
5% K-S Critical Value	0.279	
Data appear Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
90% Percentile	5.64
95% Percentile	5.72
99% Percentile	5.784

Assuming Gamma Distribution			
90% Percentile	6.364	95% UTL with 90% Coverage	5.8
95% Percentile	7.199	95% Percentile Bootstrap UTL with 90% Coverage	5.8
99% Percentile	8.948	95% BCA Bootstrap UTL with 90% Coverage	5.8
		95% UPL	5.8
95% WH Approx. Gamma UPL	7.456	95% Chebyshev UPL	10.13
95% HW Approx. Gamma UPL	7.609	Upper Threshold Limit Based upon IQR	7.85
95% WH Approx. Gamma UTL with 90% Coverage	8.563		
95% HW Approx. Gamma UTL with 90% Coverage	8.821		

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Iron

General Statistics

Total Number of Observations	9	Number of Distinct Observations	8
Tolerance Factor	2.454		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	610	Minimum	6.413
Maximum	12000	Maximum	9.393
Second Largest	11000	Second Largest	9.306
First Quartile	760	First Quartile	6.633
Median	6600	Median	8.795
Third Quartile	10000	Third Quartile	9.21
Mean	6314	Mean	8.223
Geometric Mean	3727	SD	1.31
SD	4719		
Coefficient of Variation	0.747		
Skewness	-0.233		

Warning: There are only 9 Values in this data
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Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.855	Shapiro Wilk Test Statistic	0.764
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	17894	95% UTL with 90% Coverage	92740
95% UPL (t)	15564	95% UPL (t)	48566
90% Percentile (z)	12362	90% Percentile (z)	19967
95% Percentile (z)	14076	95% Percentile (z)	32136
99% Percentile (z)	17292	99% Percentile (z)	78461

Gamma Distribution Test		**Data Distribution Test**
k star	0.797	**Data appear Normal at 5% Significance Level**
Theta Star	7922	
MLE of Mean	6314	
MLE of Standard Deviation	7073	
nu star	14.35	
A-D Test Statistic	0.902	
5% A-D Critical Value	0.742	
K-S Test Statistic	0.241	
5% K-S Critical Value	0.286	

Data follow Appx. Gamma Distribution at 5% Significance Leve

Nonparametric Statistics	
90% Percentile	11200
95% Percentile	11600
99% Percentile	11920

Assuming Gamma Distribution			
90% Percentile	15368	95% UTL with 90% Coverage	12000
95% Percentile	20511	95% Percentile Bootstrap UTL with 90% Coverage	12000
99% Percentile	32660	95% BCA Bootstrap UTL with 90% Coverage	12000
		95% UPL	12000
95% WH Approx. Gamma UPL	24202	95% Chebyshev UPL	27996
95% HW Approx. Gamma UPL	27175	Upper Threshold Limit Based upon IQR	23860
95% WH Approx. Gamma UTL with 90% Coverage	32759		
95% HW Approx. Gamma UTL with 90% Coverage	38599		

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Lead

General Statistics

Total Number of Observations	9	Number of Distinct Observations	9
Tolerance Factor	2.454		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	7.8	Minimum	2.054
Maximum	26	Maximum	3.258
Second Largest	22	Second Largest	3.091
First Quartile	11	First Quartile	2.398
Median	14	Median	2.639
Third Quartile	20	Third Quartile	2.996
Mean	15.62	Mean	2.677
Geometric Mean	14.54	SD	0.406
SD	6.179		
Coefficient of Variation	0.395		
Skewness	0.441		

Warning: There are only 9 Values in this data
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Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.949	Shapiro Wilk Test Statistic	0.966
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	30.78	95% UTL with 90% Coverage	39.35
95% UPL (t)	27.73	95% UPL (t)	32.2
90% Percentile (z)	23.54	90% Percentile (z)	24.46
95% Percentile (z)	25.79	95% Percentile (z)	28.34
99% Percentile (z)	30	99% Percentile (z)	37.36

Gamma Distribution Test		**Data Distribution Test**
k star	4.836	**Data appear Normal at 5% Significance Level**
Theta Star	3.23	
MLE of Mean	15.62	
MLE of Standard Deviation	7.104	
nu star	87.05	
A-D Test Statistic	0.227	
5% A-D Critical Value	0.722	
K-S Test Statistic	0.152	
5% K-S Critical Value	0.28	
Data appear Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
90% Percentile	22.8
95% Percentile	24.4
99% Percentile	25.68

Assuming Gamma Distribution			
90% Percentile	25.13	95% UTL with 90% Coverage	26
95% Percentile	28.84	95% Percentile Bootstrap UTL with 90% Coverage	26
99% Percentile	36.67	95% BCA Bootstrap UTL with 90% Coverage	26
		95% UPL	26
95% WH Approx. Gamma UPL	30.07	95% Chebyshev UPL	44.01
95% HW Approx. Gamma UPL	30.52	Upper Threshold Limit Based upon IQR	33.5
95% WH Approx. Gamma UTL with 90% Coverage	35.07		
95% HW Approx. Gamma UTL with 90% Coverage	35.93		

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Magnesium

General Statistics

Total Number of Observations	9	Number of Distinct Observations	9
Tolerance Factor	2.454		

Raw Statistics

Minimum	24
Maximum	1100
Second Largest	780
First Quartile	48
Median	520
Third Quartile	740
Mean	451.7
Geometric Mean	227.9
SD	389.3
Coefficient of Variation	0.862
Skewness	0.288

Log-Transformed Statistics

Minimum	3.178
Maximum	7.003
Second Largest	6.659
First Quartile	3.871
Median	6.254
Third Quartile	6.607
Mean	5.429
SD	1.509

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.907
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage	1407
95% UPL (t)	1215
90% Percentile (z)	950.6
95% Percentile (z)	1092
99% Percentile (z)	1357

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.84
Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% UTL with 90% Coverage	9253
95% UPL (t)	4391
90% Percentile (z)	1577
95% Percentile (z)	2728
99% Percentile (z)	7631

Gamma Distribution Test

k star	0.647
Theta Star	698
MLE of Mean	451.7
MLE of Standard Deviation	561.5
nu star	11.65
A-D Test Statistic	0.585
5% A-D Critical Value	0.748
K-S Test Statistic	0.245
5% K-S Critical Value	0.288

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile	1155
95% Percentile	1582
99% Percentile	2607
95% WH Approx. Gamma UPL	1906
95% HW Approx. Gamma UPL	2171
95% WH Approx. Gamma UTL with 90% Coverage	2639
95% HW Approx. Gamma UTL with 90% Coverage	3178

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	844
95% Percentile	972
99% Percentile	1074
95% UTL with 90% Coverage	1100
95% Percentile Bootstrap UTL with 90% Coverage	1100
95% BCA Bootstrap UTL with 90% Coverage	1100
95% UPL	1100
95% Chebyshev UPL	2241
Upper Threshold Limit Based upon IQR	1778

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Manganese

General Statistics

Total Number of Observations	9	Number of Distinct Observations	9
Tolerance Factor	2.454		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	3.4	Minimum	1.224
Maximum	69	Maximum	4.234
Second Largest	60	Second Largest	4.094
First Quartile	7.5	First Quartile	2.015
Median	25	Median	3.219
Third Quartile	38	Third Quartile	3.638
Mean	27.97	Mean	2.865
Geometric Mean	17.56	SD	1.136
SD	24.15		
Coefficient of Variation	0.864		
Skewness	0.709		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.897	Shapiro Wilk Test Statistic	0.916
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	87.23	95% UTL with 90% Coverage	284.9
95% UPL (t)	75.31	95% UPL (t)	162.6
90% Percentile (z)	58.92	90% Percentile (z)	75.25
95% Percentile (z)	67.69	95% Percentile (z)	113.7
99% Percentile (z)	84.15	99% Percentile (z)	246.5

Gamma Distribution Test		**Data Distribution Test**
k star	0.883	**Data appear Normal at 5% Significance Level**
Theta Star	31.67	
MLE of Mean	27.97	
MLE of Standard Deviation	29.76	
nu star	15.9	
A-D Test Statistic	0.284	**Nonparametric Statistics**
5% A-D Critical Value	0.74	90% Percentile 61.8
K-S Test Statistic	0.14	95% Percentile 65.4
5% K-S Critical Value	0.286	99% Percentile 68.28

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution			
90% Percentile	66.39	95% UTL with 90% Coverage	69
95% Percentile	87.56	95% Percentile Bootstrap UTL with 90% Coverage	69
99% Percentile	137.2	95% BCA Bootstrap UTL with 90% Coverage	69
		95% UPL	69
95% WH Approx. Gamma UPL	101.3	95% Chebyshev UPL	138.9
95% HW Approx. Gamma UPL	109.8	Upper Threshold Limit Based upon IQR	83.75
95% WH Approx. Gamma UTL with 90% Coverage	135.9		
95% HW Approx. Gamma UTL with 90% Coverage	153.3		

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Mercury

General Statistics

Total Number of Observations	7	Number of Distinct Observations	6
Tolerance Factor	2.755		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	0.048	Minimum	-3.037
Maximum	0.11	Maximum	-2.207
Second Largest	0.083	Second Largest	-2.489
First Quartile	0.0515	First Quartile	-2.968
Median	0.064	Median	-2.749
Third Quartile	0.0785	Third Quartile	-2.546
Mean	0.0689	Mean	-2.717
Geometric Mean	0.066	SD	0.306
SD	0.0224		
Coefficient of Variation	0.325		
Skewness	1.076		

Warning: A sample size of 'n' = 7 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 7 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.897	Shapiro Wilk Test Statistic	0.931
Shapiro Wilk Critical Value	0.803	Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	0.131	95% UTL with 90% Coverage	0.154
95% UPL (t)	0.115	95% UPL (t)	0.125
90% Percentile (z)	0.0975	90% Percentile (z)	0.0978
95% Percentile (z)	0.106	95% Percentile (z)	0.109
99% Percentile (z)	0.121	99% Percentile (z)	0.135

Gamma Distribution Test		**Data Distribution Test**
k star	7.033	**Data appear Normal at 5% Significance Level**
Theta Star	0.00979	
MLE of Mean	0.0689	
MLE of Standard Deviation	0.026	
nu star	98.46	
A-D Test Statistic	0.294	
5% A-D Critical Value	0.708	
K-S Test Statistic	0.173	
5% K-S Critical Value	0.312	
Data appear Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
90% Percentile	0.0938
95% Percentile	0.102
99% Percentile	0.108

Assuming Gamma Distribution			
90% Percentile	0.104	95% UTL with 90% Coverage	0.11
95% Percentile	0.116	95% Percentile Bootstrap UTL with 90% Coverage	0.11
99% Percentile	0.143	95% BCA Bootstrap UTL with 90% Coverage	0.11
		95% UPL	0.11
95% WH Approx. Gamma UPL	0.121	95% Chebyshev UPL	0.173
95% HW Approx. Gamma UPL	0.122	Upper Threshold Limit Based upon IQR	0.119
95% WH Approx. Gamma UTL with 90% Coverage	0.143		
95% HW Approx. Gamma UTL with 90% Coverage	0.145		

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Nickel

General Statistics

Total Number of Observations	9	Number of Distinct Observations	7
Tolerance Factor	2.454		

Raw Statistics

Minimum	1.3
Maximum	7.3
Second Largest	5.8
First Quartile	1.7
Median	3.9
Third Quartile	5.8
Mean	3.989
Geometric Mean	3.339
SD	2.261
Coefficient of Variation	0.567
Skewness	0.0778

Log-Transformed Statistics

Minimum	0.262
Maximum	1.988
Second Largest	1.758
First Quartile	0.531
Median	1.361
Third Quartile	1.758
Mean	1.206
SD	0.668

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.887
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.874
Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage	9.537
95% UPL (t)	8.42
90% Percentile (z)	6.886
95% Percentile (z)	7.708
99% Percentile (z)	9.248

Assuming Lognormal Distribution

95% UTL with 90% Coverage	17.19
95% UPL (t)	12.36
90% Percentile (z)	7.857
95% Percentile (z)	10.01
99% Percentile (z)	15.79

Gamma Distribution Test

k star	2.052
Theta Star	1.944
MLE of Mean	3.989
MLE of Standard Deviation	2.785
nu star	36.93
A-D Test Statistic	0.55
5% A-D Critical Value	0.727
K-S Test Statistic	0.254
5% K-S Critical Value	0.281

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	6.1
95% Percentile	6.7
99% Percentile	7.18

Assuming Gamma Distribution

90% Percentile	7.711
95% Percentile	9.385
99% Percentile	13.09
95% WH Approx. Gamma UPL	10.17
95% HW Approx. Gamma UPL	10.57
95% WH Approx. Gamma UTL with 90% Coverage	12.61
95% HW Approx. Gamma UTL with 90% Coverage	13.39

95% UTL with 90% Coverage	7.3
95% Percentile Bootstrap UTL with 90% Coverage	7.3
95% BCA Bootstrap UTL with 90% Coverage	7.3
95% UPL	7.3
95% Chebyshev UPL	14.38
Upper Threshold Limit Based upon IQR	11.95

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Potassium

General Statistics

Total Number of Observations	9	Number of Distinct Observations	8
Tolerance Factor	2.454		

Raw Statistics

Minimum	51
Maximum	580
Second Largest	520
First Quartile	210
Median	400
Third Quartile	440
Mean	351.2
Geometric Mean	294
SD	168.9
Coefficient of Variation	0.481
Skewness	-0.488

Log-Transformed Statistics

Minimum	3.932
Maximum	6.363
Second Largest	6.254
First Quartile	5.347
Median	5.991
Third Quartile	6.087
Mean	5.684
SD	0.749

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.959
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.804
Shapiro Wilk Critical Value	0.829

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% UTL with	90% Coverage	765.8
	95% UPL (t)	682.3
	90% Percentile (z)	567.7
	95% Percentile (z)	629.1
	99% Percentile (z)	744.2

Assuming Lognormal Distribution

95% UTL with	90% Coverage	1849
	95% UPL (t)	1277
	90% Percentile (z)	768.1
	95% Percentile (z)	1008
	99% Percentile (z)	1680

Gamma Distribution Test

k star	2.054
Theta Star	171
MLE of Mean	351.2
MLE of Standard Deviation	245.1
nu star	36.97
A-D Test Statistic	0.524
5% A-D Critical Value	0.727
K-S Test Statistic	0.219
5% K-S Critical Value	0.281

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	532
95% Percentile	556
99% Percentile	575.2

Assuming Gamma Distribution

90% Percentile		678.8
95% Percentile		826.1
99% Percentile		1152
95% WH Approx. Gamma UPL		892.4
95% HW Approx. Gamma UPL		952
95% WH Approx. Gamma UTL with	90% Coverage	1104
95% HW Approx. Gamma UTL with	90% Coverage	1208

95% UTL with	90% Coverage	580
95% Percentile Bootstrap UTL with	90% Coverage	580
95% BCA Bootstrap UTL with	90% Coverage	580
	95% UPL	580
	95% Chebyshev UPL	1127
Upper Threshold Limit Based upon IQR		785

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Selenium

General Statistics

Number of Valid Data	9	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	7

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful and reliable test statistics and estimates.
No statistics will be produced!

