From: Jennifer Lambert <jlambert@nobis-group.com>
Sent: Friday, February 28, 2020 12:59 PM
To: Jennings, Lynne; MORASH, MELANIE; DiLorenzo, James; Brandon, William; Kelly, Christopher; Carroll, Courtney; Ng, ManChak; Pechulis, Kevin; garry waldeck
Cc: Jeffrey Brunelle
Subject: Olin Containment Area Soil Data
Attachments: Olin Containment Area Soil Results 28Feb2020.pdf; Olin Containment Area Comparison - 2019 data.xlsx; Olin Containment Area Comparison - All data.xlsx; Olin Containment Area Statistics - All data.xlsx

All, the attached memo includes evaluates the 2019 Olin soil data in the context of the previous soil data. I am also including the excel files with the data for your use. The tables include 2019 data only as well as the complete soil results based on the data set in the OU1/OU2 RI. Olin may disagree with some of the samples selected, but we consider the data set to be a reasonably accurate representation of the available results. We looked at a couple of different scenarios based on the group's interest:

- Direct contact RSLs (residential and commercial/industrial receptors)
- Leaching criteria: it was agreed previously that the tapwater RSL-based SSLs were probably too conservative to be useful. We did include the MCL-based SSLs for comparison. The group also expressed an interest in seeing different MassDEP MCP leaching-based soil criteria (for accessible and inaccessible soil, and for surface water and drinking water endpoints), so we included S-1/GW-1, S-1/GW-3, S-3/GW-1 and S-3/GW-3.

The attached memo identifies the most common contaminants exceeding criteria and includes an initial screening against MassDEP and site-specific background values.

Sincerely, Jenny

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MEMORANDUM

To:	EPA
Copy To:	File 80021
From:	J. Lambert, J. Brunelle
Subject:	Olin: 2019 Containment Area Soil Results
Date:	2/28/2020

This Technical Memorandum (Memo) evaluates the available data regarding the soils within the Containment Area at the Olin Chemical Superfund Site (the Site).

1.0 AVAILABLE DATA

Table 1 and Table 2 provides the 2019 soil data for the Containment Area (detected analytes only). The 2019 data set includes results from 97 samples (not including duplicates). Samples were collected from targeted areas with identified data gaps. The sample set includes a sample from 0-10 feet below ground surface (bgs) analyzed for toxicity characteristic leaching potential (TCLP) metals and hazardous waste characteristics, and samples collected from 2-foot intervals analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, general chemistry, and specialty compounds. The 2-foot samples were collected from 0-2, 2-4, 4-6, 6-8, and 8-10 feet bgs, the 2-foot zone above bedrock, and at least one additional sample at the midpoint of the soil column between 10 feet bgs and bedrock or in an area of potential contamination based on field observations.

Table 3 and Table 4 present all available analytical results including the 2019 data. This includes the results provided in Appendix F-7 from the Operable Unit (OU)1/OU2 Remedial Investigation (RI) (AMEC, 2015), the OU1/OU2 RI surface soil samples (location identifiers starting with "SS-") and the 2019 results (location identifiers of SB-7XX). This data set does not include samples representative of soils that had been previously excavated. The data set includes results from 285 samples, not including duplicates. Olin did not analyze all samples for the full range of analytes. Pesticides, polychlorinated biphenyls (PCBs), extractable petroleum hydrocarbons (EPH) and most metals were not regularly included for analysis and specialty compounds such as formaldehyde and hydrazine were only included in the RI and 2019 sampling.

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2.0 COMPARISON TO CRITERIA

Nobis compared soil results to two sets of criteria, including:

- Direct contact (November 2019 residential and industrial regional screening levels [RSLs]).
- Leaching-based criteria: the MCL-based RL soil screening level (considered to be more conservative) and Massachusetts Department of Environmental Protection (MassDEP) soil criteria based on both sensitive use/accessible soil (S-1), restricted access (S-3) and potential impacts on groundwater used as drinking water (GW-1) and groundwater impacts to surface water (GW-3).

2.1 Direct Contact – Residential and Industrial RSLs

Table 3 compares the complete analytical soil results to the residential and industrial direct contact RSLs (EPA, 2019). Table 5 summarizes the statistics for these results. The direct contact RSL comparisons are as follows:

- 16 analytes exceeded the residential RSL. Several chemicals exceeded the residential RSL in more than 20 samples:
    - Bis(2-ethylhexyl)phthalate (BEHP): maximum value more than one order of magnitude [OOM] above the RSL.
    - Aluminum: maximum value approximately double the RSL.
    - Arsenic: maximum value more than 2 OOM above the RSL.
    - Hexavalent chromium: maximum value almost 2 OOM above the RSL. Note that hexavalent chromium was not included on the analyte list for Containment Area samples prior to 2019.
    - Cobalt: maximum value approximately 8x the RSL.
    - Iron: maximum value approximately 5x the RSL.
    - Manganese: maximum value slightly above the RSL.

- Six analyzes exceeded the industrial/commercial RSL. Chemicals that exceeded the industrial/commercial RSL in more than 20 samples include:
    - BEHP: maximum value approximately 1 OOM above the RSL
    - Arsenic: maximum value approximately 3x the RSL

Concentrations exceeding direct contact criteria may be representative of natural or background conditions. The table below summarizes the comparison to background values based on MassDEP natural soil and ash fill criteria (MassDEP, 2016), and site-specific criteria developed by Olin (AMEC, 2015, Appendix I). Background values were not available for hexavalent chromium.

Analyte	Max. Conc.	No. Detect	Background Exceedances					
			MassDEP Natural		MassDEP Fill		Site Specific	
			Criterion	No. Exceed	Criterion	No. Exceed	Criterion	No. Exceed
Semivolatile Organic Compounds (ug/L)								
BEHP	2,356,000	187	NA	--	NA	--	30.5	187
Metals (mg/L)								
Aluminum	15,000	136	10,000	14	10,000	14	16,279	0
Arsenic	89	134	20	9	20	9	11.7	22
Cobalt	18	115	4	50	4	50	3.41	69
Iron	28,000	135	20,000	6	20,000	6	15,564	20
Manganese	530	115	300	5	300	5	75.3	90

The background comparison suggest that the aluminum concentrations may be representative of background, but the other contaminants that frequently exceed direct-contact criteria may not be.

2.2 Comparison to Leaching Criteria

Table 4 compares the complete analytical soil results to the MCL-based RSL SSLs and to MassDEP leaching criteria. Table 4 also includes the TCLP results. Table 5 summarizes the statistics for these results. The MCL-based SSLs are generally multiple OOM below the MassDEP criteria, even for unrestricted soil/drinking water (S-1/GW-1), which is the most conservative criterion.

- 74 analytes exceeded the MCL-based SSL. Several chemicals exceeded the residential RSL in more than 100 samples:
    - BEHP: maximum value more than 3 OOM above the SSL.
    - Aluminum: maximum value 5x the SSL.
    - Arsenic: maximum value more than 4 OOM above the SSL.

- Cobalt: maximum value more than 2 OOM above the SSL.
- Copper: maximum value more than 1 OOM above the SSL.
- Iron: maximum value more than 2 OOM above the SSL.
- Manganese: maximum value more than 2 OOM above the SSL.
- Nickel: maximum value more than 1 OOM above the SSL.

- Eight analytes exceeded the MassDEP GW-1 based soil criteria (potential impacts to drinking water). Four analytes exceeded the MassDEP GW-3 based soil criteria (potential impacts to surface water). Chemicals that exceeded at least one criterion in more than 20 samples include the following:
  - Methylene chloride (some elevated samples may be the result of laboratory contamination, as noted by "B" qualifiers): maximum value more than 1 OOM above S-1/GW-1 and S-3/GW-1 standards
  - BEHP: maximum value more than 1 OOM above S-1/GW-1 and S-3/GW-1 standards; also exceeds S-1/GW-3 and S-3/GW-3 standards.
  - Gamma-BHC: maximum value more than 2 OOM above S-1/GW-1 and S-3/GW-1 standards; also exceeds S-1/GW-3 and S-3/GW-3 standards.
  - Chromium: maximum value more than 1 OOM above S-1/GW-1, S-3/GW-1, S-1/GW-3 and S-3/GW-3 standards.
- TCLP results exceeded the MCL and MassDEP GW-1 for arsenic, chromium, and lead; and exceeded the GW-3 standard for lead, suggesting the metals may leach to groundwater above acceptable concentrations.

3.0 REFERENCES

AMEC, 2015. Final Remedial Investigation Report, Operable Unit 1 & Operable Unit 2. Olin Chemical Superfund Site, Wilmington, Massachusetts. July 24.

EPA, 2019. Regional Screening Levels (RSLs). November 2019.

MassDEP, 2016. Historic Fill/Anthropogenic Background Levels in Soil, Draft Technical Update. May.

			Sample Location	SB-701									SB-702							
			Depth Interval (ft)	0 - 10	0 - 2		2 - 4	4 - 6	6 - 8	8 - 10	20 - 21	31 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35
			Sample Date	11/11/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19
			Sample ID	OC-SB-701-0.0/10-XXX-20191111	OC-SB-701-0.0/2.0-XXX-20191111	OC-SB-701-0.0/2.0-DUP-20191111	OC-SB-701-2.0/4.0-XXX-20191111	OC-SB-701-4.0/6.0-XXX-20191111	OC-SB-701-6.0/8.0-XXX-20191111	OC-SB-701-8.0/10-XXX-20191111	OC-SB-701-20/21-XXX-20191111	OC-SB-701-31/32-XXX-20191111	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/ Comm.																	
Volatiles																				
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	4.3 U	5.8 U	4.6 U	**0.7** J	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	4.3 UJ	5.8 UJ	**1.9** J	**0.54** J	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	NA	4.3 U	5.8 U	**3.8** J	**16**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,2-Dichloroethane	ug/kg	460	2,000	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	NA	4.3 U	5.8 U	**0.82** J	**0.79** J	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	4.3 U	5.8 U	**0.32** J	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
2,4,4-trimethyl-1-Pentene	ug/kg	NS	NS	NA	4.3 UJ	5.8 UJ	**59**	**67**	**0.76** J	5.2 U	**0.58** J	4.1 U	NA	4.7 U	**2.4** J	**1.2** J	**13**	**16**	4.2 U	11 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NA	4.3 UJ	5.8 UJ	**24**	**34**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	**0.84** J	4.9 U	**4.4**	**3.1** J	4.2 U	11 U
2-Butanone	ug/kg	2,700,000	19,000,000	NA	22 U	29 U	**21** J+	**23** J+	21 U	26 U	26 U	20 U	NA	23 U	**14** J+	**29** J+	**4.4** J+	23 U	21 U	54 U
4-Isopropyltoluene	ug/kg	NS	NS	NA	4.3 UJ	5.8 UJ	**0.41** J	**0.48** J	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Acetone	ug/kg	6,100,000	67,000,000	NA	**14** J-	**7.4** J-	**82** J	**99** J	**16** J	**12** J	**16** J	**14** J	NA	**23** J	**54** J	**54** J	**20** J	**5.6** J	**5.1** J	**12** J
Benzene	ug/kg	1,200	5,100	NA	4.3 U	5.8 U	4.6 U	**0.82** J	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	**0.37** J	4.6 U	4.2 U	11 U
Bromochloromethane	ug/kg	15,000	63,000	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Bromodichloromethane	ug/kg	290	1,300	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Carbon disulfide	ug/kg	77,000	350,000	NA	4.3 U	5.8 U	**4.2** J	**6.6**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Chlorobenzene	ug/kg	28,000	130,000	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Dibromomethane	ug/kg	2,400	9,900	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Ethylbenzene	ug/kg	5,800	25,000	NA	4.3 U	5.8 U	**0.49** J	**1.4** J	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Isopropylbenzene	ug/kg	190,000	990,000	NA	4.3 U	5.8 U	**1.2** J	**3.7** J	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
m,p-Xylene	ug/kg	58,000	250,000	NA	4.3 U	5.8 U	4.6 U	**0.98** J	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	43 UJ	58 UJ	46 U	52 U	43 U	52 U	52 U	41 U	NA	47 U	41 U	**8.1** J	42 U	**6.3** J	42 U	**7.5** J
Naphthalene	ug/kg	3,800	17,000	NA	22 UJ	29 UJ	**3** J	**180**	**15** J	26 U	26 U	20 U	NA	23 U	21 U	25 U	21 U	23 U	21 U	54 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
n-Propylbenzene	ug/kg	380,000	2,400,000	NA	4.3 U	5.8 U	**1.2** J	**7**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
o-Xylene	ug/kg	65,000	280,000	NA	4.3 U	5.8 U	**0.75** J	**1.6** J	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Styrene	ug/kg	600,000	3,500,000	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Toluene	ug/kg	490,000	4,700,000	NA	4.3 U	5.8 U	**0.43** J	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Xylene (total)	ug/kg	58,000	250,000	NA	4.3 U	5.8 U	4.6 U	**2.6** J	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Semivolatiles																				
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	**2** J	37 U	75 U	35 U	38 U	35 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	40 U	41 U	**7.4** J	**1.9** J	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
2-Methylnaphthalene	ug/kg	24,000	300,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	7.1 U	7.5 U	15 U	7.1 U	7.7 U	7.2 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Acenaphthene	ug/kg	360,000	4,500,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	7.1 U	7.5 U	**5.5** J	7.1 U	7.7 U	7.2 U
Acenaphthylene	ug/kg	NS	NS	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	**1.7** J	7.5 U	**3.3** J	7.1 U	7.7 U	7.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-701								SB-702							
			Depth Interval (ft)	0 - 10	0 - 2		2 - 4	4 - 6	6 - 8	8 - 10	20 - 21	31 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35
			Sample Date	11/11/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19
			Sample ID	OC-SB-701-0.0/10-XXX-20191111	OC-SB-701-0.0/2.0-XXX-20191111	OC-SB-701-0.0/2.0-DUP-20191111	OC-SB-701-2.0/4.0-XXX-20191111	OC-SB-701-4.0/6.0-XXX-20191111	OC-SB-701-6.0/8.0-XXX-20191111	OC-SB-701-8.0/10-XXX-20191111	OC-SB-701-20/21-XXX-20191111	OC-SB-701-31/32-XXX-20191111	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/ Comm.**																	
Acetophenone	ug/kg	780,000	12,000,000	NA	82 U	**2.2 J**	77 U	79 U	78 U	81 U	75 U	70 U	NA	77 U	71 U	75 U	150 U	71 U	77 U	72 U
Aniline	ug/kg	44,000	400,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Anthracene	ug/kg	1,800,000	23,000,000	NA	8.2 U	8.3 U	7.7 U	**2.1 J**	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	**2.2 J**	7.5 U	**15**	7.1 U	7.7 U	7.2 U
Azobenzene	ug/kg	5,600	26,000	NA	400 U	400 U	1,900 U	400 U	380 U	390 U	**62 J**	350 U	NA	380 U	350 U	370 U	360 U	350 U	370 U	350 U
Benzaldehyde	ug/kg	170,000	820,000	NA	82 UJ	83 UJ	77 U	79 U	78 U	81 U	75 U	70 U	NA	R	R	R	R	71 U	77 U	72 U
Benzo(a)anthracene	ug/kg	1,100	21,000	NA	8.2 U	**5.4 J**	7.7 U	**4.2 J**	7.8 U	8.1 U	7.5 U	7 U	NA	**8.8**	**11**	**3.9 J**	**49**	7.1 U	7.7 U	7.2 U
Benzo(a)pyrene	ug/kg	110	2,100	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	**9.7**	**10**	**3.7 J**	**45**	7.1 U	7.7 U	7.2 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	NA	8.2 U	**5.7 J**	7.7 U	**3.2 J**	7.8 U	8.1 U	7.5 U	7 U	NA	**11**	**17**	**5.3 J**	**43**	7.1 U	7.7 U	7.2 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	**8.5**	**10**	**3.2 J**	**29**	7.1 U	7.7 U	7.2 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	**5.3 J**	**5.9 J**	7.5 U	**20**	7.1 U	7.7 U	7.2 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	NA	210 UJ	210 UJ	200 U	200 U	200 U	200 U	190 U	180 U	NA	200 U	180 U	190 U	390 U	180 U	190 U	180 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	NA	**640**	**800**	**3,900**	**150 J**	380 U	400 U	370 U	340 U	NA	**230 J**	**270 J**	**3,500**	**800**	**630**	380 U	350 U