Tolerance Factor	2.454	Percent Non-Detects	77.78%

Raw Statistics

Minimum Detected	0.39
Maximum Detected	0.6
Mean of Detected	0.495
SD of Detected	0.148
Minimum Non-Detect	0.61
Maximum Non-Detect	0.9

Log-transformed Statistics

Minimum Detected	-0.942
Maximum Detected	-0.511
Mean of Detected	-0.726
SD of Detected	0.305
Minimum Non-Detect	-0.494
Maximum Non-Detect	-0.105

Data with Multiple Detection Limits

Note: Data have multiple DLs - Use of KM Method is recommende
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Single Detection Limit Scenario

Number treated as Non-Detect with Single DL	9
Number treated as Detected with Single DL	0
Single DL Non-Detect Percentage	100.00%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

Background Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method		
Mean		0.409
SD		0.0869
95% UTL	90% Coverage	0.623
	95% UPL (t)	0.58
	90% Percentile (z)	0.521
	95% Percentile (z)	0.552
	99% Percentile (z)	0.612

Assuming Lognormal Distribution

DL/2 Substitution Method		
Mean (Log Scale)		-0.911
SD (Log Scale)		0.201
95% UTL	90% Coverage	0.658
	95% UPL (t)	0.596
	90% Percentile (z)	0.52
	95% Percentile (z)	0.559
	99% Percentile (z)	0.641

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000
Maximum Likelihood Estimate(MLE) Method	N/A

Log ROS Method	
Mean in Original Scale	N/A
SD in Original Scale	N/A
Mean in Log Scale	N/A
SD in Log Scale	N/A
95% UTL 90% Coverage	N/A
95% UPL (t)	N/A
90% Percentile (z)	N/A
95% Percentile (z)	N/A
99% Percentile (z)	N/A

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	N/A
Theta Star	N/A
nu star	N/A
A-D Test Statistic	N/A
5% A-D Critical Value	N/A
K-S Test Statistic	N/A
5% K-S Critical Value	N/A

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data	
Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
95% Percentile of Chisquare (2k)	N/A
90% Percentile	N/A
95% Percentile	N/A
99% Percentile	N/A

Data Distribution Test with Detected Values Only

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.495
SD	0.105
SE of Mean	0.105
95% KM UTL with 90% Coverage	0.753
95% KM Chebyshev UPL	0.977
95% KM UPL (t)	0.701
90% Percentile (z)	0.63
95% Percentile (z)	0.668
99% Percentile (z)	0.739

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL	N/A
95% Hawkins Wixley (HW) Approx. Gamma UPL	N/A
95% WH Approx. Gamma UTL with 90% Coverage	N/A
95% HW Approx. Gamma UTL with 90% Coverage	N/A

Note: DL/2 is not a recommended method.

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Silver

General Statistics

Number of Valid Data	9	Number of Detected Data	0
Number of Distinct Detected Data	0	Number of Non-Detect Data	9

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Silver was not processed!

Sodium

General Statistics

Number of Valid Data	9	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	5
Tolerance Factor	2.454	Percent Non-Detects	55.56%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	33	Minimum Detected	3.497
Maximum Detected	48	Maximum Detected	3.871
Mean of Detected	39.25	Mean of Detected	3.661
SD of Detected	6.344	SD of Detected	0.157
Minimum Non-Detect	120	Minimum Non-Detect	4.787
Maximum Non-Detect	170	Maximum Non-Detect	5.136

Data with Multiple Detection Limits
Note: Data have multiple DLs - Use of KM Method is recommende
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Single Detection Limit Scenario

Number treated as Non-Detect with Single DL	9
Number treated as Detected with Single DL	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.938	Shapiro Wilk Test Statistic	0.962
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Assuming Normal Distribution

DL/2 Substitution Method		
Mean		57.44
SD		18.99
95% UTL	90% Coverage	104
95% UPL (t)		94.66
90% Percentile (z)		81.78
95% Percentile (z)		88.68
99% Percentile (z)		101.6
Maximum Likelihood Estimate(MLE) Method		N/A

Assuming Lognormal Distribution

DL/2 Substitution Method		
Mean (Log Scale)		3.999
SD (Log Scale)		0.348
95% UTL	90% Coverage	128.2
95% UPL (t)		108
90% Percentile (z)		85.23
95% Percentile (z)		96.73
99% Percentile (z)		122.7
Log ROS Method		
Mean in Original Scale		39.08
SD in Original Scale		4.279
Mean in Log Scale		3.661
SD in Log Scale		0.106
95% UTL	90% Coverage	50.48
95% UPL (t)		47.9
90% Percentile (z)		44.56
95% Percentile (z)		46.32
99% Percentile (z)		49.8

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	13.5
Theta Star	2.907
nu star	108
A-D Test Statistic	0.281
5% A-D Critical Value	0.656
K-S Test Statistic	0.25
5% K-S Critical Value	0.394

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method		
Mean		39.25
SD		5.494
SE of Mean		3.172
95% KM UTL with	90% Coverage	52.73
95% KM Chebyshev UPL		64.49
95% KM UPL (t)		50.02
90% Percentile (z)		46.29
95% Percentile (z)		48.29
99% Percentile (z)		52.03

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data		
Mean		39.62
Median		40.08
SD		4.284
k star		65.5
Theta star		0.605
Nu star		1179
95% Percentile of Chisquare (2k)		158.7
90% Percentile		46.01
95% Percentile		48
99% Percentile		51.89

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL		48.37
95% Hawkins Wixley (HW) Approx. Gamma UPL		48.43
95% WH Approx. Gamma UTL with	90% Coverage	50.81
95% HW Approx. Gamma UTL with	90% Coverage	50.91

Note: DL/2 is not a recommended method.

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Tin

General Statistics

Total Number of Observations	9	Number of Distinct Observations	8
Tolerance Factor	2.454		

Raw Statistics

Minimum	0.71
Maximum	3.5
Second Largest	3.4
First Quartile	1.6
Median	2.2
Third Quartile	3.2
Mean	2.254
Geometric Mean	1.948
SD	1.115
Coefficient of Variation	0.495
Skewness	-0.257

Log-Transformed Statistics

Minimum	-0.342
Maximum	1.253
Second Largest	1.224
First Quartile	0.47
Median	0.788
Third Quartile	1.163
Mean	0.667
SD	0.62

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.875
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage	4.991
95% UPL (t)	4.44
90% Percentile (z)	3.684
95% Percentile (z)	4.089
99% Percentile (z)	4.849

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.847
Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% UTL with 90% Coverage	8.919
95% UPL (t)	6.566
90% Percentile (z)	4.311
95% Percentile (z)	5.401
99% Percentile (z)	8.24

Gamma Distribution Test

k star	2.461
Theta Star	0.916
MLE of Mean	2.254
MLE of Standard Deviation	1.437
nu star	44.29
A-D Test Statistic	0.569
5% A-D Critical Value	0.726
K-S Test Statistic	0.254
5% K-S Critical Value	0.281

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile	4.18
95% Percentile	5.016
99% Percentile	6.847
95% WH Approx. Gamma UPL	5.381
95% HW Approx. Gamma UPL	5.598
95% WH Approx. Gamma UTL with 90% Coverage	6.575
95% HW Approx. Gamma UTL with 90% Coverage	6.973

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	3.42
95% Percentile	3.46
99% Percentile	3.492
95% UTL with 90% Coverage	3.5
95% Percentile Bootstrap UTL with 90% Coverage	3.5
95% BCA Bootstrap UTL with 90% Coverage	3.5
95% UPL	3.5
95% Chebyshev UPL	7.379
Upper Threshold Limit Based upon IQR	5.6

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Vanadium

General Statistics

Total Number of Observations	9	Number of Distinct Observations	9
Tolerance Factor	2.454		

Raw Statistics

Minimum	3.6
Maximum	21
Second Largest	19
First Quartile	5
Median	13
Third Quartile	16
Mean	11.93
Geometric Mean	9.928
SD	6.555
Coefficient of Variation	0.549
Skewness	-0.146

Log-Transformed Statistics

Minimum	1.281
Maximum	3.045
Second Largest	2.944
First Quartile	1.609
Median	2.565
Third Quartile	2.773
Mean	2.295
SD	0.697

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.914
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage	28.02
95% UPL (t)	24.78
90% Percentile (z)	20.33
95% Percentile (z)	22.72
99% Percentile (z)	27.18

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.852
Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% UTL with 90% Coverage	54.9
95% UPL (t)	38.92
90% Percentile (z)	24.25
95% Percentile (z)	31.24
99% Percentile (z)	50.23

Gamma Distribution Test

k star	1.989
Theta Star	5.999
MLE of Mean	11.93
MLE of Standard Deviation	8.461
nu star	35.81
A-D Test Statistic	0.553
5% A-D Critical Value	0.727
K-S Test Statistic	0.193
5% K-S Critical Value	0.281

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile	23.24
95% Percentile	28.35
99% Percentile	39.7
95% WH Approx. Gamma UPL	30.8
95% HW Approx. Gamma UPL	32.25
95% WH Approx. Gamma UTL with 90% Coverage	38.29
95% HW Approx. Gamma UTL with 90% Coverage	40.99

Data Distribution Test

Data appear Normal at 5% Significance Level

Nonparametric Statistics

90% Percentile	19.4
95% Percentile	20.2
99% Percentile	20.84
95% UTL with 90% Coverage	21
95% Percentile Bootstrap UTL with 90% Coverage	21
95% BCA Bootstrap UTL with 90% Coverage	21
95% UPL	21
95% Chebyshev UPL	42.05
Upper Threshold Limit Based upon IQR	32.5

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Zinc

General Statistics

Total Number of Observations	9	Number of Distinct Observations	9
Tolerance Factor	2.454		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	1.9	Minimum	0.642
Maximum	18	Maximum	2.89
Second Largest	14	Second Largest	2.639
First Quartile	5	First Quartile	1.609
Median	6.1	Median	1.808
Third Quartile	13	Third Quartile	2.565
Mean	8.533	Mean	1.896
Geometric Mean	6.659	SD	0.803
SD	5.664		
Coefficient of Variation	0.664		
Skewness	0.43		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.924	Shapiro Wilk Test Statistic	0.919
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	22.43	95% UTL with 90% Coverage	47.78
95% UPL (t)	19.64	95% UPL (t)	32.14
90% Percentile (z)	15.79	90% Percentile (z)	18.64
95% Percentile (z)	17.85	95% Percentile (z)	24.95
99% Percentile (z)	21.71	99% Percentile (z)	43.13

Gamma Distribution Test		**Data Distribution Test**
k star	1.519	**Data appear Normal at 5% Significance Level**
Theta Star	5.618	
MLE of Mean	8.533	
MLE of Standard Deviation	6.924	
nu star	27.34	
A-D Test Statistic	0.32	
5% A-D Critical Value	0.729	
K-S Test Statistic	0.175	
5% K-S Critical Value	0.282	
Data appear Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
90% Percentile	14.8
95% Percentile	16.4
99% Percentile	17.68

Assuming Gamma Distribution			
90% Percentile	17.73	95% UTL with 90% Coverage	18
95% Percentile	22.14	95% Percentile Bootstrap UTL with 90% Coverage	18
99% Percentile	32.08	95% BCA Bootstrap UTL with 90% Coverage	18
		95% UPL	18
95% WH Approx. Gamma UPL	24.44	95% Chebyshev UPL	34.56
95% HW Approx. Gamma UPL	25.72	Upper Threshold Limit Based upon IQR	25
95% WH Approx. Gamma UTL with 90% Coverage	31.09		
95% HW Approx. Gamma UTL with 90% Coverage	33.59		

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

NitrogenAsAmonia

General Statistics

Total Number of Observations	9	Number of Distinct Observations	8
Tolerance Factor	2.454		

Raw Statistics		**Log-Transformed Statistics**	
Minimum	95	Minimum	4.554
Maximum	200	Maximum	5.298
Second Largest	160	Second Largest	5.075
First Quartile	100	First Quartile	4.605
Median	120	Median	4.787
Third Quartile	140	Third Quartile	4.942
Mean	128.3	Mean	4.826
Geometric Mean	124.7	SD	0.247
SD	34.28		
Coefficient of Variation	0.267		
Skewness	1.246		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.883	Shapiro Wilk Test Statistic	0.926
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	212.5	95% UTL with 90% Coverage	228.8
95% UPL (t)	195.5	95% UPL (t)	202.5
90% Percentile (z)	172.3	90% Percentile (z)	171.2
95% Percentile (z)	184.7	95% Percentile (z)	187.3
99% Percentile (z)	208.1	99% Percentile (z)	221.7

Gamma Distribution Test		**Data Distribution Test**
k star	11.87	**Data appear Normal at 5% Significance Level**
Theta Star	10.82	
MLE of Mean	128.3	
MLE of Standard Deviation	37.26	
nu star	213.6	
A-D Test Statistic	0.354	
5% A-D Critical Value	0.721	
K-S Test Statistic	0.156	
5% K-S Critical Value	0.279	
Data appear Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
90% Percentile	168
95% Percentile	184
99% Percentile	196.8

Assuming Gamma Distribution			
90% Percentile	177.8	95% UTL with 90% Coverage	200
95% Percentile	195.1	95% Percentile Bootstrap UTL with 90% Coverage	200
99% Percentile	230.5	95% BCA Bootstrap UTL with 90% Coverage	200
		95% UPL	200
		95% Chebyshev UPL	285.8
95% WH Approx. Gamma UPL	199.5	Upper Threshold Limit Based upon IQR	200
95% HW Approx. Gamma UPL	200.2		
95% WH Approx. Gamma UTL with 90% Coverage	221.7		
95% HW Approx. Gamma UTL with 90% Coverage	223.3		

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Sulfate

General Statistics

Number of Valid Data	8	Number of Detected Data	0
Number of Distinct Detected Data	0	Number of Non-Detect Data	8

Warning: All observations are Non-Detects (NDs), therefore all statistics and estimates should also be NDs!
Specifically, sample mean, UCLs, UPLs, and other statistics are also NDs lying below the largest detection limit!
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Sulfate was not processed!

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

Acetone

General Statistics

Number of Valid Data	8	Number of Detected Data	3
Number of Distinct Detected Data	2	Number of Non-Detect Data	5

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful and reliable test statistics and estimates.
No statistics will be produced!

Tolerance Factor	2.582	Percent Non-Detects	62.50%

Raw Statistics

Minimum Detected	0.034
Maximum Detected	0.035
Mean of Detected	0.0343
SD of Detected	0.000577
Minimum Non-Detect	0.29
Maximum Non-Detect	0.38

Log-transformed Statistics

Minimum Detected	-3.381
Maximum Detected	-3.352
Mean of Detected	-3.372
SD of Detected	0.0167
Minimum Non-Detect	-1.238
Maximum Non-Detect	-0.968

Data with Multiple Detection Limits

Note: Data have multiple DLs - Use of KM Method is recommende
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Single Detection Limit Scenario

Number treated as Non-Detect with Single DL	8
Number treated as Detected with Single DL	0
Single DL Non-Detect Percentage	100.00%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

Background Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.75
5% Shapiro Wilk Critical Value	0.767

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.75
5% Shapiro Wilk Critical Value	0.767

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method

Mean		0.115
SD		0.0685
95% UTL	90% Coverage	0.292
	95% UPL (t)	0.253
	90% Percentile (z)	0.203
	95% Percentile (z)	0.228
	99% Percentile (z)	0.275

Maximum Likelihood Estimate(MLE) Method N/A

Assuming Lognormal Distribution

DL/2 Substitution Method

Mean (Log Scale)		-2.397
SD (Log Scale)		0.811
95% UTL	90% Coverage	0.739
	95% UPL (t)	0.464
	90% Percentile (z)	0.257
	95% Percentile (z)	0.345
	99% Percentile (z)	0.6

Log ROS Method

Mean in Original Scale		0.0343
SD in Original Scale		0.000352
Mean in Log Scale		-3.372
SD in Log Scale		0.0102
95% UTL	90% Coverage	0.0352
	95% UPL (t)	0.035
	90% Percentile (z)	0.0348
	95% Percentile (z)	0.0349
	99% Percentile (z)	0.0352

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	N/A
Theta Star	N/A
nu star	N/A

Data Distribution Test with Detected Values Only

Data do not follow a Discernable Distribution (0.05)

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

A-D Test Statistic	N/A
5% A-D Critical Value	N/A
K-S Test Statistic	N/A
5% K-S Critical Value	N/A

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics with Extrapolated Data

Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
95% Percentile of Chisquare (2k)	N/A
90% Percentile	N/A
95% Percentile	N/A
99% Percentile	N/A

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean	0.0343
SD	0.000471
SE of Mean	0.000333
95% KM UTL with 90% Coverage	0.0356
95% KM Chebyshev UPL	0.0365
95% KM UPL (t)	0.0353
90% Percentile (z)	0.0349
95% Percentile (z)	0.0351
99% Percentile (z)	0.0354

Gamma ROS Limits with Extrapolated Data

95% Wilson Hilferty (WH) Approx. Gamma UPL	N/A
95% Hawkins Wixley (HW) Approx. Gamma UPL	N/A
95% WH Approx. Gamma UTL with 90% Coverage	N/A
95% HW Approx. Gamma UTL with 90% Coverage	N/A

Note: DL/2 is not a recommended method.

Benzaldehyde

General Statistics

Total Number of Observations	9	Number of Distinct Observations	8
Tolerance Factor	2.454		

Raw Statistics

Minimum	0.036
Maximum	0.098
Second Largest	0.085
First Quartile	0.051
Median	0.058
Third Quartile	0.075
Mean	0.0629
Geometric Mean	0.0601
SD	0.0201
Coefficient of Variation	0.32
Skewness	0.54

Log-Transformed Statistics

Minimum	-3.324
Maximum	-2.323
Second Largest	-2.465
First Quartile	-2.976
Median	-2.847
Third Quartile	-2.59
Mean	-2.812
SD	0.32

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Background Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.96
Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% UTL with 90% Coverage	0.112
95% UPL (t)	0.102
90% Percentile (z)	0.0887
95% Percentile (z)	0.096
99% Percentile (z)	0.11

Gamma Distribution Test

k star	7.532
Theta Star	0.00835
MLE of Mean	0.0629
MLE of Standard Deviation	0.0229
nu star	135.6

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.981
Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% UTL with 90% Coverage	0.132
95% UPL (t)	0.113
90% Percentile (z)	0.0906
95% Percentile (z)	0.102
99% Percentile (z)	0.127

Data Distribution Test

Data appear Normal at 5% Significance Level

Table 2: ProUCL Output for Background Soil UPLs
OLIN Wilmington OU-1

General Background Statistics for Data Sets with Non-Detects

User Selected Options

From File	Data_For_ProUCL No Outliers.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
umber of Bootstrap Operations	2000

A-D Test Statistic	0.18
5% A-D Critical Value	0.722
K-S Test Statistic	0.162
5% K-S Critical Value	0.279

Nonparametric Statistics

90% Percentile	0.0876
95% Percentile	0.0928
99% Percentile	0.097

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

90% Percentile	0.0935
95% Percentile	0.105
99% Percentile	0.128
95% WH Approx. Gamma UPL	0.108
95% HW Approx. Gamma UPL	0.109
95% WH Approx. Gamma UTL with 90% Coverage	0.123
95% HW Approx. Gamma UTL with 90% Coverage	0.125

95% UTL with 90% Coverage	0.098
95% Percentile Bootstrap UTL with 90% Coverage	0.098
95% BCA Bootstrap UTL with 90% Coverage	0.098
95% UPL	0.098
95% Chebyshev UPL	0.155
Upper Threshold Limit Based upon IQR	0.111

Table 3: Summary Stats for Background Evaluation

Analyte	Summary Statistics						Distribution		95% UPL (1)	
	Number Detected	Number of Results	Percent Detected	Range of Detects (mg//kg)			Normal	Lognormal	Value (mg/kg)	Rationale / Statistic
Benzo(a)anthracene	4	9	44%	0.012	:	0.017	X	X	0.0192	95% KM UPL (t) - Nonparametric
Benzo(a)pyrene	5	9	56%	0.014	:	0.022	X	X	0.0229	95% KM UPL (t) - Nonparametric
Benzo(b)fluoranthene	9	9	100%	0.018	:	0.048	X	X	0.0528	95% UPL (t) - Normal
Benzo(ghi)perylene	2	9	22%	0.015	:	0.021			0.0239	95% KM UPL (t) - Nonparametric
Benzaldehyde	9	9	100%	0.036		0.098	X	X	0.102	95% UPL (t) - Normal
Bis(2-Ethylhexyl)phthalate	6	9	67%	0.012	:	0.031	X	X	0.0305	95% KM UPL (t) - Nonparametric
Chrysene	6	9	67%	0.015	:	0.027	X	X	0.0282	95% KM UPL (t) - Nonparametric
Fluoranthene	8	9	89%	0.015	:	0.043	X	X	0.0436	95% KM UPL (t) - Nonparametric
Indeno(1,2,3-cd)pyrene	8	9	89%	0.015	:	0.035		X	0.033	95% UPL (t) - Lognormal
Naphthalene	0	9	0%	N/A	:	N/A			N/A	All values are nondetect
Phenanthrene	6	9	67%	0.014	:	0.035	X	X	0.036	95% KM UPL (t) - Nonparametric
Pyrene	8	9	89%	0.016	:	0.049	X	X	0.0501	95% KM UPL (t) - Nonparametric
Formaldehyde	5	5	100%	0.11	:	0.35	X	X	0.459	95% UPL (t) - Normal
Aluminum	9	9	100%	1400	:	13000	X	X	16279	95% UPL (t) - Normal
Arsenic	9	9	100%	0.64	:	10	X	X	11.66	95% UPL (t) - Normal
Barium	9	9	100%	3.5	:	15	X	X	17.66	95% UPL (t) - Normal
Beryllium	6	6	100%	0.042	:	0.32	X		0.4	95% UPL (t) - Normal
Cadmium	9	9	100%	0.037	:	0.26	X	X	0.321	95% UPL (t) - Normal
Calcium	9	9	100%	86	:	590	X	X	679.9	95% UPL (t) - Normal
Chromium	9	9	100%	1.5	:	10	X	X	12.79	95% UPL (t) - Normal
Cobalt	8	8	100%	0.45	:	2.9	X	X	3.41	95% UPL (t) - Normal
Copper	8	9	89%	1.7	:	5.8	X	X	6.698	95% UPL (t) - Normal
Iron	9	9	100%	610	:	12000	X		15564	95% UPL (t) - Normal
Lead	9	9	100%	7.8	:	26	X	X	27.73	95% UPL (t) - Normal
Magnesium	9	9	100%	24	:	1100	X	X	1215	95% UPL (t) - Normal
Manganese	9	9	100%	3.4	:	69	X	X	75.31	95% UPL (t) - Normal
Mercury	7	7	100%	0.048	:	0.11	X	X	0.115	95% UPL (t) - Normal
Nickel	9	9	100%	1.3	:	7.3	X	X	8.42	95% UPL (t) - Normal
Potassium	9	9	100%	51	:	580	X		682.3	95% UPL (t) - Normal
Selenium	2	9	22%	0.39	:	0.6			0.701	95% KM UPL (t) - Nonparametric
Silver	0	9	0%	N/A	:	N/A			N/A	All values are nondetect
Sodium	4	9	44%	33	:	48	X	X	50.02	95% KM UPL (t) - Nonparametric
Tin	9	9	100%	0.71	:	3.5	X	X	4.44	95% UPL (t) - Normal
Vanadium	9	9	100%	3.6	:	21	X	X	24.78	95% UPL (t) - Normal
Zinc	9	9	100%	1.9	:	18	X	X	19.64	95% UPL (t) - Normal
NitrogenAsAmonia	9	9	100%	95	:	200	X	X	195.5	95% UPL (t) - Normal
Sulfate	0	8	0%	N/A	:	N/A			N/A	All values are nondetect
Acetone	3	8	38%	0.034	:	0.035			0.0365	95% KM UPL (t) - Nonparametric

Notes

(1) Hierachy followed for UPL selection is normal distribution, lognormal distribution then nonparametric distribution. Nonparametric statistics are used for all analytes detected in less than 70% samples. For analytes detected in >70% samples, lognormal or normal UPLs (based on distribution of data) were retained.

N/A - UPL could not be calculated as all results were reported as nondetect.
95% UPL - 95% Upper prediction limit (see text for more detail)
mg/kg - milligram per kilogram

APPENDIX J

SOIL LEACHING DOCUMENTATION
(Provided on CD)

EVALUATION OF POTENTIAL LEACHING FROM OU1 SOILS TO GROUNDWATER

Note: This evaluation was prepared for the Response to Comments package previously submitted on April 3, 2012 to USEPA by AMEC Environment & Infrastructure, Inc. in behalf of Olin Corporation. No revisions or updates have been made to the actual Response to Comments submittal.

Based on a review of the surface (0-1 ft) and shallow subsurface (1-10 ft) soil and the on-Property shallow groundwater data (2007 to present) for several compounds, there appears to be little evidence of leaching from soils to groundwater at the site.

Published USEPA Leaching-based Soil Screening Levels (SSLs) will be considered supplemental information to be considered with the evaluation of a comprehensive data set of soil and shallow groundwater. The SSLs are very conservative, and assume that the potential receiving groundwater is drinking water. At OU1, only a small portion of the property has groundwater that is classified, per Massachusetts criteria, as a current or potential future drinking water resource. Only a small portion of the property (northeast corner) is located within the Zone II (zone of contribution) of the Wilmington Town Wells.

To evaluate evidence of leaching of contaminants from soil to shallow groundwater, the OU1 soil data summaries (Preliminary RI Tables 4.1-1 through 4.1-3) were compared to on-Property shallow groundwater data (2007 to present) as an initial screening step (attached Tables 1-1 through 1-3). Shallow groundwater samples were obtained from monitoring wells screened across the water table or within 5 feet of the water table (the list of shallow monitoring wells is identified in Table 1-4). The existing soil and shallow groundwater data are the best means for evaluating the current leaching to groundwater. Based on historical and most recent data, deeper groundwater has clearly been impacted most by historical liquid process waste disposal activities that occurred during facility operations prior to connection of the facility to the public sewer system in the early 1970s and prior to Olin ownership. Releases to soils during the manufacturing processes ceased in 1986 (when the facility ceased operations) or earlier. Therefore, releases to soil would have occurred at least 26 years ago.

There are fewer volatile organic and semivolatile organic compounds detected in shallow groundwater than in soil. Trimethylpentenes are the most frequently detected VOCs in both soil and groundwater. The most frequently detected semi-volatile organic compounds in shallow groundwater are bis(2-ethylhexyl)phthalate, diphenyl ether, and N-nitrosodiphenylamine. Several polyaromatic hydrocarbon compounds frequently detected in surface soil samples have not been detected or have been detected in only one groundwater sample during the RI. Acetaldehyde, formaldehyde, and phthalic acid/anhydride have been detected in soil samples but not in any shallow groundwater samples.

Figures displaying contaminant distribution for on-Property shallow groundwater with soil

contaminant distribution for several compounds were prepared to evaluate potential leaching concerns (Figures 1-1 through 1-8). Groundwater data used in these figures is the average of the two rounds of RI groundwater sampling. To facilitate review of the figures and to provide additional perspective, various process areas and waste disposal features have been outlined on each of the contaminant distribution figures. The relationship of contaminant distribution in shallow versus deeper overburden groundwater was also considered in the context of potential for leaching of contaminants from unsaturated soil to groundwater. It should be recognized that the historical liquid waste disposal activities appear to be the predominant but not the only contributors to groundwater impacts (e.g. Plant B production area TMPs and Plant B Tank Farm Area TMPs, phthalates, and processing oil).

The OU1 soil and groundwater data summaries (Tables 1-1 through 1-3) were evaluated to identify parameters that were detected frequently (greater than 5 detections) in both soil and groundwater. Based on detection frequencies and site history, contaminant distribution figures were developed for shallow subsurface soil (1-10 ft) and the corresponding shallow groundwater for the following compounds:

- total trimethylpentenes (Figure 1-1)
- bis(2-ethylhexyl)phthalate (Figure 1-2)
- n-Nitrosodiphenylamine (Figure 1-3)
- calcium (Figure 1-4)
- chromium (Figure 1-5)
- nitrogen, ammonia (Figure 1-6)
- sulfate (Figure 1-7)
- hydrazine (Figure 1-8)

Additional figures were created for surface soil (0-1 ft) and the corresponding shallow groundwater for sulfate (Figure 1-9), and shallow subsurface soil (1-10 ft) and the corresponding deep groundwater for sulfate (Figure 1-10) and chromium (Figure 1-11).

Total trimethylpentenes have shallow subsurface soil concentrations ranging from 0.001 to 1,510 mg/kg, predominantly in the areas of the Plant B Production Area and Plant B Treatment Area, Lake Poly, the Buried Debris Area, and Drum Area A (Figure 1-1). Most other areas on the northern portion of the site have no trimethylpentenes detected. Shallow groundwater detections of total trimethylpentenes are located at the Plant B Production Area and Tank Farm as well as around the Slurry Wall/Cap. The trimethylpentenes in shallow groundwater at the Plant B Production Area and Plant B Treatment Building appear to be related to releases of liquid product and processing oil containing trimethylpentenes, respectively. The trimethylpentenes in shallow groundwater samples along the perimeter of the Slurry Wall/Cap appear to be related to diffuse groundwater.