Carbazole	ug/kg	NS	NS	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	**1.8 J**	7.5 U	**3.7 J**	7.1 U	7.7 U	7.2 U
Chrysene	ug/kg	110,000	2,100,000	NA	8.2 U	**6 J**	7.7 U	**4.6 J**	7.8 U	8.1 U	7.5 U	7 U	NA	**10**	**14**	**4.5 J**	**46**	7.1 U	7.7 U	7.2 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	**3.4 J**	**2.7 J**	7.5 U	**9.6 J**	7.1 U	7.7 U	7.2 U
Dibenzofuran	ug/kg	7,300	100,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Dimethylphthalate	ug/kg	NS	NS	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	**2 J**	75 U	35 U	38 U	35 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Fluoranthene	ug/kg	240,000	3,000,000	NA	**3.5 J**	**7.9 J**	**8.2**	**6.3 J**	7.8 U	8.1 U	7.5 U	7 U	NA	**14**	**15**	**5.9 J**	**81**	**3 J**	7.7 U	7.2 U
Fluorene	ug/kg	240,000	3,000,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	7.1 U	7.5 U	**5.3 J**	7.1 U	7.7 U	7.2 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	**7.3 J**	**8.7**	**2.8 J**	**25**	7.1 U	7.7 U	7.2 U
Naphthalene	ug/kg	3,800	17,000	NA	**2.5 J**	**5.6 J**	**34**	**540**	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	**1.4 J**	7.5 U	15 U	**2.2 J**	7.7 U	7.2 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	7.1 U	7.5 U	15 U	7.1 U	7.7 U	7.2 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	NA	**93**	**120**	**430**	**1,500**	38 U	40 U	37 U	34 U	NA	**13 J**	35 U	**12 J**	75 U	35 U	38 U	35 U
Phenanthrene	ug/kg	NS	NS	NA	**2.4 J**	**4.6 J**	**6.5 J**	**5.6 J**	**2.8 J**	8.1 U	7.5 U	7 U	NA	**6.4 J**	**9.4**	**4.5 J**	**48**	7.1 U	7.7 U	7.2 U
Phenol	ug/kg	1,900,000	25,000,000	NA	40 U	41 U	**23 J**	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Pyrene	ug/kg	180,000	2,300,000	NA	8.2 U	8.3 U	**8.6**	**7.6 J**	7.8 U	8.1 U	7.5 U	7 U	NA	**13**	**14**	**6.4 J**	**87**	**3 J**	7.7 U	7.2 U
Metals																				
Aluminum	mg/kg	7,700	110,000	NA	**9,900**	**8,200**	**7,400**	**4,700**	**4,000**	**3,400**	**5,200**	**13,000**	NA	**9,200**	**9,000**	**11,000**	**10,000**	**6,300**	**3,700**	**11,000**
Antimony	mg/kg	3.1	47	NA	**0.63 J-**	**0.53 J-**	17 U	18 U	17 U	19 U	**1.1 J**	**0.85 J**	NA	17 U	16 U	17 U	16 U	**0.55 J**	18 U	**0.74 J**
Arsenic	mg/kg	0.68	3	NA	**8.6**	**10**	**7.3**	**0.76 J**	**1.9 J**	**3.5**	**11**	**2.4**	NA	**5.1**	**7.6**	**9.7**	**11**	**26**	**6.5**	**3.8**
Barium	mg/kg	1,500	22000	NA	**71 J+**	**49 J+**	**46**	**7**	**7.5**	**9.9**	**16**	**58**	NA	**46**	**33**	**41**	**41**	**29**	**24**	**41**
Beryllium	mg/kg	16	230	NA	**0.46 J**	**0.34**	**0.33**	**0.16 J**	**0.18 J**	**0.16 J**	**0.31**	**0.58 J**	NA	**0.5**	**0.44**	**0.65**	**0.55**	**0.28**	**0.15 J**	**5.9**
Cadmium	mg/kg	7.1	98	NA	**0.37**	**0.35**	**0.17 J**	0.24 U	0.22 U	0.25 U	0.23 U	0.22 U	NA	**0.036 J**	0.21 U	0.22 U	0.22 U	0.23 U	0.23 U	0.22 U
Calcium	mg/kg	NS	NS	NA	**28,000**	**24,000**	**44,000**	**2,100**	**1,100**	**1,100**	**1,300**	**7,500**	NA	**14,000**	**3,800**	**2,800**	**2,300**	**1,400**	**2,200**	**5,000**
Chromium	mg/kg	12,000	180000	NA	**72 J+**	**120 J+**	**200**	**8.1**	**14**	**12**	**580**	**460**	NA	**32**	**20**	**34**	**42**	**22**	**64**	**580**
Chromium-Hexavalent	mg/kg	0.3	**6.3**	NA	**2.8**	**2.5**	**3.7**	**0.66**	**0.73**	**0.98**	**8.9**	**22.6**	NA	**1.6**	**0.98**	**0.71**	**0.55**	0.44 U	**1**	**7.5**
Cobalt	mg/kg	2.3	35	NA	**3.9**	**5.2**	**3.5**	**1.1**	**1.4**	**3**	**2.1**	**11**	NA	**5.6**	**4.1**	**6.5**	**6**	**7**	**3.2**	**13**
Copper	mg/kg	310	4700	NA	**10**	**9.9**	**8.2**	**0.75 J**	**1.6**	**2.9**	**7.7**	**27**	NA	**8.2**	**9.3**	**9.4**	**12**	**9.5**	**7**	**29**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-701								SB-702							
			Depth Interval (ft)	0 - 10	0 - 2		2 - 4	4 - 6	6 - 8	8 - 10	20 - 21	31 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35
			Sample Date	11/11/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19
			Sample ID	OC-SB-701-0.0/10-XXX-20191111	OC-SB-701-0.0/2.0-XXX-20191111	OC-SB-701-0.0/2.0-DUP-20191111	OC-SB-701-2.0/4.0-XXX-20191111	OC-SB-701-4.0/6.0-XXX-20191111	OC-SB-701-6.0/8.0-XXX-20191111	OC-SB-701-8.0/10-XXX-20191111	OC-SB-701-20/21-XXX-20191111	OC-SB-701-31/32-XXX-20191111	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/ Comm.**																	
Iron	mg/kg	5,500	82000	NA	**10,000**	**11,000**	**8,800**	**3,200**	**3,700**	**4,700**	**15,000**	**22,000**	NA	**13,000**	**9,800**	**13,000**	**13,000**	**15,000**	**8,000**	**20,000**
Lead	mg/kg	400	800	NA	**11**	**12**	**7.8**	**2.5**	**1.9**	**1.9**	**3.8**	**3.7**	NA	**12**	**22**	**7.4**	**14**	**9.3**	**10**	**5**
Magnesium	mg/kg	NS	NS	NA	**3,700 J+**	**2,900 J+**	**2,400**	**1,000**	**1,200**	**1,200**	**1,600**	**8,700**	NA	**4,000**	**2,600**	**3,900**	**4,500**	**3,600**	**1,700**	**6,300**
Manganese	mg/kg	180	2600	NA	**180 J**	**150 J**	**120**	**50**	**41**	**45**	**100**	**340**	NA	**270**	**130**	**200**	**200**	**250**	**72**	**220**
Mercury	mg/kg	1.1	4.6	NA	**0.031 J**	**0.036**	**0.069**	0.024 U	0.023 U	0.024 U	0.022 U	0.02 U	NA	**0.041**	**0.11**	**0.011 J**	**0.02 J**	0.022 U	0.022 U	0.021 U
Nickel	mg/kg	150	2200	NA	**11**	**11**	**11**	**4.1 J**	**5.2 J**	**6.3**	**7.3**	**15**	NA	**8.2**	**10**	**23**	**23**	**31**	**3.8 J**	**15**
Potassium	mg/kg	NS	NS	NA	**1,200 J+**	**1,100 J+**	**920**	**340**	**400**	**530**	**550**	**4,100**	NA	**1,300**	**1,400**	**1,800**	**1,800**	**1,500**	**1,100**	**2,100**
Selenium	mg/kg	39	580	NA	4.8 U	4.9 U	4.4 U	4.9 U	4.4 U	5 U	4.6 U	4.4 U	NA	4.6 U	4.3 U	**0.61 J**	4.4 U	4.6 U	**0.54 J**	4.4 U
Sodium	mg/kg	NS	NS	NA	**150 J**	**130 J**	**160**	**97 J**	**75 J**	**73 J**	**240**	**1,100**	NA	**220**	**130 J**	**160**	**130 J**	**110 J**	**200**	**340**
Tin	mg/kg	4,700	70000	NA	**0.72 J**	**1.1 J**	**1.1 J**	2.4 U	2.2 U	2.5 U	**0.61 J**	**0.69 J**	NA	**0.91 J**	**0.69 J**	**0.82 J**	**1.2 J**	**0.62 J**	2.3 U	**0.61 J**
Vanadium	mg/kg	39	580	NA	**19 J+**	**18 J+**	**16**	**6.1**	**6**	**6.6**	**21**	**58**	NA	**25**	**18**	**23**	**22**	**16**	**17**	**58**
Zinc	mg/kg	2,300	35000	NA	**26 J+**	**28 J+**	**27**	**7**	**8.4**	**10**	**12**	**36**	NA	**30**	**28**	**28**	**33**	**26**	**11**	**32**
General Chemistry																				
Ammonia	mg/kg	NS	NS	NA	**4.7**	**6.5**	**28**	**35**	**21**	**27**	**25**	**210**	NA	**4 J**	**6**	**6**	**7.8**	**13**	**11**	**41**
Chloride	mg/kg	NS	NS	NA	12 UJ	12 UJ	11 UJ	12 UJ	11 UJ	12 UJ	11 UJ	**390 J**	NA	**9.3 J**	10 UJ	11 UJ	11 UJ	10 U	**5.3 J**	**5.8 J**
pH	S.U.	NS	NS	**8.4 J**	NA	NA	NA	NA	NA	NA	NA	NA	**7.4 J**	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	**12,000 J**	**13,000 J**	**15,000 J**	**230 J**	**130 J**	**250 J**	**190 J**	**3,900 J**	NA	**610 J**	**3,000 J**	**6,100 J**	**730 J**	**180**	**140**	**1,000**
Other Analyses																				
Dimethylformamide	ug/kg	260,000	1500000	NA	180 U	180 U	200 U	220 U	150 U	160 U	170 U	170 U	NA	160 U	160 U	170 U	150 U	140 U	170 U	140 U