Bis(2-ethylhexyl)phthalate (BEHP) was detected at concentrations of 0.012 – 8,600

mg/kg in shallow subsurface soil with the highest concentration in the area of the Plant B Treatment Building, Lake Poly, and the Buried Debris Area (Figure 1-2). BEHP was generally not detected in shallow groundwater samples from the former Lake Poly area. The maximum detected BEHP concentration in shallow groundwater is located in the Central Wetland (GW-17S) and is 0.00105 mg/L which does not exceed the drinking water Maximum Contaminant Level of 0.006 mg/L for bis(2-ethylhexyl)phthalate. The bis(2-ethylhexyl)phthalate in shallow groundwater at the Plant B Treatment Building appear to be related to processing oil containing bis(2-ethylhexyl)phthalate. Given the wide range of soil concentrations and the very low concentrations of BEHP in shallow groundwater, leaching of BEHP does not appear to be of concern.

N-nitrosodiphenylamine was detected in shallow groundwater in the Plant B Production Area and Plant B treatment Building area (Figure 1-3). Other than the shallow groundwater at these two Plant B areas, the shallow subsurface soil and shallow groundwater on the northern portion of the site are relatively low concentrations or non-detect. N-nitrosodiphenylamine was detected in shallow subsurface soil samples from the former Lake Poly, however, shallow groundwater concentrations in the surrounding area are relatively low or non-detect. With the exception of one soil sample in the Buried Drum Area (BD-C18 at 339 mg/kg), the samples for both shallow subsurface soil and shallow groundwater have relatively low concentrations or N-nitrosodiphenylamine is not detected for the remainder of the site, south of Lake Poly. The N-nitrosodiphenylamine in shallow groundwater at the Plant B Production Area appears to be related to releases of liquid product and possibly processing oil containing N-nitrosodiphenylamine. Given the wide range of soil concentrations and the very low concentrations of N-nitrosodiphenylamine in shallow groundwater, leaching of N-nitrosodiphenylamine does not appear to be of concern.

Chromium concentrations for shallow subsurface soil ranged from 1.8 - 7,900 mg/kg (Figure 1-5). Soil concentrations are substantially lower than the Regional Screening Levels for residential soils of 120,000 mg/kg for trivalent chromium and the risk-based SSL of 28,000.000 mg/kg. The highest shallow subsurface soil concentration of chromium is located at Lake Poly (LPB18 from 8-10 ft bgs). The maximum detected concentration for chromium in shallow groundwater was located at GW-29S in the vicinity of Lake Poly. GW-29S has previously been analyzed for both trivalent and hexavalent chromium and was found to contain trivalent chromium (0.027 mg/L) and hexavalent chromium was not detected (0.005 U mg/L). Shallow groundwater concentrations range from 0.0036 – 0.035 mg/L which are also lower than the Regional Screening Levels for tap water of 16 mg/L for trivalent chromium. Chromium concentration ranged from 0.00345 – 1,700 mg/L for deep groundwater (groundwater deeper than 5 ft below the water table). The maximum detected deep groundwater location (MP-1 #01) is located within the Slurry Wall/Cap (Figure 5-11) That location and sampling port is associated with DAPL. This location has also been analyzed previously with an indication that the chromium is considered to be trivalent chromium, total chromium was detected (1,600 mg/L) while the hexavalent chromium was non-detect

(0.001 mg/L).

Calcium was detected in shallow groundwater at concentrations ranging from 2.05 – 250 mg/L with the highest concentration to the east of the Slurry Wall/Cap (GW-6S) (Figure 1-4). Shallow subsurface soil concentrations range from 150 – 32,000 mg/kg. Several of the higher concentration samples were collected from the shallow subsurface soil within the footprint of the two former lined lagoons (within the Slurry Wall/Cap). However, the maximum concentration in subsurface soil was in a sample from a location east of the cap (RSO-12 from 0-3 ft bgs).

Nitrogen, ammonia was detected at concentrations of 3.6 – 4,700 mg/kg in shallow subsurface soil samples, with the higher concentrations in the vicinity of Lake Poly (4,700 mg/kg at LP-BOT-C) (Figure 1-6). The northern portion of the site appears to have relatively low concentrations of nitrogen, ammonia in both soil and shallow groundwater. Shallow groundwater concentrations are elevated (65 – 165 mg/L) south of the Slurry Wall/Cap structure. Groundwater on the southern portion of the site are elevated likely due to the continuing effects of the diffuse groundwater present prior to the installation of the Slurry Wall/Cap.

The highest concentration of sulfate in surface soil samples was detected within the Slurry Wall/Cap (CPDA-2 at 26,800 mg/kg) (Figure 1-9). However, there are also substantial concentrations reported in the Central Pond area (CPDA-8 at 23,900 mg/kg) and east of the Plant D Tank Farm (SWMU-26 at 19,400 mg/kg). Surface soil, shallow subsurface soil and shallow groundwater sulfate concentrations on the northern portion of the site are relatively low or sulfate was not detected. Sulfate was detected in shallow subsurface soil samples within the Slurry Wall/Cap, however the location of maximum detection was located within the West Warehouse at location E1.40 (285,000 mg/kg) (Figure 1-7). However, sulfate concentrations in shallow groundwater samples do not appear to be elevated in this area. Sulfate concentrations in shallow groundwater samples from the Slurry Wall/Cap area and in the southern portion of the site range from 45 – 1,035 mg/L. These concentrations are likely due to the continuing effects of the diffuse groundwater present prior to the installation of the Slurry Wall/Cap. Sulfate concentrations in deep groundwater (Figure 1-10) are extremely high within the multilevel piezometer located in the Slurry Wall/Cap at 72,000 mg/L in MP-1 at the deepest port (DAPL sample) and range from 278 – 2,950 mg/L to the south and east.

Calcium, sulfate, and nitrogen, ammonia have similar distributions in shallow groundwater. Higher concentrations in shallow groundwater in the southern half of the property appear to be related to those areas that were downgradient of the DAPL pool prior to the installation of the Slurry Wall/Cap. Those areas exhibit residual DAPL/diffuse groundwater parameters.

Hydrazine was detected at a concentration of 1.9 mg/kg in a shallow subsurface soil sample collected from Lake Poly (LPB-48) at a depth of 5-8 ft bgs (Figure 1-8). The only

other detection of hydrazine in Lake Poly is two orders of magnitude lower (0.0013 mg/kg at SB-448 from 8-10 ft bgs). Hydrazine was not detected in shallow groundwater samples collected northwest and south of the former Lake Poly. The Plant D Tank Farm has an area of hydrazine detections in the shallow subsurface soil ranging from 0.0023 to 0.42 mg/kg which appears to be co-located with the hydrazine detections in shallow groundwater at GW-307 (0.175 mg/L) and GW-308 (0.001665 mg/L). This is suggestive of potential limited localized leaching of hydrazine from soil to groundwater.

Some parameters in DAPL and diffuse groundwater may be associated with dissolution of soil or rock material due to the low pH of the DAPL. In some cases, these parameters may be detected in shallow groundwater that is impacted by diffuse material. The Slurry Wall/Cap was installed in 2000, however, diffuse groundwater existing prior to the installation of the Slurry Wall/Cap may have an impact on this area.

Notes:
1. Residential RSL (calculated) for Total TMPs = 8 mg/kg
2. Industrial RSL (calculated) for Total TMPs = 39 mg/kg
3. < - Not Detected, value shown is detection limit
4. Range of Detects in Soil (1-10 ft) 0.001 - 1,510 mg/kg
5. Range of Detects in Groundwater 0.00056 - 0.21 mg/L
6. Groundwater concentrations is the average of the two RI rounds

Legend

- Chemical Detected in Soil Symbol Size Increases with Concentration
- Chemical Not Detected in Soil
- Chemical Detected in Groundwater Symbol Size Increases with Concentration
- Chemical Not Detected in Groundwater
- *0.05* Analyte Concentration (mg/kg or mg/L)
- 51 Eames St. Property Boundary
- Water
- Railroad
- Paved Road
- Unpaved Road
- Wetland Boundary

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0 60 120 Feet

Figure 1-1
Distribution of Soil (1-10 ft) and Shallow Groundwater Concentrations for Total TMPs
Preliminary Remedial Investigation Report RTC
Operable Unit 1 for the Olin Property
Wilmington, Massachusetts

Prepared/Date: BJR 03/22/12 | Checked/Date: KJC 03/22/12

Document: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\MapDocuments\Preliminary RI\PrelimRI_Leaching_22X34_P_rotated.mxd PDF: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\Figures\Leaching\Figure 1-1 - TMPs Soil 1-10 GW.pdf 3/22/2012 10:43 AM brian.roden

Notes:
1. Residential RSL (USEPA) for BEHP = 35 mg/kg
2. Industrial RSL (USEPA) for BEHP = 120 mg/kg
3. < - Not Detected, value shown is detection limit
4. Range of Detects in Soil (1-10 ft) 0.012 - 8,600 mg/kg
5. Range of Detects in Groundwater 0000705 - 0.000105 mg/L
6. Groundwater concentrations is the average of the two RI rounds

Legend

- Chemical Detected in Soil Symbol Size Increases with Concentration
- Chemical Not Detected in Soil
- Chemical Detected in Groundwater Symbol Size Increases with Concentration
- Chemical Not Detected in Groundwater
- *0.05* Analyte Concentration (mg/kg or mg/L)
- 51 Eames St. Property Boundary
- Water
- Railroad
- Paved Road
- Unpaved Road
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Figure 1-2
Distribution of Soil (1-10 ft) and Shallow Groundwater Concentrations for BEHP
Preliminary Remedial Investigation Report RTC
Operable Unit 1 for the Olin Property
Wilmington, Massachusetts

Prepared/Date: BJR 03/22/12 | Checked/Date: KJC 03/22/12

Document: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\MapDocuments\Preliminary RI\PrelimRI_Leaching_22X34_P_rotated.mxd PDF: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\Figures\Leaching\Figure 1-2 - BEHP Soil 1-10 GW.pdf 3/22/2012 11:02 AM brian.roden

Notes:
1. Residential RSL (USEPA) for N-Nitrosodiphenylamine = 99 mg/kg
2. Industrial RSL (USEPA) for N-Nitrosodiphenylamine = 350 mg/kg
3. < - Not Detected, value shown is detection limit
4. Range of Detects in Soil (1-10 ft) 0.011 - 3,400 mg/kg
5. Range of Detects in Groundwater 0.001375 - 0.0825 mg/L
6. Groundwater concentrations is the average of the two RI rounds

Legend

- Chemical Detected in Soil Symbol Size Increases with Concentration
- Chemical Not Detected in Soil
- Chemical Detected in Groundwater Symbol Size Increases with Concentration
- Chemical Not Detected in Groundwater
- *0.05* Analyte Concentration (mg/kg or mg/L)
- 51 Eames St. Property Boundary
- Water
- Railroad
- Paved Road
- Unpaved Road
- Wetland Boundary

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Figure 1-3
Distribution of Soil (1-10 ft) and Shallow Groundwater Concentrations for NDPA
Preliminary Remedial Investigation Report RTC
Operable Unit 1 for the Olin Property
Wilmington, Massachusetts

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Notes:
1. < - Not Detected, value shown is detection limit
2. Range of Detects in Soil (1-10 ft) 150 - 32,000 mg/kg
3. Range of Detects in Groundwater 2.05 - 250 mg/L
4. Groundwater concentrations is the average of the two RI rounds

Legend

- Chemical Detected in Soil Symbol Size Increases with Concentration
- Chemical Not Detected in Soil
- Chemical Detected in Groundwater Symbol Size Increases with Concentration
- Chemical Not Detected in Groundwater
- *0.05* Analyte Concentration (mg/kg or mg/L)
- 51 Eames St. Property Boundary
- Water
- Railroad
- Paved Road
- Unpaved Road
- Wetland Boundary

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0 60 120 Feet

Figure 1-4
Distribution of Soil (1-10 ft) and Shallow Groundwater Concentrations for Calcium
Preliminary Remedial Investigation Report RTC Operable Unit 1 for the Olin Property
Wilmington, Massachusetts

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Document: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\MapDocuments\Preliminary RI\PrelimRI_Leaching_22X34_P_rotated.mxd PDF: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\Figures\Leaching\Figure 1-4 - Calcium Soil 1-10 GW.pdf 3/22/2012 11:21 AM brian.roden

Notes:
1. Residential RSL (USEPA) for Chromium III = 120,000 mg/kg
2. Industrial RSL (USEPA) for Chromium III= 1,500,000 mg/kg
3. < - Not Detected, value shown is detection limit
4. Range of Detects in Soil (1-10 ft) 1.8 - 7,900 mg/kg
5. Range of Detects in Groundwater 0.0036 - 0.035 mg/L
6. Groundwater concentrations is the average of the two RI rounds

Legend

- Chemical Detected in Soil Symbol Size Increases with Concentration
- Chemical Not Detected in Soil
- Chemical Detected in Groundwater Symbol Size Increases with Concentration
- Chemical Not Detected in Groundwater
- *0.05* Analyte Concentration (mg/kg or mg/L)
- 51 Eames St. Property Boundary
- Water
- Railroad
- Paved Road
- Unpaved Road
- Wetland Boundary

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Feet

Figure 1-5
Distribution of Soil (1-10 ft) and Shallow Groundwater Concentrations for Chromium
Preliminary Remedial Investigation Report RTC
Operable Unit 1 for the Olin Property
Wilmington, Massachusetts

Prepared/Date: BJR 03/22/12 | Checked/Date: KJC 03/22/12

Document: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\MapDocuments\Preliminary RI\PrelimRI_Leaching_22X34_P_rotated.mxd PDF: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\Figures\Leaching\Figure 1-5 - Total Chromium Soil 1-10 GW.pdf 3/22/2012 11:12 AM brian.roden

Notes:
1. < - Not Detected, value shown is detection limit
2. Range of Detects in Soil (1-10 ft) 3.6 - 4,700 mg/kg
3. Range of Detects in Groundwater 0.115 - 165 mg/L
4. Groundwater concentrations is the average of the two RI rounds

Legend

- Chemical Detected in Soil Symbol Size Increases with Concentration
- Chemical Not Detected in Soil
- Chemical Detected in Groundwater Symbol Size Increases with Concentration
- Chemical Not Detected in Groundwater
- *0.05* Analyte Concentration (mg/kg or mg/L)
- 51 Eames St. Property Boundary
- Water
- Railroad
- Paved Road
- Unpaved Road
- Wetland Boundary

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Figure 1-6
Distribution of Soil (1-10 ft) and Shallow Groundwater Concentrations for Ammonia
Preliminary Remedial Investigation Report RTC
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Wilmington, Massachusetts

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Notes:
1. < - Not Detected, value shown is detection limit
2. Range of Detects in Soil (1-10 ft) 22 - 285,000 mg/kg
3. Range of Detects in Groundwater 3.3 - 1,250 mg/L
4. Groundwater concentrations is the average of the two RI rounds

Legend

- Chemical Detected in Soil Symbol Size Increases with Concentration
- Chemical Not Detected in Soil
- Chemical Detected in Groundwater Symbol Size Increases with Concentration
- Chemical Not Detected in Groundwater
- *0.05* Analyte Concentration (mg/kg or mg/L)
- 51 Eames St. Property Boundary
- Water
- Railroad
- Paved Road
- Unpaved Road
- Wetland Boundary

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0 60 120 Feet

Figure 1-7
Distribution of Soil (1-10 ft) and Shallow Groundwater Concentrations for Sulfate
Preliminary Remedial Investigation Report RTC
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Wilmington, Massachusetts

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Document: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\MapDocuments\Preliminary RI\PrelimRI_Leaching_22X34_P_rotated.mxd PDF: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\Figures\Leaching\Figure 1-7 - Sulfate Soil 1-10 GW.pdf 3/22/2012 11:29 AM brian.roden

GW-32S <0.0002
SB-403 <0.0034
GW-21S <0.0002
SB-407 <0.0024
GW-301 <0.27
SB-404 <0.0024
SB-402 <0.0021
SB-410 <0.0025
SB-409 0.00084
SB-413 <0.0023
GW-302 <0.3
WSS-2 <0.3
SB-411 0.0028
SB-412 0.00071
SB-416 <0.0021
GW-54S <0.0002
SB-419 <0.0021
SB-422 <0.0023
SB-420 <0.0021
SB-421 0.00058
GW-303 0.00018
SB-426 0.00069
SB-430 <0.0022
SB-425 0.0007
GW-101 <0.0002
SB-435 <0.0022
SB-431 <0.0022
SB-432 0.00076
GW-28S <0.0002
GW-53S 0.000079
B-07-A <0.0002
SB-434 <0.0022
SB-436 0.0008
SB-443 <0.0024
SB-437 <0.0023
SB-444 <0.0023
SB-445 0.00065
SB-446 <0.0025
SB-442 0.0034
LPB-50 <0.27
LPB-50 <0.28
LPB-40 <0.3
LPB-50 <0.3
SB-448 0.0013
SB-453 <0.0024
SB-450 0.00067
SB-451 0.0023
LPB-48 <0.27
LPB-48 1.9
LPB-41 <0.35
LPB-48 <0.28
SB-452 0.0032
GW-52S 0.000098
LPB-41 <0.27
LPB-43 <0.32
LPB-43 <0.28
LPB-42 <0.28
LPB-43 <0.28
SB-456 0.0027
SB-457 0.052
PLD-1 <0.3
GW-306 <0.31
LPB-42 <0.28
LPB-42 <0.27
SB-459 0.0086
SB-463 0.0045
SB-464 0.0028
SB-466 <0.0022
SB-465 0.21
PLD-2 <0.3
GW-307 0.175
GW-34SR <0.0002
SB-468 0.28
GW-307 <0.31
SB-471 0.0023
GW-308 0.001665
GW-10S <0.0002
PLD-3 <0.3
PLD-3 0.42
SB-472 0.00078
GW-CA1 <0.0002
GW-3S <0.0002
SB-473 <0.0024
GW-51S 0.00011
GW-202S <0.0002
GW-79S <0.0002
GW-50S <0.0002

Notes:
1. Residential RSL (USEPA) for Hydrazine = 0.21 mg/kg
2. Industrial RSL (USEPA) for Hydrazine = 0.95 mg/kg
3. < - Not Detected, value shown is detection limit
4. Range of Detects in Soil (1-10 ft) 0.00058 - 1.9 mg/kg
5. Range of Detects in Groundwater 0.000079 - 0.175 mg/L
6. Groundwater concentrations is the average of the two RI rounds

Legend

- Chemical Detected in Soil Symbol Size Increases with Concentration
- Chemical Not Detected in Soil
- Chemical Detected in Groundwater Symbol Size Increases with Concentration
- Chemical Not Detected in Groundwater
- *0.05* Analyte Concentration (mg/kg or mg/L)
- 51 Eames St. Property Boundary
- Water
- Railroad
- Paved Road
- Unpaved Road
- Wetland Boundary

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Figure 1-8
Distribution of Soil (1-10 ft) and Shallow Groundwater Concentrations for Hydrazine
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Wilmington, Massachusetts

Prepared/Date: BJR 03/22/12 | Checked/Date: KJC 03/22/12

Document: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\MapDocuments\Preliminary RI\PrelimRI_Leaching_22X34_P_rotated.mxd PDF: P:\old_Wakefield_Data\projects\OLIN\Wilmington\GIS\Figures\Leaching\Figure 1-8 - Hydrazine Soil 1-10 GW.pdf 3/22/2012 11:18 AM brian.roden

Notes:
1. < - Not Detected, value shown is detection limit
2. Range of Detects in Surface Soil 4.2 - 26,800 mg/kg
3. Range of Detects in Groundwater 3.3 - 1,250 mg/L
4. Groundwater concentrations is the average of the two RI rounds

Legend

- Chemical Detected in Soil Symbol Size Increases with Concentration
- Chemical Not Detected in Soil
- Chemical Detected in Groundwater Symbol Size Increases with Concentration
- Chemical Not Detected in Groundwater
- *0.05* Analyte Concentration (mg/kg or mg/L)
- 51 Eames St. Property Boundary
- Water
- Railroad
- Paved Road
- Unpaved Road
- Wetland Boundary

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0 80 160 Feet

Figure 1-9
Distribution of Surface Soil and Shallow Groundwater Concentrations for Sulfate
Preliminary Remedial Investigation Report RTC
Operable Unit 1 for the Olin Property
Wilmington, Massachusetts

Prepared/Date: BJR 03/22/12 | Checked/Date: KJC 03/22/12

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GW-31D 15
GW-32D 25.5
SB-400 ND
BH39 34
BH40 ND
SB-401 ND
SB-402 ND
SB-404 ND
GW-21D 23
SB-403 ND
SB-406 ND
SB-407 ND
SB-408 ND
SB-405 54
SB-409 ND
SB-410 ND
SB-411 ND
SB-412 ND
SB-413 ND
SB-414 ND
SB-415 ND
SB-416 ND
BH29 80
BH32 28
SB-417 ND
SB-418 ND
SB-419 ND
SB-420 ND
SB-421 ND
GW-54D 21
SB-422 ND
BH28 22
SB-423 ND
SB-429 ND
SB-430 ND
SB-426 ND
SB-424 ND
BH27 ND
BH30 58
BH34 120
SB-427 ND
GW-28D 29
SB-435 ND
SB-431 ND
SB-425 ND
SB-432 ND
BH26 ND
SB-428 ND
GW-53D 14
SB-433 ND
SB-436 ND
SB-434 ND
SB-437 ND
SB-443 ND
BH35 23
BH33 ND
SB-438 ND
SB-439 ND
SB-440 ND
SB-441 ND
SB-444 ND
SB-445 ND
SB-446 ND
SB-447 ND
BH38 ND
BH18 ND
BH37 ND
SB-449 ND
SB-453 ND
BH17 ND
BH36 ND
SB-448 ND
GW-15 20.5
SB-442 ND
GW-52D 62
SB-454 ND
SB-450 ND
SB-451 ND
B-1A 148
BH16 40
E1.40 285000
W1.35 67
E1.45 108000
SB-452 ND
LPB-2 85
LPB-2 44
W1.35 129
E1.50 37000
E2.22 456
BH14 110
SB-455 ND
SB-456 ND
E1.50 1300
GW-29D 18
BH12 87
E1.75 542
SB-458 ND
BH15 47
E2.70 331
E1.75 665
SB-457 37000
SB-463 69
SB-460 420
SB-464 ND
SB-459 ND
SB-462 71
BH25 ND
BH31 ND
BH24 120
BH13 67
SB-461 ND
BH11 140
SB-466 ND
SB-468 ND
SB-470 ND
SB-467 39
SB-469 110
SB-465 ND
GW-10DR 115
GW-34D 41
BH22 37
BH19 ND
BH21 230
SB-471 ND
BH23 140
BH9 210
BH5 1600
SB-472 620
BH2 13000
BH3 2700
BH4 33000
GW-6D 150
GW-3D 465
BH10 6100
MP-1 #01 72000
MP-1 #06 2300
BH6 1300
SB-473 ND
GW-51D 415
BH8 2000
BH7 680
GW-17D 785
GW-202D 2000
GW-4D 278
GW-55D 2950
GW-56D 325
GW-50D 1450

Notes:
1. < - Not Detected, value shown is detection limit
2. Range of Detects in Soil (1-10 ft) 22 - 285,000 mg/kg
3. Range of Detects in Groundwater 14 - 72,000 mg/L
4. Groundwater concentrations is the average of the two RI rounds

Legend

- Chemical Detected in Soil Symbol Size Increases with Concentration
- Chemical Not Detected in Soil
- Chemical Detected in Groundwater Symbol Size Increases with Concentration
- Chemical Not Detected in Groundwater
- *0.05* Analyte Concentration (mg/kg or mg/L)
- 51 Eames St. Property Boundary
- Water
- Railroad
- Paved Road
- Unpaved Road
- Wetland Boundary

AMEC Environment & Infrastructure
107 Audubon Road, Suite 301
Wakefield, MA 01880

N

0 60 120
Feet

Figure 1-10
Distribution of Soil (1-10 ft) and Deep Groundwater Concentrations for Sulfate
Preliminary Remedial Investigation Report RTC
Operable Unit 1 for the Olin Property
Wilmington, Massachusetts

Prepared/Date: BJR 03/22/12 | Checked/Date: KJC 03/22/12

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Notes:
1. Residential RSL (USEPA) for Chromium III = 120,000 mg/kg
2. Industrial RSL (USEPA) for Chromium III= 1,500,000 mg/kg
3. < - Not Detected, value shown is detection limit
4. Range of Detects in Soil (1-10 ft) 1.8 - 7,900 mg/kg
5. Range of Detects in Groundwater 0.00345 - 1,700 mg/L
6. Groundwater concentrations is the average of the two RI rounds

Legend

- Chemical Detected in Soil Symbol Size Increases with Concentration
- Chemical Not Detected in Soil
- Chemical Detected in Groundwater Symbol Size Increases with Concentration
- Chemical Not Detected in Groundwater
- *0.05* Analyte Concentration (mg/kg or mg/L)
- 51 Eames St. Property Boundary
- Water
- Railroad
- Paved Road
- Unpaved Road
- Wetland Boundary

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Wakefield, MA 01880

N

0 60 120 Feet

Figure 1-11
Distribution of Soil (1-10 ft) and Deep Groundwater Concentrations for Chromium
Preliminary Remedial Investigation Report RTC
Operable Unit 1 for the Olin Property
Wilmington, Massachusetts

Prepared/Date: BJR 03/22/12 | Checked/Date: KJC 03/22/12

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Table 1-1
Summary of Detected Chemicals for Surface Soil Samples (0-1 ft) and On-Property Shallow Groundwater
Preliminary Remedial Investigation Report RTC
Olin Chemical Superfund Site
Wilmington, Massachusetts

	Surface Soil (0-1 ft bgs) (mg/Kg)				On-Property Shallow Groundwater (mg/L)			
Parameter Name	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples
Volatile Organics								
1,1,1-Trichloroethane	8 / 201	0.0022 : 1	0.003 - 0.071	0.031	1 / 79	0.001 : 0.004	0.0004 - 0.0004	0.00054
2,4,4-Trimethyl-1-pentene	7 / 196	0.0044 : 0.79	0.002 - 2.1	0.049	40 / 112	0.001 : 0.01	0.00074 - 1.7	0.18
2,4,4-Trimethyl-2-Pentene	6 / 197	0.0044 : 0.79	0.0056 - 0.61	0.032	34 / 112	0.001 : 0.01	0.00043 - 0.49	0.050
Acetone	16 / 201	0.006 : 20	0.011 - 0.093	0.84	1 / 79	0.05 : 0.2	0.03 - 0.03	0.027
Methylene chloride	11 / 201	0.004 : 2	0.002 - 0.44	0.062	2 / 79	0.002 : 0.002	0.0078 - 0.019	0.0013
Tetrachloroethene	5 / 201	0.0022 : 1	0.001 - 0.073	0.031	0 / 79	0.001 : 0.004		0.00054
Toluene	10 / 201	0.0022 : 1	0.0009 - 0.038	0.031	1 / 79	0.001 : 0.004	0.00021 - 0.00021	0.00053
Semivolatile Organics								
1-Methylnaphthalene	7 / 130	0.033 : 17	0.023 - 0.62	0.16	1 / 79	0.0045 : 0.005	0.000047 - 0.000047	0.0022
2-Methylnaphthalene	11 / 219	0.033 : 36	0.007 - 0.71	0.67	0 / 79	0.00091 : 0.001		0.00046
Acenaphthene	5 / 217	0.033 : 36	0.12 - 4.8	0.70	0 / 79	0.00091 : 0.001		0.00046
Acenaphthylene	10 / 219	0.033 : 36	0.008 - 0.21	0.66	0 / 79	0.00027 : 0.0003		0.00014
Acetophenone	12 / 135	0.033 : 17	0.011 - 0.17	0.18	0 / 79	0.0045 : 0.005		0.0023
Aniline	5 / 187	0.033 : 180	0.016 - 0.69	2.8	1 / 79	0.0045 : 0.005	0.0011 - 0.0011	0.0023
Anthracene	14 / 218	0.033 : 36	0.005 - 9.1	0.72	0 / 79	0.00091 : 0.001		0.00046
Benzaldehyde	41 / 130	0.033 : 17	0.012 - 1.9	0.20	0 / 79	0.0045 : 0.005		0.0023
Benzo(a)anthracene	47 / 218	0.033 : 36	0.008 - 28	0.93	0 / 79	0.00027 : 0.0003		0.00014
Benzo(a)pyrene	54 / 217	0.033 : 36	0.011 - 21	0.87	1 / 79	0.00018 : 0.0002	0.00015 - 0.00015	0.000091
Benzo(b)fluoranthene	60 / 218	0.033 : 36	0.013 - 29	0.92	1 / 79	0.00027 : 0.0003	0.0003 - 0.0003	0.00014
Benzo(ghi)perylene	34 / 217	0.033 : 36	0.014 - 16	0.80	3 / 79	0.00045 : 0.0005	0.00019 - 0.00028	0.00023
Benzo(k)fluoranthene	35 / 217	0.033 : 36	0.011 - 12	0.78	0 / 79	0.00027 : 0.0003		0.00014
Benzoic Acid	30 / 190	0.17 : 180	0.025 - 34	3.8	6 / 44	0.0045 : 0.005	0.00064 - 0.0017	0.0021
Biphenyl	8 / 129	0.033 : 17	0.023 - 0.86	0.17	4 / 79	0.0045 : 0.005	0.00049 - 0.0045	0.0022
Bis(2-Ethylhexyl)phthalate	168 / 220	0.034 : 9.1	0.011 - 5500	33	15 / 112	0.0018 : 0.0052	0.00043 - 0.012	0.0013
Butylbenzylphthalate	8 / 217	0.033 : 36	0.029 - 2.6	0.69	0 / 79	0.0045 : 0.005		0.0023
Carbazole	8 / 132	0.033 : 17	0.02 - 5.4	0.21	0 / 79	0.0045 : 0.005		0.0023
Chrysene	66 / 218	0.033 : 36	0.011 - 26	0.92	2 / 79	0.00091 : 0.001	0.00015 - 0.00031	0.00045
Dibenz(a,h)anthracene	16 / 216	0.033 : 36	0.015 - 4.8	0.72	4 / 79	0.00045 : 0.0005	0.000066 - 0.0003	0.00022
Dibenzofuran	11 / 218	0.033 : 36	0.016 - 1.7	0.70	0 / 79	0.0045 : 0.005		0.0023
Diethylphthalate	9 / 217	0.021 : 36	0.013 - 0.085	0.66	0 / 79	0.0045 : 0.005		0.0023
Di-n-butylphthalate	21 / 217	0.033 : 36	0.009 - 10	0.63	4 / 79	0.0045 : 0.005	0.00067 - 0.00085	0.0022
Diphenyl ether	19 / 129	0.033 : 17	0.011 - 1.7	0.20	24 / 79	0.0045 : 0.005	0.00052 - 0.14	0.0059
Diphenylamine	17 / 55	0.033 : 17	0.0023 - 5	0.33	3 / 48	0.0045 : 0.005	0.00056 - 0.0024	0.0022
Fluoranthene	90 / 219	0.033 : 36	0.01 - 73	1.2	2 / 79	0.00091 : 0.001	0.00023 - 0.0006	0.00046
Fluorene	11 / 217	0.033 : 36	0.008 - 3.5	0.70	0 / 79	0.00091 : 0.001		0.00046
Indeno(1,2,3-cd)pyrene	42 / 216	0.033 : 36	0.011 - 14	0.79	5 / 79	0.00045 : 0.0005	0.00012 - 0.00028	0.00022
Naphthalene	18 / 219	0.08 : 41	0.008 - 0.96	0.80	0 / 79	0.005 : 0.02		0.0027
N-Nitrosodiphenylamine	38 / 218	0.033 : 36	0.012 - 32	0.77	41 / 112	0.0045 : 0.0051	0.0005 - 0.58	0.065
Phenanthrene	64 / 219	0.04 : 36	0.011 - 35	0.92	3 / 79	0.00018 : 0.0002	0.000084 - 0.00028	0.000093
Phenol	9 / 218	0.033 : 36	0.014 - 32	0.83	2 / 78	0.0045 : 0.005	0.00067 - 0.0014	0.0022
Pyrene	87 / 218	0.033 : 36	0.011 - 29	0.84	2 / 79	0.0045 : 0.005	0.00024 - 0.00032	0.0022
Pesticides/PCBs								
4,4`-DDD	9 / 56	0.0033 : 0.21	0.00012 - 0.16	0.019				
4,4`-DDE	14 / 56	0.0033 : 0.21	0.00053 - 0.049	0.017				
4,4`-DDT	24 / 56	0.0033 : 0.21	0.0014 - 0.68	0.035				
Dieldrin	8 / 56	0.0033 : 0.68	0.00055 - 0.0025	0.022				
Gamma-BHC/Lindane	8 / 56	0.0017 : 0.21	0.00011 - 0.14	0.020				