Formaldehyde	ug/kg	11,000	50000	NA	2,500 UJ	2,500 UJ	**1,600 J**	**1,500 J**	2,300 UJ	2,400 UJ	2,200 UJ	**5,300 J**	NA	2,300 U	**1,500 J**	2,200 UJ	2,200 UJ	2,200 UJ	2,300 UJ	2,200 UJ
Hydrazine	ug/kg	32	140	NA	**5.3 J**	**5.7 J**	**11**	**2.8 J**	**1.7 J**	**2.2 J**	**1.8 J**	5.3 U	NA	5.8 U	**1.5 J**	5.4 U	5.5 U	**2.1 J**	**5.5**	5.5 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-703									SB-704								
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4		4 - 6	6 - 8	8 - 10	17 - 18	30 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34
			Sample Date	11/05/19	11/05/19	11/05/19		11/05/19	11/05/19	11/05/19	11/05/19	11/05/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19
			Sample ID	OC-SB-703-0.0/10-XXX-20191105	OC-SB-703-0.0/2.0-XXX-20191105	OC-SB-703-2.0/4.0-XXX-20191105	OC-SB-703-2.0/4.0-DUP-20191105	OC-SB-703-4.0/6.0-XXX-20191105	OC-SB-703-6.0/8.0-XXX-20191105	OC-SB-703-8.0/10-XXX-20191105	OC-SB-703-17/18-XXX-20191105	OC-SB-703-30/32-XXX-20191105	OC-SB-704-0.0/10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/ Comm.**																		
Volatiles																					
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	**0.58** J	**0.36** J	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	**3** J	**2.7** J	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
1,2-Dichloroethane	ug/kg	460	2,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**1.1** J	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	NA	4.7 U	**0.37** J-	**0.27** J-	4.6 U	5 U	5 U	4.5 U	3 U	NA	**1.4** J	**1.1** J	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
2,4,4-trimethyl-1-Pentene	ug/kg	NS	NS	NA	**0.9** J	**1.7** J-	**1.4** J-	4.6 U	5 U	5 U	4.5 U	3 U	NA	**5.1** J	**6.2**	**1.3** J	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NA	4.7 U	**0.67** J-	**0.46** J-	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	**3** J	**0.56** J	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
2-Butanone	ug/kg	2,700,000	19,000,000	NA	**6.6** J	**10** J	**9.5** J-	23 U	25 U	25 U	22 U	15 U	NA	**17** J+	**23** J+	**64** J+	**9.6** J+	**29** J+	24 U	21 U	22 U
4-Isopropyltoluene	ug/kg	NS	NS	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	**1.9** J	**1.2** J	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Acetone	ug/kg	6,100,000	67,000,000	NA	**30** J	**37** J-	**43** J-	**6.5** J	**23** J	**4.2** J	220 U	**7.6** J	NA	**93** J	**68** J	**64** J	**38** J	**54** J	**18** J	210 U	**22** J
Benzene	ug/kg	1,200	5,100	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	**0.41** J	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Bromochloromethane	ug/kg	15,000	63,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**0.78** J	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Bromodichloromethane	ug/kg	290	1,300	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Carbon disulfide	ug/kg	77,000	350,000	NA	4.7 U	**4.4** J-	**6.5** J-	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	**6**	**2.5** J	3.7 U	**2.4** J	4.8 U	4.3 U	4.3 U
Chlorobenzene	ug/kg	28,000	130,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Dibromomethane	ug/kg	2,400	9,900	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**4.6**	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	**3.4** J	**2.8** J	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Ethylbenzene	ug/kg	5,800	25,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Isopropylbenzene	ug/kg	190,000	990,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	**1.3** J	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
m,p-Xylene	ug/kg	58,000	250,000	NA	4.7 U	**0.77** J-	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	47 U	44 UJ	40 UJ	46 U	50 U	50 U	45 U	30 U	NA	73 U	54 U	41 U	37 U	45 U	48 U	43 U	43 U
Naphthalene	ug/kg	3,800	17,000	NA	24 U	22 UJ	20 UJ	23 U	25 U	25 U	22 U	15 U	NA	**2.5** J	**1.4** J	20 U	19 U	23 U	24 U	21 U	22 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
n-Propylbenzene	ug/kg	380,000	2,400,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	**0.49** J	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
o-Xylene	ug/kg	65,000	280,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Styrene	ug/kg	600,000	3,500,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Toluene	ug/kg	490,000	4,700,000	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**0.62** J	NA	**1.4** J	**4.2** J	**0.5** J	**0.38** J	4.5 U	4.8 U	4.3 U	**0.53** J
Xylene (total)	ug/kg	58,000	250,000	NA	4.7 U	**0.77** J-	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U
Semivolatiles																					
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	**2.6** J	**3.2** J	**4.3** J	40 U	41 U	36 U	37 U	36 U	NA	**24** J	**7.8** J	36 U	35 U	36 U	36 U	37 U	36 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	43 U	39 U	**2.2** J	40 U	41 U	36 UJ	37 U	36 U	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 UJ
2-Methylnaphthalene	ug/kg	24,000	300,000	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**37**	**1.9** J	7.3 U	**2.3** J	7.4 U	7.4 U	7.4 U	7.4 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U	NA	**31** J	**6.4** J	36 U	35 U	36 U	36 U	37 U	36 U
Acenaphthene	ug/kg	360,000	4,500,000	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**16** J	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Acenaphthylene	ug/kg	NS	NS	NA	**3** J	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-703								SB-704								
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4		4 - 6	6 - 8	8 - 10	17 - 18	30 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34
			Sample Date	11/05/19	11/05/19	11/05/19		11/05/19	11/05/19	11/05/19	11/05/19	11/05/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19
			Sample ID	OC-SB-703-0.0/10-XXX-20191105	OC-SB-703-0.0/2.0-XXX-20191105	OC-SB-703-2.0/4.0-XXX-20191105	OC-SB-703-2.0/4.0-DUP-20191105	OC-SB-703-4.0/6.0-XXX-20191105	OC-SB-703-6.0/8.0-XXX-20191105	OC-SB-703-8.0/10-XXX-20191105	OC-SB-703-17/18-XXX-20191105	OC-SB-703-30/32-XXX-20191105	OC-SB-704-0.0/10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/ Comm.**																		
Acetophenone	ug/kg	780,000	12,000,000	NA	87 U	79 U	**2.4 J**	82 U	84 U	73 UJ	74 U	72 U	NA	170 U	**5.7 J**	73 U	72 U	74 U	74 U	74 U	74 U
Aniline	ug/kg	44,000	400,000	NA	43 U	39 U	38 U	40 U	41 U	36 UJ	37 U	36 U	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U
Anthracene	ug/kg	1,800,000	23,000,000	NA	**3.1 J**	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**9.1 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Azobenzene	ug/kg	5,600	26,000	NA	430 U	400 U	370 U	410 U	410 U	360 U	360 U	360 U	NA	410 U	370 U	370 U	360 U	340 U	340 U	360 U	350 U
Benzaldehyde	ug/kg	170,000	820,000	NA	**10 J**	R	**5.8 J-**	82 U	84 U	R	74 U	72 U	NA	R	**10 J-**	R	R	R	R	R	R