Table 1-1
Summary of Detected Chemicals for Surface Soil Samples (0-1 ft) and On-Property Shallow Groundwater
Preliminary Remedial Investigation Report RTC
Olin Chemical Superfund Site
Wilmington, Massachusetts

	Surface Soil (0-1 ft bgs) (mg/Kg)				On-Property Shallow Groundwater (mg/L)			
Parameter Name	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples
Inorganics								
Aluminum	158 / 158		640 - 59000	6868	82 / 114	0.1 : 0.5	0.015 - 17	0.56
Antimony	9 / 144	0.53 : 20	0.28 - 79	2.2	8 / 81	0.006 : 0.03	0.0015 - 0.0026	0.0034
Arsenic	161 / 178	0.9 : 37	1.3 - 56	8.2	35 / 81	0.001 : 0.05	0.00034 - 0.026	0.0028
Barium	164 / 164		3.4 - 130	24	79 / 81	0.01 : 0.042	0.0039 - 0.21	0.032
Beryllium	119 / 145	0.18 : 1.5	0.029 - 4	0.33	15 / 81	0.001 : 0.005	0.00019 - 0.0028	0.00060
Cadmium	121 / 185	0.18 : 4	0.026 - 5.8	0.38	20 / 81	0.001 : 0.005	0.00014 - 0.0053	0.00062
Calcium	146 / 146		68 - 35000	3511	114 / 114		1.6 - 600	138
Chromium	257 / 259	5 : 10	1.1 - 62000	1245	23 / 114	0.005 : 0.025	0.00097 - 0.065	0.005
Chromium, Hexavalent	13 / 34	1.1 : 110	0.41 - 1100	43	5 / 49	0.001 : 0.001	0.00065 - 0.0016	0.00054
Cobalt	143 / 146	0.24 : 5.4	0.16 - 45	3.9	32 / 81	0.01 : 0.05	0.0015 - 0.04	0.008
Copper	146 / 146		0.94 - 190	14.9	16 / 81	0.01 : 0.065	0.0019 - 0.33	0.012
Iron	158 / 158		81 - 100000	9618	96 / 118	0.1 : 0.5	0.022 - 35	4.7
Lead	182 / 186	5 : 11	1.1 - 210	23	15 / 81	0.005 : 0.025	0.0014 - 0.0088	0.0030
Magnesium	146 / 146		24 - 6000	1437	81 / 81		0.11 - 18	3.0
Manganese	146 / 146		2.8 - 970	89	112 / 114	0.01 : 0.01	0.0027 - 7.3	1.0
Mercury	68 / 176	0.04 : 0.76	0.01 - 3.1	0.16	7 / 81	0.0002 : 0.00034	0.00012 - 0.0003	0.00011
Nickel	145 / 146	5 : 5	0.66 - 76	10.1	65 / 114	0.01 : 0.05	0.0012 - 0.045	0.0063
Potassium	140 / 146	620 : 2100	46.3 - 3400	766	55 / 81	4 : 8	0.81 - 10	2.7
Selenium	7 / 173	0.5 : 20	0.64 - 3.6	0.85	2 / 81	0.01 : 0.05	0.0039 - 0.0041	0.0058
Silver	57 / 161	0.2 : 21	0.064 - 1100	7.9	1 / 81	0.005 : 0.025	0.0027 - 0.0027	0.0029
Sodium	90 / 144	110 : 1100	15 - 2300	133	114 / 114		0.85 - 200	20
Thallium	8 / 145	0.35 : 6.5	0.09 - 7.4	0.83	3 / 81	0.0001 : 0.001	0.00021 - 0.00034	0.00048
Tin	106 / 116	5.4 : 7.5	1 - 26000	242	1 / 81	0.05 : 0.25	0.027 - 0.027	0.029
Vanadium	146 / 146		3.6 - 240	19.5	35 / 81	0.01 : 0.02	0.0017 - 0.28	0.013
Zinc	141 / 146	11 : 27	1.2 - 650	38	42 / 81	0.05 : 0.25	0.0075 - 1.2	0.075
Chloride	19 / 130	15 : 81	25 - 560	27	280 / 280		1.1 - 510	54
Cyanide, Total	7 / 15	2 : 2	3.7 - 9.7	3.6				
Nitrogen, as Ammonia	134 / 152	5.7 : 8.4	6.8 - 2100	151	255 / 279	0.1 : 1	0.16 - 380	57
Sulfate	58 / 143	31 : 210	4.2 - 26800	843	276 / 280	2 : 2	2.1 - 2100	481
EPH								
C11-C22 Aromatics	31 / 43	3.4 : 3.7	4.5 - 7500	287	2 / 4	0.091 : 0.091	0.12 - 0.43	0.16
C11-C22 Aromatics (unadj.)	31 / 43	3.4 : 3.7	4.5 - 13000	594	2 / 4	0.091 : 0.091	0.12 - 0.43	0.16
C19-C36 Aliphatics	25 / 43	3.4 : 350	3.6 - 4900	181	0 / 4	0.091 : 0.095		0.046
C9-C18 Aliphatics	9 / 43	3.3 : 350	3.6 - 780	31	0 / 4	0.091 : 0.095		0.046
Extractable Petroleum Hydrocarbons, Total	31 / 43	3.4 : 3.7	4.7 - 13000	483	2 / 4	0.091 : 0.091	0.12 - 0.43	0.16
Specialty Compounds								
Hydrazine	16 / 58	0.002 : 0.28	0.00062 - 0.27	0.022	11 / 49	0.0002 : 0.00022	0.000057 - 0.23	0.0073
Acetaldehyde	17 / 58	0.2 : 1.1	0.032 - 0.2	0.10	0 / 49	0.03 : 0.03		0.015
Formaldehyde	55 / 58	0.1 : 0.11	0.096 - 1.3	0.29	0 / 49	0.03 : 0.03		0.015
Phthalic Acid/Phthalic anhydride	10 / 57	0.096 : 0.56	0.022 - 29	0.62	0 / 49	0.01 : 0.01		0.0050

mg/Kg = milligrams per kilogram
mg/L = milligrams per liter
Shading indicates compound not analyzed for in specified media.

Prepared by / Date: KJC 02/10/12
Checked by / Date: MJM 03/21/12

Table 1-2
Summary of Detected Chemicals for Shallow Subsurface Soil Samples (1-10 ft) and On-Property Shallow Groundwater
Preliminary Remedial Investigation Report RTC
Olin Chemical Superfund Site
Wilmington, Massachusetts

	Shallow Subsurface Soil (1-10 ft bgs) (mg/Kg)				On-Property Shallow Groundwater (mg/L)			
Parameter Name	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples
Volatile Organics								
1,2,4-Trichlorobenzene	5 / 215	0.002 : 11	0.0016 - 1.2	0.085	1 / 79	0.001 : 0.004	0.0007 - 0.0007	0.00054
1,2,4-Trimethylbenzene	7 / 215	0.002 : 11	0.13 - 4.6	0.13	2 / 79	0.001 : 0.004	0.00027 - 0.00049	0.000534937
1,3,5-Trimethylbenzene	6 / 215	0.002 : 11	0.085 - 2.9	0.11	0 / 79	0.001 : 0.004		0.00054
2,4,4-Trimethyl-1-pentene	73 / 263	0.0000013 : 0.28	0.002 - 1200	12	40 / 112	0.001 : 0.01	0.00074 - 1.7	0.18
2,4,4-Trimethyl-2-Pentene	62 / 260	0.0000013 : 0.28	0.001 - 310	3	34 / 112	0.001 : 0.01	0.00043 - 0.49	0.050
2-Butanone	17 / 281	0.01 : 110	0.0006 - 0.49	0.8	0 / 79	0.01 : 0.04		0.0054
2-Hexanone	10 / 281	0.01 : 110	0.001 - 3.8	0.4	0 / 79	0.01 : 0.04		0.0054
4-iso-Propyltoluene	14 / 215	0.002 : 11	0.12 - 18	0.28	1 / 79	0.001 : 0.004	0.00037 - 0.00037	0.00054
Acetone	21 / 281	0.01 : 1100	0.016 - 17	3.3	1 / 79	0.05 : 0.2	0.03 - 0.03	0.027
Benzene	6 / 281	0.002 : 11	0.0005 - 0.1	0.1	1 / 79	0.001 : 0.004	0.00023 - 0.00023	0.00053
Carbon disulfide	7 / 188	0.0021 : 11	0.001 - 0.013	0.1	9 / 79	0.01 : 0.04	0.00042 - 0.01	0.0049
Ethyl benzene	14 / 281	0.002 : 11	0.002 - 6.7	0.1	2 / 79	0.001 : 0.004	0.0031 - 0.013	0.00073
Formaldehyde	17 / 27	0.11 : 0.13	0.13 - 1.2	0.24	0 / 49	0.03 : 0.03		0.015
Isopropylbenzene	5 / 215	0.002 : 11	0.22 - 0.65	0.082	0 / 79	0.001 : 0.004		0.00054
Methylene chloride	49 / 281	0.005 : 46	0.002 - 2	0.2	2 / 79	0.002 : 0.002	0.0078 - 0.019	0.0013
Styrene	9 / 281	0.002 : 11	0.0005 - 3.3	0.1	1 / 79	0.001 : 0.004	0.00021 - 0.00021	0.00053
Tetrachloroethene	6 / 281	0.002 : 11	0.0008 - 0.014	0.1	0 / 79	0.001 : 0.004		0.00054
Toluene	38 / 281	0.002 : 11	0.0006 - 13	0.2	1 / 79	0.001 : 0.004	0.00021 - 0.00021	0.00053
Xylene, m/p	7 / 207	0.004 : 23	0.00094 - 0.5	0.12	0 / 79	0.002 : 0.008		0.0011
Xylene, o	5 / 207	0.002 : 11	0.042 - 0.53	0.082	0 / 79	0.001 : 0.004		0.00054
Xylenes, Total	12 / 281	0.004 : 23	0.00094 - 0.88	0.1				
Semivolatile Organics								
1,2,4-Trichlorobenzene	5 / 396	0.033 : 670	0.075 - 0.9	3.7	1 / 79	0.001 : 0.004	0.0007 - 0.0007	0.00054
Anthracene	5 / 396	0.033 : 670	0.012 - 7.6	3.7	0 / 79	0.00091 : 0.001		0.00046
Benzo(a)anthracene	9 / 396	0.033 : 670	0.02 - 18	3.7	0 / 79	0.00027 : 0.0003		0.00014
Benzo(a)pyrene	7 / 396	0.033 : 670	0.019 - 23	3.7	1 / 79	0.00018 : 0.0002	0.00015 - 0.00015	0.000091
Benzo(b)fluoranthene	11 / 395	0.033 : 670	0.029 - 17	3.7	1 / 79	0.00027 : 0.0003	0.0003 - 0.0003	0.00014
Benzoic Acid	16 / 360	0.17 : 2000	0.022 - 2.1	15.4	6 / 44	0.0045 : 0.005	0.00064 - 0.0017	0.0021
Biphenyl	5 / 92	0.033 : 37	0.017 - 0.77	0.35	4 / 79	0.0045 : 0.005	0.00049 - 0.0045	0.0022
Bis(2-Ethylhexyl)phthalate	256 / 396	0.034 : 1.4	0.012 - 8600	120	15 / 112	0.0018 : 0.0052	0.00043 - 0.012	0.0013
Butylbenzylphthalate	14 / 396	0.033 : 670	0.014 - 4.5	3.7	0 / 79	0.0045 : 0.005		0.0023
Chrysene	10 / 396	0.033 : 670	0.012 - 18	3.7	2 / 79	0.00091 : 0.001	0.00015 - 0.00031	0.00045
Di-n-butylphthalate	24 / 396	0.033 : 670	0.032 - 507	5.3	4 / 79	0.0045 : 0.005	0.00067 - 0.00085	0.0022
Di-n-octylphthalate	18 / 396	0.033 : 670	0.014 - 12	3.7	0 / 79	0.0045 : 0.005		0.0023
Diphenyl ether	7 / 92	0.033 : 37	0.03 - 3.8	0.44	24 / 79	0.0045 : 0.005	0.00052 - 0.14	0.0059
Diphenylamine	6 / 45	0.034 : 0.54	0.022 - 0.25	0.044	3 / 48	0.0045 : 0.005	0.00056 - 0.0024	0.0022
Fluoranthene	14 / 396	0.033 : 670	0.015 - 37	3.8	2 / 79	0.00091 : 0.001	0.00023 - 0.0006	0.00046
Indeno(1,2,3-cd)pyrene	8 / 396	0.033 : 670	0.012 - 10	3.7	5 / 79	0.00045 : 0.0005	0.00012 - 0.00028	0.00022
Naphthalene	8 / 396	0.08 : 670	0.012 - 0.63	3.8	0 / 79	0.005 : 0.02		0.0027
N-Nitrosodiphenylamine	73 / 396	0.033 : 400	0.011 - 3400	23	41 / 112	0.0045 : 0.0051	0.0005 - 0.58	0.065
Phenanthrene	16 / 396	0.04 : 670	0.015 - 33	3.8	3 / 79	0.00018 : 0.0002	0.000084 - 0.00028	0.000093
Phenol	9 / 396	0.033 : 670	0.055 - 6.6	3.7	2 / 78	0.0045 : 0.005	0.00067 - 0.0014	0.0022
Pyrene	20 / 396	0.033 : 670	0.015 - 35	3.8	2 / 79	0.0045 : 0.005	0.00024 - 0.00032	0.0022
Pesticides/PCBs								
Gamma-BHC/Lindane	15 / 151	0.0083 : 0.21	0.02 - 1.6	0.036				

Table 1-2
Summary of Detected Chemicals for Shallow Subsurface Soil Samples (1-10 ft) and On-Property Shallow Groundwater
Preliminary Remedial Investigation Report RTC
Olin Chemical Superfund Site
Wilmington, Massachusetts

	Shallow Subsurface Soil (1-10 ft bgs) (mg/Kg)				On-Property Shallow Groundwater (mg/L)			
Parameter Name	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples
Inorganics								
Aluminum	200 / 200		200 - 15000	4974	82 / 114	0.1 : 0.5	0.015 - 17	0.56
Antimony	12 / 153	0.5 : 20	0.26 - 41	3.1	8 / 81	0.006 : 0.03	0.0015 - 0.0026	0.0034
Arsenic	145 / 185	0.81 : 13	0.5 - 89	4.4	35 / 81	0.001 : 0.05	0.00034 - 0.026	0.0028
Barium	148 / 151	11 : 40	2.2 - 75	15.2	79 / 81	0.01 : 0.042	0.0039 - 0.21	0.032
Beryllium	95 / 153	0.06 : 1.5	0.037 - 0.47	0.31	15 / 81	0.001 : 0.005	0.00019 - 0.0028	0.00060
Cadmium	103 / 265	0.1 : 4.8	0.019 - 7.3	0.35	20 / 81	0.001 : 0.005	0.00014 - 0.0053	0.00062
Calcium	144 / 145	1000 : 1000	150 - 32000	1732	114 / 114		1.6 - 600	138
Chromium	463 / 465	1 : 11	1.8 - 7900	321	23 / 114	0.005 : 0.025	0.00097 - 0.065	0.005
Chromium, Hexavalent	10 / 17	2.1 : 2.4	0.47 - 19.9	4.8	5 / 49	0.001 : 0.001	0.00065 - 0.0016	0.00054
Cobalt	134 / 145	1.5 : 10	0.29 - 14	2.7	32 / 81	0.01 : 0.05	0.0015 - 0.04	0.008
Copper	128 / 153	2 : 23	0.46 - 47	7.1	16 / 81	0.01 : 0.065	0.0019 - 0.33	0.012
Iron	192 / 192		160 - 26000	6144	96 / 118	0.1 : 0.5	0.022 - 35	4.7
Lead	206 / 265	1 : 24	0.73 - 52	5.0	15 / 81	0.005 : 0.025	0.0014 - 0.0088	0.0030
Magnesium	143 / 145	1000 : 1000	63 - 6700	1547	81 / 81		0.11 - 18	3.0
Manganese	145 / 145		5.8 - 340	67	112 / 114	0.01 : 0.01	0.0027 - 7.3	1.0
Mercury	24 / 205	0.04 : 0.22	0.047 - 7	0.10	7 / 81	0.0002 : 0.00034	0.00012 - 0.0003	0.00011
Nickel	138 / 153	1.4 : 8	0.93 - 52	6.4	65 / 114	0.01 : 0.05	0.0012 - 0.045	0.0063
Potassium	143 / 145	1000 : 1000	130 - 2700	696	55 / 81	4 : 8	0.81 - 10	2.7
Silver	23 / 159	0.5 : 13	0.06 - 24	0.92	1 / 81	0.005 : 0.025	0.0027 - 0.0027	0.0029
Sodium	101 / 154	54 : 290	12 - 25600	663	114 / 114		0.85 - 200	20
Tin	54 / 74	5.8 : 7.3	2.1 - 620	18.0	1 / 81	0.05 : 0.25	0.027 - 0.027	0.029
Vanadium	140 / 145	1 : 10	0.89 - 190	11.8	35 / 81	0.01 : 0.02	0.0017 - 0.28	0.013
Zinc	151 / 153	0.6 : 2.5	2.9 - 84	16	42 / 81	0.05 : 0.25	0.0075 - 1.2	0.075
Chloride	28 / 126	17 : 40	1.03 - 170	24	280 / 280		1.1 - 510	54
LAB SPECIFIC CONDUCTANCE **(mS/cm)**	6 / 6		0.016 - 0.033	0.027	169 / 169		0.065 - 6.8	1.7
Nitrogen, as Ammonia	119 / 159	5.4 : 8.3	3.6 - 4700	145	255 / 279	0.1 : 1	0.16 - 380	57
Sulfate	47 / 125	20 : 80	22 - 285000	4296	276 / 280	2 : 2	2.1 - 2100	481
VPH								
C5-C8 Aliphatics	15 / 53	1.02 : 28	4 - 400	30	24 / 37	0.05 : 0.2	0.62 - 2	0.89
C5-C8 Aliphatics (unadj.)	15 / 53	1.02 : 28	4 - 400	30	25 / 37	0.05 : 0.2	0.16 - 2	0.89
C9-C10 Aromatics	14 / 53	0.34 : 26	3 - 110	9.5	7 / 37	0.05 : 0.5	0.062 - 0.35	0.10
C9-C12 Aliphatics (unadj.)	17 / 53	0.34 : 19	2.7 - 100	10.2	8 / 37	0.05 : 0.5	0.055 - 0.2	0.10
Volatile Petroleum Hydrocarbons, Total	20 / 49	1.8 : 19	3 - 460	42	24 / 37	0.05 : 0.2	0.62 - 2.3	0.92
EPH								
Benzo(ghi)perylene	5 / 27	0.3 : 0.8	0.5 - 0.85	0.29	3 / 79	0.00045 : 0.0005	0.00019 - 0.00028	0.00023
C11-C22 Aromatics	39 / 54	3.3 : 17	3.7 - 4700	449	2 / 4	0.091 : 0.091	0.12 - 0.43	0.16
C11-C22 Aromatics (unadj.)	40 / 54	3.3 : 3.9	3.7 - 4700	522	2 / 4	0.091 : 0.091	0.12 - 0.43	0.16
C19-C36 Aliphatics	24 / 54	3.3 : 36	5.1 - 2900	141	0 / 4	0.091 : 0.095		0.046
C9-C18 Aliphatics	31 / 54	3.3 : 36	5.3 - 380	49	0 / 4	0.091 : 0.095		0.046
Extractable Petroleum Hydrocarbons, Total	41 / 54	3.3 : 3.9	3.7 - 4900	647	2 / 4	0.091 : 0.091	0.12 - 0.43	0.16
Specialty Compounds								
Hydrazine	25 / 69	0.0021 : 0.41	0.00058 - 1.9	0.092	11 / 49	0.0002 : 0.00022	0.000057 - 0.23	0.0073
Acetaldehyde	11 / 45	0.2 : 0.32	0.034 - 0.1	0.096	0 / 49	0.03 : 0.03		0.015
Formaldehyde	43 / 45	0.11 : 0.11	0.087 - 2.1	0.33	0 / 49	0.03 : 0.03		0.015

mg/Kg = milligrams per kilogram
mg/L = milligrams per liter
Shading indicates compound not analyzed for in specified media.

Prepared by / Date: KJC 02/10/12
Checked by / Date: MJM 03/21/12

Table 1-3
Summary of Detected Chemicals for Deep Subsurface Soil (>10 ft) and On-Property Shallow Groundwater
Preliminary Remedial Investigation Report RTC
Olin Chemical Superfund Site
Wilmington, Massachusetts

	Deep Subsurface Soil (10+ ft bgs) (mg/Kg)				On-Property Shallow Groundwater (mg/L)			
Parameter Name	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples
Volatile Organics								
2,4,4-Trimethyl-1-pentene	12 / 40	0.004 : 0.2	0.003 - 890	43	40 / 112	0.001 : 0.01	0.00074 - 1.7	0.18
2,4,4-Trimethyl-2-Pentene	12 / 40	0.004 : 0.23	0.002 - 180	7.9	34 / 112	0.001 : 0.01	0.00043 - 0.49	0.050
Carbon disulfide	5 / 37	0.002 : 1.3	0.0014 - 0.52	0.0	9 / 79	0.01 : 0.04	0.00042 - 0.01	0.0049
Semivolatile Organics								
Acetophenone	7 / 76	0.034 : 7.5	0.0041 - 0.053	0.092	0 / 79	0.0045 : 0.005		0.0023
Benzoic Acid	5 / 71	0.065 : 37	0.05 - 0.14	0.86	6 / 44	0.0045 : 0.005	0.00064 - 0.0017	0.0021
Biphenyl	9 / 76	0.034 : 7.5	0.018 - 11	0.26	4 / 79	0.0045 : 0.005	0.00049 - 0.0045	0.0022
Bis(2-Ethylhexyl)phthalate	38 / 88	0.034 : 0.73	0.015 - 10000	166	15 / 112	0.0018 : 0.0052	0.00043 - 0.012	0.0013
Diphenyl ether	16 / 76	0.034 : 7.5	0.014 - 74	1.2	24 / 79	0.0045 : 0.005	0.00052 - 0.14	0.0059
N-Nitrosodiphenylamine	12 / 88	0.034 : 7.5	0.013 - 160	2.8	41 / 112	0.0045 : 0.0051	0.0005 - 0.58	0.065
Phenol	5 / 88	0.034 : 7.5	0.013 - 0.21	0.15	2 / 78	0.0045 : 0.005	0.00067 - 0.0014	0.0022
Inorganics								
Aluminum	83 / 83		570 - 21000	7877	82 / 114	0.1 : 0.5	0.015 - 17	0.56
Arsenic	72 / 77	1 : 2	0.99 - 18	3.4	35 / 81	0.001 : 0.05	0.00034 - 0.026	0.0028
Barium	71 / 71		7.5 - 200	43	79 / 81	0.01 : 0.042	0.0039 - 0.21	0.032
Beryllium	69 / 73	0.4 : 1.5	0.046 - 0.47	0.24	15 / 81	0.001 : 0.005	0.00019 - 0.0028	0.00060
Cadmium	70 / 78	0.3 : 1	0.049 - 1.3	0.27	20 / 81	0.001 : 0.005	0.00014 - 0.0053	0.00062
Calcium	71 / 71		550 - 13000	3012	114 / 114		1.6 - 600	138
Chromium	85 / 85		4.8 - 3400	130	23 / 114	0.005 : 0.025	0.00097 - 0.065	0.005
Chromium, Hexavalent	6 / 6		2.6 - 16	9.1	5 / 49	0.001 : 0.001	0.00065 - 0.0016	0.00054
Cobalt	70 / 71	1.5 : 1.5	1.6 - 26	8.7	32 / 81	0.01 : 0.05	0.0015 - 0.04	0.008
Copper	72 / 73	2 : 2	4 - 66	23	16 / 81	0.01 : 0.065	0.0019 - 0.33	0.012
Iron	81 / 81		840 - 87000	16181	96 / 118	0.1 : 0.5	0.022 - 35	4.7
Lead	72 / 78	0.63 : 10	0.52 - 11	2.3	15 / 81	0.005 : 0.025	0.0014 - 0.0088	0.0030
Magnesium	71 / 71		280 - 15000	5077	81 / 81		0.11 - 18	3.0
Manganese	71 / 71		32 - 460	144	112 / 114	0.01 : 0.01	0.0027 - 7.3	1.0
Nickel	72 / 73	3 : 3	3.2 - 41	14.4	65 / 114	0.01 : 0.05	0.0012 - 0.045	0.0063
Potassium	71 / 71		320 - 12000	2193	55 / 81	4 : 8	0.81 - 10	2.7
Silver	37 / 73	0.53 : 3.1	0.055 - 8.4	1.3	1 / 81	0.005 : 0.025	0.0027 - 0.0027	0.0029
Sodium	72 / 79	110 : 150	22 - 1000	214	114 / 114		0.85 - 200	20
Tin	68 / 69	13 : 13	1.8 - 190	30	1 / 81	0.05 : 0.25	0.027 - 0.027	0.029
Vanadium	71 / 71		2.8 - 71	27	35 / 81	0.01 : 0.02	0.0017 - 0.28	0.013
Zinc	73 / 73		4.4 - 66	23	42 / 81	0.05 : 0.25	0.0075 - 1.2	0.075
Chloride	14 / 79	15 : 40	12.2 - 62.8	14.4	280 / 280		1.1 - 510	54
Nitrogen, as Ammonia	72 / 79	4.7 : 7.9	7 - 510	121	255 / 279	0.1 : 1	0.16 - 380	57
pH	12 / 12		4.29 - 8.13	6.5	31 / 31		5.45 - 6.87	6.3
Sulfate	31 / 78	33 : 49	8.12 - 13400	316	276 / 280	2 : 2	2.1 - 2100	481
VPH								
C5-C8 Aliphatics	5 / 21	1.09 : 23	6.4 - 1400	108	24 / 37	0.05 : 0.2	0.62 - 2	0.89
C5-C8 Aliphatics (unadj.)	5 / 21	1.09 : 23	6.4 - 1400	108	25 / 37	0.05 : 0.2	0.16 - 2	0.89
C9-C10 Aromatics	5 / 21	0.362 : 24	3.2 - 61	8.0	7 / 37	0.05 : 0.5	0.062 - 0.35	0.10
Volatile Petroleum Hydrocarbons, Total	6 / 18	2 : 3	9.6 - 1400	133	24 / 37	0.05 : 0.2	0.62 - 2.3	0.92
EPH								
C11-C22 Aromatics	16 / 26	3.6 : 3.9	4.6 - 1700	248	2 / 4	0.091 : 0.091	0.12 - 0.43	0.16
C19-C36 Aliphatics	12 / 26	3.4 : 3.9	4 - 3200	134	0 / 4	0.091 : 0.095		0.046
C9-C18 Aliphatics	10 / 26	3.4 : 72	4.5 - 520	32	0 / 4	0.091 : 0.095		0.046

Table 1-3
Summary of Detected Chemicals for Deep Subsurface Soil (>10 ft) and On-Property Shallow Groundwater
Preliminary Remedial Investigation Report RTC
Olin Chemical Superfund Site
Wilmington, Massachusetts