Benzo(a)anthracene	ug/kg	1,100	21,000	NA	**6.9 J**	**3.5 J**	**4.3 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**13 J**	**2.8 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Benzo(a)pyrene	ug/kg	110	2,100	NA	**7.3 J**	**3.4 J**	**4.3 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**10 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	NA	**10**	**4.1 J**	**6.8 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**14 J**	**2.6 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	NA	**7.6 J**	**3.7 J**	**4.9 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**8.4 J**	**1.8 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	NA	**3.1 J**	**3 J**	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**5.2 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	NA	220 U	R	**50 J-**	210 U	210 U	R	190 U	180 U	NA	R	190 U	190 U	180 U	190 U	190 U	190 U	190 UJ
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 UJ
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	NA	**1,600**	**650 J**	**1,400 J**	400 U	410 U	**60 J**	370 U	360 U	NA	**7,600**	**2,400**	360 U	350 U	360 U	360 U	370 U	360 U
Carbazole	ug/kg	NS	NS	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Chrysene	ug/kg	110,000	2,100,000	NA	**9.3**	**4.6 J**	**6.5 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**18**	**3.7 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	NA	**2.4 J**	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Dibenzofuran	ug/kg	7,300	100,000	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U	NA	**8.8 J**	38 U	36 U	35 U	36 U	36 U	37 U	36 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U
Dimethylphthalate	ug/kg	NS	NS	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U
Fluoranthene	ug/kg	240,000	3,000,000	NA	**14**	**6.3 J**	**9**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**47**	**6.9 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Fluorene	ug/kg	240,000	3,000,000	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**21**	**1.9 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	NA	**6 J**	**3 J**	**3.5 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**8.1 J**	**2 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Naphthalene	ug/kg	3,800	17,000	NA	**2.7 J**	**4.5 J**	**5.7 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**15 J**	**2.4 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**23**	**2 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	NA	**37 J**	**130 J**	**350 J**	40 U	41 U	36 U	37 U	36 U	NA	**390**	**26 J**	36 U	35 U	36 U	36 U	37 U	36 U
Phenanthrene	ug/kg	NS	NS	NA	**8.1 J**	**3.9 J**	**5.4 J**	8.2 U	8.4 U	7.3 U	7.4 U	**2 J**	NA	**84**	**9.7**	**2.8 J**	7.2 U	7.4 U	**2.4 J**	7.4 U	7.4 U
Phenol	ug/kg	1,900,000	25,000,000	NA	43 U	39 U	**25 J**	40 U	41 U	36 U	37 U	36 U	NA	**330**	**68**	**42**	**14 J**	36 U	36 U	37 U	36 UJ
Pyrene	ug/kg	180,000	2,300,000	NA	**12**	**5.6 J**	**7.5 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U	NA	**42**	**6.3 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U
Metals																					
Aluminum	mg/kg	7,700	110,000	NA	**9,000**	**6,500 J+**	**6,700 J+**	**4,700**	**4,600**	**6,100**	**1,100**	**4,800**	NA	**7,700**	**5,600**	**4,800**	**15,000**	**9,200**	**5,200**	**6,800**	**3,500**
Antimony	mg/kg	3.1	47	NA	20 U	18 U	18 U	19 U	18 U	16 U	17 U	17 U	NA	19 U	18 U	16 U	16 U	16 U	17 U	17 U	17 U
Arsenic	mg/kg	0.68	3	NA	**13**	**4.1**	**4.7**	**3.4**	**7.5**	**4.2**	**0.91 J**	**3.3**	NA	**17**	**5.4**	**4.8**	**11**	**7.8**	**3.1**	**14**	**4.5**
Barium	mg/kg	1,500	22000	NA	**89 J**	**12 J-**	**15 J-**	**11 J**	**10 J**	**15 J**	**20 J**	**14 J**	NA	**61**	**11**	**12**	**79**	**37**	**18**	**22**	**10**
Beryllium	mg/kg	16	230	NA	**0.39**	**0.21 J**	**0.24**	**0.19 J**	**0.22 J**	**0.3**	**0.059 J**	**0.14 J**	NA	**0.38**	**0.27**	**0.17 J**	**0.67 J**	**0.5 J**	**0.18 J**	**0.33**	**0.16 J**
Cadmium	mg/kg	7.1	98	NA	**0.3 J**	**0.06 J**	**0.11 J**	0.26 U	0.25 U	0.22 U	**0.044 J**	0.23 U	NA	**0.45**	**0.058 J**	0.22 U	0.21 U	0.21 U	0.22 U	0.22 U	**0.039 J**
Calcium	mg/kg	NS	NS	NA	**92,000**	**5,900 J+**	**6,300 J+**	**3,800**	**2,000**	**1,200**	**4,800**	**5,400**	NA	**110,000**	**3,700**	**2,200**	**2,100**	**1,800**	**2,100**	**1,700**	**2,400**
Chromium	mg/kg	12,000	180000	NA	**180**	**14 J+**	**20 J+**	**6.8**	**9.9**	**52**	**10**	**190**	NA	**140**	**8.6**	**13**	**63**	**97**	**58**	**310**	**300**
Chromium-Hexavalent	mg/kg	0.3	**6.3**	NA	**5.8**	**0.7 J**	**2.3 J**	**0.29 J**	**0.37 J**	**3.2**	**0.41 J**	**9.8**	NA	**4.1**	0.49 U	0.46 U	**2.4**	**5.3**	**1.3**	**4.1**	**6.3**
Cobalt	mg/kg	2.3	35	NA	**3.5**	**2.2**	**2.6**	**2.4**	**2.4**	**2.8**	**0.62**	**4.3**	NA	**3.7**	**2.2**	**2.3**	**6.1**	**4.4**	**2.9**	**7.1**	**3.6**
Copper	mg/kg	310	4700	NA	**9.2**	**2.9 J**	**5.3 J**	**2.1**	**2.9**	**7.3**	**0.5 J**	**19**	NA	**8.5**	**0.84 J**	**3.9**	**14**	**11**	**4.8**	**17**	**12**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-703									SB-704								
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4		4 - 6	6 - 8	8 - 10	17 - 18	30 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34
			Sample Date	11/05/19	11/05/19	11/05/19		11/05/19	11/05/19	11/05/19	11/05/19	11/05/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19
			Sample ID	OC-SB-703-0.0/10-XXX-20191105	OC-SB-703-0.0/2.0-XXX-20191105	OC-SB-703-2.0/4.0-XXX-20191105	OC-SB-703-2.0/4.0-DUP-20191105	OC-SB-703-4.0/6.0-XXX-20191105	OC-SB-703-6.0/8.0-XXX-20191105	OC-SB-703-8.0/10-XXX-20191105	OC-SB-703-17/18-XXX-20191105	OC-SB-703-30/32-XXX-20191105	OC-SB-704-0.0/10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/ Comm.**																		
Iron	mg/kg	5,500	82000	NA	**9,200**	**5,000 J+**	**6,400 J+**	**5,200**	**7,900**	**7,600**	**1,400**	**11,000**	NA	**10,000**	**3,800**	**6,200**	**20,000**	**13,000**	**9,600**	**17,000**	**5,300**
Lead	mg/kg	400	800	NA	**9.7**	**3.6**	**6.4**	**2.3**	**2.6**	**3.6**	**1.6**	**3**	NA	**8.3**	**3.1**	**2.7**	**5.9**	**5.2**	**4.1**	**4.2**	**2.1**
Magnesium	mg/kg	NS	NS	NA	**2,500**	**1,100 J+**	**1,300 J+**	**1,100**	**1,800**	**1,800**	**250**	**3,100**	NA	**2,300**	**820**	**1,700**	**5,200**	**3,100**	**2,500**	**2,800**	**1,600**
Manganese	mg/kg	180	2600	NA	**110**	**63 J+**	**76 J+**	**61**	**89**	**73**	**32**	**110**	NA	**93**	**31**	**68**	**210**	**130**	**91**	**120**	**98**
Mercury	mg/kg	1.1	4.6	NA	**0.037**	**0.032**	**0.025**	0.024 U	0.025 U	0.022 U	0.021 U	**0.008 J**	NA	**0.035**	0.023 U	0.022 U	0.021 U	0.02 U	**0.01 J**	0.022 U	0.022 U
Nickel	mg/kg	150	2200	NA	**8.9**	**7**	**8**	**4.6 J**	**7.3**	**7.5**	**0.9 J**	**5.4 J**	NA	**8.6**	**4.7 J**	**7.8**	**18**	**11**	**7**	**14**	**6.9**
Potassium	mg/kg	NS	NS	NA	**980**	**550**	**660**	**430**	**580**	**670**	**330**	**820**	NA	**770**	**410**	**640**	**4,300**	**1,700**	**740**	**1,300**	**460**
Selenium	mg/kg	39	580	NA	5.3 U	4.9 U	4.7 U	5.2 U	4.9 U	4.3 U	4.6 U	4.5 U	NA	5 U	4.7 U	4.4 U	4.3 U	4.2 U	4.4 U	4.5 U	4.6 U
Sodium	mg/kg	NS	NS	NA	**160 J**	170 U	170 U	180 U	170 U	150 U	160 U	**260**	NA	**190**	**80 J**	**130 J**	**280**	**240**	**100 J**	**110 J**	**2,600**
Tin	mg/kg	4,700	70000	NA	**1.1 J**	2.4 U	**0.73 J**	2.6 U	2.5 U	2.2 U	2.3 U	2.3 U	NA	**0.97 J**	**0.51 J**	2.2 U	**0.92 J**	**0.59 J**	2.2 U	**0.66 J**	2.3 U
Vanadium	mg/kg	39	580	NA	**16**	**8.4**	**9.7**	**7.8**	**8.9**	**12**	**3.6**	**27**	NA	**18**	**7.5**	**9.4**	**34**	**21**	**14**	**26**	**9.3**
Zinc	mg/kg	2,300	35000	NA	**22**	**24**	**29**	**10**	**11**	**17**	**2.9**	**15**	NA	**22**	**10**	**13**	**42**	**27**	**15**	**24**	**8.6**
General Chemistry																					
Ammonia	mg/kg	NS	NS	NA	**7**	**12**	**10**	**7.9**	**10**	**10**	**5.1**	**130**	NA	**15**	**44**	**40**	**46**	**41**	**29**	**40**	**620**
Chloride	mg/kg	NS	NS	NA	**5.4 J**	12 U	11 U	12 U	**5.8 J**	**9.2 J**	11 U	**210**	NA	**4.7 J**	11 UJ	11 UJ	11 UJ	**4.8 J**	10 UJ	11 UJ	**1,300 J**
pH	S.U.	NS	NS	**5.4 J**	NA	NA	NA	NA	NA	NA	NA	NA	**7.7 J**	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	**18,000**	**10,000**	**16,000**	**430**	**180**	**160**	**16,000**	**1,300**	NA	**18,000 J**	**16,000 J**	**760 J**	**530 J**	**150 J**	**68 J**	**270 J**	**6,100 J**
Other Analyses																					
Dimethylformamide	ug/kg	260,000	1500000	NA	180 U	200 U	190 U	200 U	200 U	200 U	180 U	190 U	NA	260 U	180 U	180 U	150 U	180 U	160 U	160 U	140 U
Formaldehyde	ug/kg	11,000	50000	NA	**1,800 J**	**2,900 J**	**4,900 J**	2,500 U	2,500 U	2,200 U	2,200 U	**1,300 J**	NA	2,500 U	**2,700**	2,200 U	2,200 U	**1,600 J**	2,100 U	2,200 U	**1,600 J**
Hydrazine	ug/kg	32	140	NA	6.7 U	**7.4 J**	**4.2 J**	6.6 U	5.8 U	5.8 U	5.8 U	**9.4**	NA	**86**	**19**	**1.3 J**	5.5 U	**1.7 J**	5.3 U	5.7 U	5.6 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-705								SB-706							
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27
			Sample Date	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19
			Sample ID	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108	OC-SB-706-0.0/10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/ Comm.																
Volatiles																			
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.85** J	5 U	3.1 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.9** J	5 U	3.1 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.6** J	5 U	3.1 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.5** J	5 U	3.1 U
1,2-Dichloroethane	ug/kg	460	2,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.5** J	5 U	3.1 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.2** J	5 U	3.1 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.68** J	5 U	3.1 U
2,4,4-trimethyl-1-Pentene	ug/kg	NS	NS	NA	4.2 U	**5.5**	**7.4** J-	**11** J-	4.3 U	3.7 U	4.2 U	NA	4.5 U	**1.3** J	**1.9** J	3.7 U	**75**	**0.54** J	**1.9** J
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NA	4.2 U	**2.1** J	**2.3** J-	**3.8** J-	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**25**	5 U	3.1 U
2-Butanone	ug/kg	2,700,000	19,000,000	NA	21 U	**14** J+	**20** J+	**32** J+	**560** J+	19 U	21 U	NA	23 U	**15** J+	**8.2** J	19 U	**17** J+	25 U	15 U
4-Isopropyltoluene	ug/kg	NS	NS	NA	4.2 U	4.3 U	**0.52** J-	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2** J	5 U	3.1 U
Acetone	ug/kg	6,100,000	67,000,000	NA	**14** J	**46** J	**74** J-	**69** J-	**18** J	190 U	**19** J	NA	230 U	210 U	190 U	190 U	210 U	250 U	150 U
Benzene	ug/kg	1,200	5,100	NA	4.2 U	4.3 U	4.8 U	**0.28** J	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2** J	5 U	3.1 U
Bromochloromethane	ug/kg	15,000	63,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U
Bromodichloromethane	ug/kg	290	1,300	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2.6** J	5 U	3.1 U
Carbon disulfide	ug/kg	77,000	350,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2.2** J	5 U	3.1 U
Chlorobenzene	ug/kg	28,000	130,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.91** J	5 U	3.1 U
Dibromomethane	ug/kg	2,400	9,900	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U
Ethylbenzene	ug/kg	5,800	25,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**5.6**	5 U	3.1 U
Isopropylbenzene	ug/kg	190,000	990,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2.9** J	5 U	3.1 U
m,p-Xylene	ug/kg	58,000	250,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	42 U	43 U	48 UJ	**150** J+	**41** J	37 U	42 U	NA	45 U	42 U	39 U	37 U	42 U	50 U	31 U
Naphthalene	ug/kg	3,800	17,000	NA	21 U	22 U	24 UJ	23 UJ	21 U	19 U	21 U	NA	23 U	21 U	19 U	19 U	21 U	25 U	15 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.94** J	5 U	3.1 U
n-Propylbenzene	ug/kg	380,000	2,400,000	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**6.1**	5 U	3.1 U
o-Xylene	ug/kg	65,000	280,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U
Styrene	ug/kg	600,000	3,500,000	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U
Toluene	ug/kg	490,000	4,700,000	NA	4.2 U	**0.48** J	**0.6** J	**0.72** J	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.5** J	5 U	3.1 U
Xylene (total)	ug/kg	58,000	250,000	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U
Semivolatiles																			
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	39 U	**33** J	1,100 U	**45** J	37 U	35 U	35 U	NA	**5.3** J	**5,500**	36 U	72 U	**910**	36 U	35 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	**4.9** J	350 U	36 U	72 U	40 U	36 U	35 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U
2-Methylnaphthalene	ug/kg	24,000	300,000	NA	7.8 U	23 U	**100** J	**51** J	7.6 U	7.2 U	7 U	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U	**190** J	36 U	72 U	40 U	36 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U
Acenaphthene	ug/kg	360,000	4,500,000	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U
Acenaphthylene	ug/kg	NS	NS	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-705								SB-706							
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27
			Sample Date	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19
			Sample ID	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108	OC-SB-706-0.0/10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/ Comm.																
Acetophenone	ug/kg	780,000	12,000,000	NA	78 U	230 U	2,100 U	2,000 U	76 U	72 U	70 U	NA	**4.4** J	720 U	72 U	150 U	81 U	72 U	71 U
Aniline	ug/kg	44,000	400,000	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U
Anthracene	ug/kg	1,800,000	23,000,000	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U
Azobenzene	ug/kg	5,600	26,000	NA	380 U	1,800 U	2,100 U	2,000 U	370 U	360 U	350 U	NA	360 U	3,600 U	360 U	350 U	2,000 U	360 U	350 U
Benzaldehyde	ug/kg	170,000	820,000	NA	R	**230** J-	2,100 U	2,000 U	76 U	72 U	70 U	NA	R	R	R	R	R	R	R
Benzo(a)anthracene	ug/kg	1,100	21,000	NA	**3** J	**8.9** J	210 U	200 U	7.6 U	7.2 U	7 U	NA	**5.3** J	72 U	7.2 U	15 U	**3.6** J	7.2 U	7.1 U
Benzo(a)pyrene	ug/kg	110	2,100	NA	**2.6** J	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	**4.7** J	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	NA	**3.1** J	**8.2** J	210 U	200 U	7.6 U	7.2 U	7 U	NA	**6.8** J	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	NA	**1.8** J	**5.4** J	210 U	200 U	7.6 U	7.2 U	7 U	NA	**3.8** J	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	NA	200 U	590 U	5,400 U	5,100 U	190 U	180 U	180 U	NA	370 U	1,800 U	180 U	370 U	200 U	180 U	180 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	160,000	NA	**110** J	**2,400**	**2,100** J	**2,200** J	370 U	350 U	350 U	NA	**770**	**370,000**	**170** J	**210** J	**120,000**	**240** J	350 U