	Deep Subsurface Soil (10+ ft bgs) (mg/Kg)				On-Property Shallow Groundwater (mg/L)			
Parameter Name	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples
Specialty Compounds								
Hydrazine	5 / 8	0.0021 : 0.3	0.00058 - 0.0031	0.020	11 / 49	0.0002 : 0.00022	0.000057 - 0.23	0.0073
Acetaldehyde	15 / 43	0.2 : 0.25	0.033 - 0.16	0.090	0 / 49	0.03 : 0.03		0.015
Formaldehyde	43 / 43		0.093 - 1	0.35	0 / 49	0.03 : 0.03		0.015

mg/Kg = milligrams per kilogram
mg/L = milligrams per liter

Prepared by / Date: KJC 02/10/12
Checked by / Date: MJM 03/21/12

Table 1-4
Locations of On-Property Shallow Groundwater Locations Sampled Since 2007
Preliminary Remedial Investigation Report RTC
Olin Chemical Superfund Site
Wilmington, Massachusetts

On-Property Shallow Groundwater Locations
B-03
B-07-A
B-10
ECS-6
GW-13
GW-14
GW-16
GW-16R
GW-17S
GW-201S
GW-202S
GW-21S
GW-28S
GW-29S
GW-301
GW-302
GW-303
GW-304
GW-305
GW-306
GW-307
GW-308
GW-31S
GW-32S
GW-34SR
GW-35S
GW-3S
GW-50S
GW-51S
GW-52S
GW-53S
GW-54S
GW-55S
GW-56S
GW-6S
GW-78S
GW-79S
GW-CA1
PZ-16RR
PZ-17RR
PZ-18
PZ-18R
PZ-24
PZ-25
SL-1S
SL-2
SL-3
SL-5
SL-6

Table 2-1
Summary of Detected Chemicals for On-Property Shallow Groundwater and Surface (0-1 ft) and Shallow Subsurface (1-10 ft) Soil
Preliminary Remedial Investigation Report RTC
Olin Chemical Superfund Site
Wilmington, Massachusetts

	On-Property Shallow Groundwater (mg/L)				Surface Soil (0-1 ft) (mg/Kg)				Shallow Subsurface Soil (1-10 ft) (mg/Kg)			
Parameter Name	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples
Volatile Organics (mg/L)												
1,1-Dichloroethane	6 / 79	0.001 : 0.004	0.00031 - 0.001	0.00056	1 / 201	0.0022 : 1	0.001 - 0.001	0.030	0 / 281	0.002 : 11		0.058
2,4,4-Trimethyl-1-pentene	40 / 112	0.001 : 0.01	0.00074 - 1.7	0.18	7 / 196	0.0044 : 0.79	0.002 - 2.1	0.049	73 / 263	1.3E-06 : 0.28	0.002 - 1200	11.6
2,4,4-Trimethyl-2-pentene	34 / 112	0.001 : 0.01	0.00043 - 0.49	0.050	6 / 197	0.0044 : 0.79	0.0056 - 0.61	0.032	62 / 260	1.3E-06 : 0.28	0.001 - 310	3.4
Carbon disulfide	9 / 79	0.01 : 0.04	0.00042 - 0.01	0.0049	0 / 160	0.0022 : 0.16		0.0052	7 / 188	0.0021 : 11	0.001 - 0.013	0.053
Semivolatile Organics (mg/L)												
Benzoic Acid	6 / 44	0.0045 : 0.005	0.00064 - 0.0017	0.0021	30 / 190	0.17 : 180	0.025 - 34	3.8	0 / 2	1.65 : 3.63		1.3
Bis(2-Ethylhexyl)phthalate	15 / 112	0.0018 : 0.0052	0.00043 - 0.012	0.0013	168 / 220	0.034 : 9.1	0.011 - 5500	33	256 / 396	0.034 : 1.4	0.012 - 8600	120
Diphenyl ether	24 / 79	0.0045 : 0.005	0.00052 - 0.14	0.0059	19 / 129	0.033 : 17	0.011 - 1.7	0.20	7 / 92	0.033 : 37	0.03 - 3.8	0.44
Diphenylmethanone	17 / 79	0.0045 : 0.005	0.00049 - 0.011	0.0023	0 / 128	0.033 : 17		0.16	0 / 92	0.033 : 37		0.34
Indeno(1,2,3-cd)pyrene	5 / 79	0.00045 : 0.0005	0.00012 - 0.00028	0.00022	42 / 216	0.033 : 36	0.011 - 14	0.79	8 / 396	0.033 : 670	0.012 - 10	3.7
N-Nitrosodimethylamine	38 / 81	0.0000019 : 0.0045	0.0000006 - 0.0013	0.000092	0 / 131	0.0051 : 4		0.067	0 / 119	0.005 : 37		0.25
N-Nitrosodiphenylamine	41 / 112	0.0045 : 0.0051	0.0005 - 0.58	0.065	38 / 218	0.033 : 36	0.012 - 32	0.77	73 / 396	0.033 : 400	0.011 - 3400	23
Metals, Total (mg/L)												
Aluminum	82 / 114	0.1 : 0.5	0.015 - 17	0.56	158 / 158		640 - 59000	6868	200 / 200		200 - 15000	4974
Antimony	8 / 81	0.006 : 0.03	0.0015 - 0.0026	0.0034	9 / 144	0.53 : 20	0.28 - 79	2.2	12 / 153	0.5 : 20	0.26 - 41	3.1
Arsenic	35 / 81	0.001 : 0.05	0.00034 - 0.026	0.0028	161 / 178	0.9 : 37	1.3 - 56	8.2	145 / 185	0.81 : 13	0.5 - 89	4.4
Barium	79 / 81	0.01 : 0.042	0.0039 - 0.21	0.032	164 / 164		3.4 - 130	24	148 / 151	11 : 40	2.2 - 75	15.2
Beryllium	15 / 81	0.001 : 0.005	0.00019 - 0.0028	0.00060	119 / 145	0.18 : 1.5	0.029 - 4	0.33	95 / 153	0.06 : 1.5	0.037 - 0.47	0.31
Cadmium	20 / 81	0.001 : 0.005	0.00014 - 0.0053	0.00062	121 / 185	0.18 : 4	0.026 - 5.8	0.38	103 / 265	0.1 : 4.8	0.019 - 7.3	0.35
Calcium	114 / 114		1.6 - 600	138	146 / 146		68 - 35000	3511	144 / 145	1000 : 1000	150 - 32000	1732
Chromium	23 / 114	0.005 : 0.025	0.00097 - 0.065	0.005	0 / 1	0.05 : 0.05		0.025	9 / 10	0.05 : 0.05	0.063 - 0.84	0.31
Chromium, Hexavalent	5 / 49	0.001 : 0.001	0.00065 - 0.0016	0.00054	13 / 34	1.1 : 110	0.41 - 1100	43	10 / 17	2.1 : 2.4	0.47 - 19.9	4.8
Cobalt	32 / 81	0.01 : 0.05	0.0015 - 0.04	0.008	143 / 146	0.24 : 5.4	0.16 - 45	3.9	134 / 145	1.5 : 10	0.29 - 14	2.7
Copper	16 / 81	0.01 : 0.065	0.0019 - 0.33	0.012	146 / 146		0.94 - 190	14.9	128 / 153	2 : 23	0.46 - 47	7.1
Iron	96 / 118	0.1 : 0.5	0.022 - 35	4.7	158 / 158		81 - 100000	9618	192 / 192		160 - 26000	6144
Lead	15 / 81	0.005 : 0.025	0.0014 - 0.0088	0.0030	182 / 186	5 : 11	1.1 - 210	23	206 / 265	1 : 24	0.73 - 52	5.0
Magnesium	81 / 81		0.11 - 18	3.0	146 / 146		24 - 6000	1437	143 / 145	1000 : 1000	63 - 6700	1547
Manganese	112 / 114	0.01 : 0.01	0.0027 - 7.3	1.0	146 / 146		2.8 - 970	89	145 / 145		5.8 - 340	67
Mercury	7 / 81	0.0002 : 0.00034	0.00012 - 0.0003	0.00011	68 / 176	0.04 : 0.76	0.01 - 3.1	0.16	24 / 205	0.04 : 0.22	0.047 - 7	0.10
Nickel	65 / 114	0.01 : 0.05	0.0012 - 0.045	0.0063	145 / 146	5 : 5	0.66 - 76	10.1	138 / 153	1.4 : 8	0.93 - 52	6.4
Potassium	55 / 81	4 : 8	0.81 - 10	2.7	140 / 146	620 : 2100	46.3 - 3400	766	143 / 145	1000 : 1000	130 - 2700	696
Sodium	114 / 114		0.85 - 200	20	90 / 144	110 : 1100	15 - 2300	133	101 / 154	54 : 290	12 - 25600	663
Vanadium	35 / 81	0.01 : 0.02	0.0017 - 0.28	0.013	146 / 146		3.6 - 240	19.5	140 / 145	1 : 10	0.89 - 190	11.8
Zinc	42 / 81	0.05 : 0.25	0.0075 - 1.2	0.075	141 / 146	11 : 27	1.2 - 650	38	151 / 153	0.6 : 2.5	2.9 - 84	16.3
Metals, Filtered (mg/L)												
Aluminum	61 / 191	0.1 : 0.5	0.0024 - 24	0.2	158 / 158		640 - 59000	6868	200 / 200		200 - 15000	4974
Calcium	25 / 25		5.3 - 560	277	146 / 146		68 - 35000	3511	144 / 145	1000 : 1000	150 - 32000	1732
Chromium	158 / 191	0.005 : 0.025	0.00052 - 0.14	0.009	0 / 1	0.05 : 0.05		0.025	9 / 10	0.05 : 0.05	0.063 - 0.84	0.31
Iron	41 / 58	0.1 : 0.1	0.017 - 30	4.5	158 / 158		81 - 100000	9618	192 / 192		160 - 26000	6144
Manganese	25 / 25		0.0034 - 4.5	2.1	146 / 146		2.8 - 970	89	145 / 145		5.8 - 340	67
Nickel	16 / 25	0.01 : 0.05	0.0015 - 0.014	0.0052	145 / 146	5 : 5	0.66 - 76	10.1	138 / 153	1.4 : 8	0.93 - 52	6.4
Sodium	25 / 25		2.6 - 46	16.6	90 / 144	110 : 1100	15 - 2300	133	101 / 154	54 : 290	12 - 25600	663
Inorganics (mg/L)												
Bicarbonate Alkalinity, as CaCO3	33 / 33		7.3 - 310	164								
Bromide	23 / 81	0.1 : 0.1	0.1 - 0.69	0.11								
Chloride	280 / 280		1.1 - 510	54	19 / 130	15 : 81	25 - 560	27	28 / 126	17 : 40	1.03 - 170	24
LAB SPECIFIC CONDUCTANCE **(mS/cm)**	169 / 169		0.065 - 6.8	1.7					6 / 6		0.016 - 0.033	0.027
Nitrate as N	61 / 81	0.05 : 0.05	0.057 - 38	2.2	0 / 8	7 : 20		5.8	2 / 2		14 - 24	19.0
Nitrite as N	7 / 81	0.01 : 0.1	0.01 - 0.26	0.016	0 / 8	1.4 : 4		1.1				
Nitrogen, as Ammonia	255 / 279	0.1 : 1	0.16 - 380	57	134 / 152	5.7 : 8.4	6.8 - 2100	151	119 / 159	5.4 : 8.3	3.6 - 4700	145
pH **(pH units)**	31 / 31		5.45 - 6.87	6.3	25 / 25		3.74 - 8.16	5.1	33 / 33		4.7 - 9.06	6.5
Sulfate	276 / 280	2 : 2	2.1 - 2100	481	58 / 143	31 : 210	4.2 - 26800	843	47 / 125	20 : 80	22 - 285000	4296
Total Dissolved Solids	32 / 33	10 : 10	65 - 1900	985								

Table 2-1
Summary of Detected Chemicals for On-Property Shallow Groundwater and Surface (0-1 ft) and Shallow Subsurface (1-10 ft) Soil
Preliminary Remedial Investigation Report RTC
Olin Chemical Superfund Site
Wilmington, Massachusetts

	On-Property Shallow Groundwater (mg/L)				Surface Soil (0-1 ft) (mg/Kg)				Shallow Subsurface Soil (1-10 ft) (mg/Kg)			
Parameter Name	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples	Frequency of Detection	Range of Reporting Limits for Non Detect Concentrations	Range of Detected Concentrations	Average of All Samples
VPH (mg/L)												
Ethyl benzene	6 / 33	0.001 : 0.025	0.004 - 0.0052	0.0038	0 / 201	0.0022 : 1		0.030	14 / 281	0.002 : 11	0.002 - 6.7	0.11
Xylene, o	10 / 33	0.001 : 0.025	0.0052 - 0.01	0.0050	0 / 171	0.0022 : 1		0.035	5 / 207	0.002 : 11	0.042 - 0.53	0.082
C5-C8 Aliphatics	24 / 37	0.05 : 0.2	0.62 - 2	0.89	0 / 25	2 : 4		1.4	15 / 53	1.02 : 28	4 - 400	30.3
C5-C8 Aliphatics (unadj.)	25 / 37	0.05 : 0.2	0.16 - 2	0.89	0 / 25	2 : 4		1.4	15 / 53	1.02 : 28	4 - 400	30.3
C9-C10 Aromatics	7 / 37	0.05 : 0.5	0.062 - 0.35	0.10	1 / 25	2 : 4	3.4 - 3.4	1.4	14 / 53	0.34 : 26	3 - 110	9.5
C9-C12 Aliphatics (unadj.)	8 / 37	0.05 : 0.5	0.055 - 0.2	0.10	0 / 25	2 : 4		1.4	17 / 53	0.34 : 19	2.7 - 100	10.2
Volatile Petroleum Hydrocarbons, Total	24 / 37	0.05 : 0.2	0.62 - 2.3	0.92	1 / 25	2 : 4	3.4 - 3.4	1.4	20 / 49	1.8 : 19	3 - 460	42
EPH (mg/L)												
Site Specific Compounds (mg/L)												
Hydrazine	11 / 49	0.0002 : 0.00022	0.000057 - 0.23	0.0073	16 / 58	0.002 : 0.28	0.00062 - 0.27	0.022	25 / 69	0.0021 : 0.41	0.00058 - 1.9	0.092
4,4'-Isopropylidenediphenol	9 / 49	0.00094 : 0.001	0.00043 - 0.0043	0.00061								
4-Nonylphenol (Tech.)	18 / 49	0.0047 : 0.0052	0.0019 - 0.038	0.0063								
Kempore (Azodicarbonamide)	5 / 49	1 : 1	0.32 - 5.2	0.63								

mg/L = milligram per liter
mg/Kg = milligram per kilogram
mS/cm = milliSiemen per centimeter
Shading indicates compound not analyzed for in specified media.

Prepared by / Date: KJC 03/19/12
Checked by / Date: MJM 03/21/12