Carbazole	ug/kg	NS	NS	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U	**55** J	7.2 U	15 U	**8.9**	7.2 U	7.1 U
Chrysene	ug/kg	110,000	2,100,000	NA	**2.8** J	**7.6** J	210 U	200 U	7.6 U	7.2 U	7 U	NA	**5.6** J	72 U	7.2 U	15 U	**4** J	7.2 U	7.1 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	NA	**2.6** J	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U
Dibenzofuran	ug/kg	7,300	100,000	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U	**29** J	36 U	72 U	**4.6** J	36 U	35 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U
Dimethylphthalate	ug/kg	NS	NS	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U	**2,100**	36 U	72 U	**360**	36 U	35 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U	350 U	36 U	72 U	**47**	36 U	35 U
Fluoranthene	ug/kg	240,000	3,000,000	NA	**4.7** J	**11** J	210 U	200 U	7.6 U	7.2 U	7 U	NA	**6.6** J	**46** J	7.2 U	15 U	**12**	7.2 U	7.1 U
Fluorene	ug/kg	240,000	3,000,000	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U	72 U	7.2 U	15 U	**3.6** J	7.2 U	7.1 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	NA	**1.7** J	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	**3.2** J	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U
Naphthalene	ug/kg	3,800	17,000	NA	7.8 U	**4.6** J	210 U	200 U	7.6 U	7.2 U	7 U	NA	**4.5** J	72 U	7.2 U	15 U	**2.5** J	7.2 U	7.1 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	7.8 U	23 U	**60** J	200 U	7.6 U	7.2 U	7 U	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	NA	39 U	**400**	**2,700**	**2,500**	37 U	35 U	35 U	NA	**52** J	**28,000** J	36 U	**25** J	**6,200** J	36 U	35 U
Phenanthrene	ug/kg	NS	NS	NA	**4.8** J	**7.8** J	210 U	200 U	7.6 U	7.2 U	7 U	NA	**4.5** J	**150**	**4.5** J	**4.5** J	**28**	**2** J	7.1 U
Phenol	ug/kg	1,900,000	25,000,000	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U
Pyrene	ug/kg	180,000	2,300,000	NA	**4.2** J	**12** J	210 U	200 U	7.6 U	7.2 U	7 U	NA	**6.9** J	**68** J	7.2 U	15 U	**15**	7.2 U	7.1 U
Metals																			
Aluminum	mg/kg	7,700	110,000	NA	**5,100**	**5,400**	**5,900** J+	**5,700** J+	**3,700**	**5,800**	**9,700**	NA	**5,000**	**13,000**	**9,000**	**11,000**	**3,800**	**5,400**	**8,100**
Antimony	mg/kg	3.1	47	NA	17 U	17 U	20 U	19 U	17 U	16 U	17 U	NA	**0.63** J	**1.1** J	**0.95** J	83 U	18 U	**0.6** J	**1.3** J
Arsenic	mg/kg	0.68	3	NA	**14**	**7.1**	**6.6**	**7.1**	**6.5**	**4.4**	**3.6**	NA	**11**	**7.6**	**6.2**	**17**	**3.2**	**3.3**	**3.1**
Barium	mg/kg	1,500	22000	NA	**12**	**17**	**16**	**15**	**9.3**	**23**	**52**	NA	**16**	**43**	**34**	**41**	**10**	**25**	**42**
Beryllium	mg/kg	16	230	NA	**0.28**	**0.22**	**0.23** J	**0.24** J	**0.14** J	**0.34** J	**0.4** J	NA	**0.27**	**0.39**	**0.35**	**0.48**	**0.14** J	**0.24**	**0.23**
Cadmium	mg/kg	7.1	98	NA	**0.17** J	**0.26**	**0.45**	**0.43**	0.23 U	0.21 U	0.22 U	NA	**0.5**	0.22 U	0.23 U	0.22 U	0.24 U	0.22 U	0.22 U
Calcium	mg/kg	NS	NS	NA	**1,200**	**1,600**	**3,600** J+	**3,500** J+	**1,200**	**1,800**	**3,300**	NA	**1,600**	**3,500**	**1,700**	**3,800**	**1,500**	**770**	**3,200**
Chromium	mg/kg	12,000	180000	NA	**13**	**21**	**77** J	**130** J	**410**	**250**	**330**	NA	**19**	**200**	**890**	**1,300**	**310**	**460**	**460**
Chromium-Hexavalent	mg/kg	0.3	6.3	NA	0.46 U	**1.1**	**1.5** J	**2.7** J	**7.4**	**9.9**	**4.2**	NA	**0.95**	**2.9**	**6.6**	**20.8**	**3.6**	**4.7**	**5.6**
Cobalt	mg/kg	2.3	35	NA	**1.9**	**2.4**	**2.9**	**2.4**	**2.1**	**3.9**	**7.4**	NA	**2.2**	**9.1**	**4.4**	**6.8**	**1.6**	**3.3**	**6.2**
Copper	mg/kg	310	4700	NA	**4.5**	**5**	**5.5**	**6.4**	**5**	**11**	**20**	NA	**5.7**	**27**	**11**	**25**	**3.5**	**9.9**	**39**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-705							SB-706							
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27
			Sample Date	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19
			Sample ID	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108	OC-SB-706-0.0/10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/ Comm.**																
Iron	mg/kg	5,500	82000	NA	**6,400**	**6,100**	**7,700 J+**	**7,100 J+**	**4,900**	**9,000**	**16,000**	NA	**7,000**	**16,000**	**12,000**	**23,000**	**4,500**	**11,000**	**14,000**
Lead	mg/kg	400	800	NA	**3.9**	**6.3**	**7.9**	**8.9**	**2.2**	**3.2**	**3**	NA	**4.7**	**8.2**	**5.6**	**21**	**3.4**	**3**	**3.8**
Magnesium	mg/kg	NS	NS	NA	**1,600**	**1,800**	**1,900**	**1,500**	**920**	**2,500**	**6,900**	NA	**1,700**	**6,200**	**2,700**	**4,200**	**1,100**	**1,700**	**3,900**
Manganese	mg/kg	180	2600	NA	**83**	**60**	**98 J+**	**88 J+**	**55**	**100**	**170**	NA	**87**	**210**	**130**	**180**	**53**	**89**	**140**
Mercury	mg/kg	1.1	4.6	NA	0.022 U	**0.028**	**0.026 J**	**0.031**	0.022 U	0.022 U	0.02 U	NA	**0.011 J**	**0.09**	0.022 U	0.022 U	**0.065**	**0.01 J**	**0.0089 J**
Nickel	mg/kg	150	2200	NA	**6.1**	**7.6**	**8.1**	**6.9**	**4.7 J**	**11**	**17**	NA	**6.3**	**23**	**12**	**17**	**4 J**	**7**	**12**
Potassium	mg/kg	NS	NS	NA	**650**	**970**	**700**	**570**	**380**	**950**	**2,600**	NA	**750**	**2,000**	**1,500**	**2,000**	**460**	**730**	**1,500**
Selenium	mg/kg	39	580	NA	**0.52 J**	4.5 U	5.5 U	5 U	**0.79 J**	4.3 U	4.5 U	NA	**0.82 J**	4.4 U	4.6 U	4.4 U	4.8 U	4.4 U	4.3 U
Sodium	mg/kg	NS	NS	NA	**90 J**	**60 J**	**67 J**	**58 J**	**69 J**	**140 J**	**170**	NA	**82 J**	**220**	**210**	**330**	**58 J**	**97 J**	**290**
Tin	mg/kg	4,700	70000	NA	**0.52 J**	2.2 U	**0.69 J**	**0.57 J**	2.3 U	2.1 U	**0.53 J**	NA	**0.59 J**	**0.78 J**	2.3 U	**0.81 J**	2.4 U	2.2 U	2.2 U
Vanadium	mg/kg	39	580	NA	**9.3**	**10**	**12**	**11**	**7**	**16**	**34**	NA	**10**	**40**	**19**	**35**	**8.3**	**18**	**35**
Zinc	mg/kg	2,300	35000	NA	**11**	**25**	**22**	**22**	**7.5**	**18**	**25**	NA	**14**	**27**	**23**	**46**	**9.5**	**19**	**26**
General Chemistry																			
Ammonia	mg/kg	NS	NS	NA	**3.8 J**	**5.8**	**7.5**	**11**	**8.2**	**29**	**39**	NA	**10**	**14**	**9.6**	**12**	**11**	**11**	**12**
Chloride	mg/kg	NS	NS	NA	11 UJ	11 UJ	13 U	12 U	11 U	11 U	**5.4 J**	NA	11 UJ	11 UJ	**7 J**	**4.8 J**	12 UJ	11 UJ	**15 J**
pH	S.U.	NS	NS	**7.6 J**	NA	NA	NA	NA	NA	NA	NA	**6.1 J**	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	**77 J**	**1,400 J**	**3,400 J**	**3,400 J**	**160**	**190**	**200 J**	NA	**1,000 J-**	**410 J**	**120 J**	**160 J**	**290 J**	**66 J**	**140 J**
Other Analyses																			
Dimethylformamide	ug/kg	260,000	1500000	NA	170 U	170 U	200 U	170 U	150 U	200 U	190 U	NA	200 U	180 U	160 U	170 U	230 U	160 U	170 U
Formaldehyde	ug/kg	11,000	50000	NA	**1,400 J**	2,200 U	**5,400 J**	**7,200 J**	**1,500 J**	2,200 UJ	2,200 UJ	NA	2,300 UJ	2,200 UJ	2,200 UJ	2,200 UJ	**2,400 J**	2,200 UJ	2,200 UJ
Hydrazine	ug/kg	32	140	NA	5.6 U	5.6 U	**1.7 J**	5.8 UJ	5.5 U	5.8 U	5.7 U	NA	5.4 U	5.7 U	5.6 U	5.5 U	6.1 U	5.6 U	5.6 U

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-707									SB-708									
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	16 - 18	22 - 24	28 - 30	33 - 34
			Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19
			Sample ID	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107	OC-SB-708-0.0/10-XXX-20191104	OC-SB-708-0.0/2.0-XXX-20191104	OC-SB-708-2.0/4.0-XXX-20191104	OC-SB-708-4.0/6.0-XXX-20191104	OC-SB-708-6.0/8.0-XXX-20191104	OC-SB-708-8.0/10-XXX-20191104	OC-SB-708-16/18-XXX-20191104	OC-SB-708-22/24-XXX-20191104	OC-SB-708-28/30-XXX-20191104	OC-SB-708-33/34-XXX-20191104
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/ Comm.																			
Volatiles																						
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	5.2 U	**0.83 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	NA	5.2 U	3.9 U	4.2 U	3.8 UJ	4.1 UJ	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	**2.5 J**	**1.4 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	**0.37 J**	4.4 U	**0.43 J**	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
1,2-Dichloroethane	ug/kg	460	2,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**0.63 J**	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
2,4,4-trimethyl-1-Pentene	ug/kg	NS	NS	NA	5.2 U	**6.3**	**1 J**	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**2.7 J**	6 U	**5.7**	**9.1**	**2.7 J**	**0.74 J**	**1 J**	**0.44 J**	3.4 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NA	5.2 U	**3.5 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**0.88 J**	6 U	**0.76 J**	**2.1 J**	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
2-Butanone	ug/kg	2,700,000	19,000,000	NA	**15 J**	**21 J+**	21 U	19 U	**3.9 J**	19 U	25 U	22 U	NA	32 U	**11 J+**	22 U	19 U	21 U	**4.1 J+**	18 U	22 U	**5.5 J+**
4-Isopropyltoluene	ug/kg	NS	NS	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**1.3 J**	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
Acetone	ug/kg	6,100,000	67,000,000	NA	260 U	200 U	210 U	190 UJ	200 UJ	190 U	250 U	220 U	NA	**20 J**	**41 J**	**12 J**	**11 J**	**5.3 J**	**13 J**	**4.4 J**	**15 J**	**24 J**
Benzene	ug/kg	1,200	5,100	NA	5.2 U	**0.2 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	**1.3 J**
Bromochloromethane	ug/kg	15,000	63,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
Bromodichloromethane	ug/kg	290	1,300	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
Carbon disulfide	ug/kg	77,000	350,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**3.9 J**	6 U	4.4 U	3.9 U	4.3 U	**2.9 J**	3.6 U	4.5 U	**3 J**
Chlorobenzene	ug/kg	28,000	130,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
Dibromomethane	ug/kg	2,400	9,900	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	**1 J**
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
Ethylbenzene	ug/kg	5,800	25,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
Isopropylbenzene	ug/kg	190,000	990,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
m,p-Xylene	ug/kg	58,000	250,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	52 U	39 U	42 U	38 UJ	41 UJ	39 U	50 U	44 U	NA	64 U	60 U	44 U	39 U	43 U	41 U	36 U	45 U	34 U
Naphthalene	ug/kg	3,800	17,000	NA	26 U	20 U	21 U	19 UJ	20 UJ	19 U	25 U	22 U	NA	**1.1 J**	30 U	22 U	19 U	21 U	21 U	18 U	22 U	**0.53 J**
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
n-Propylbenzene	ug/kg	380,000	2,400,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
o-Xylene	ug/kg	65,000	280,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
Styrene	ug/kg	600,000	3,500,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	**0.34 J**
Toluene	ug/kg	490,000	4,700,000	NA	5.2 U	**0.41 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**0.61 J**	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	**0.99 J**
Xylene (total)	ug/kg	58,000	250,000	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U
Semivolatiles																						
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	**19 J**	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	**3.5 J**	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	**68 J**	**1.7 J**	35 U	34 U	35 U	36 U	37 U	35 U	NA	**2.2 J**	38 U	36 U	**7.5 J**	34 U	34 U	35 U	38 U	36 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U
2-Methylnaphthalene	ug/kg	24,000	300,000	NA	**10 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	7.2 U	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U
Acenaphthene	ug/kg	360,000	4,500,000	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	7.2 U	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Acenaphthylene	ug/kg	NS	NS	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**1.6 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-707									SB-708									
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	16 - 18	22 - 24	28 - 30	33 - 34
			Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19
			Sample ID	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107	OC-SB-708-0.0/10-XXX-20191104	OC-SB-708-0.0/2.0-XXX-20191104	OC-SB-708-2.0/4.0-XXX-20191104	OC-SB-708-4.0/6.0-XXX-20191104	OC-SB-708-6.0/8.0-XXX-20191104	OC-SB-708-8.0/10-XXX-20191104	OC-SB-708-16/18-XXX-20191104	OC-SB-708-22/24-XXX-20191104	OC-SB-708-28/30-XXX-20191104	OC-SB-708-33/34-XXX-20191104
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/ Comm.**																			
Acetophenone	ug/kg	780,000	12,000,000	NA	330 U	73 U	72 U	69 U	71 U	72 U	75 U	71 U	NA	**3.4 J**	77 U	74 U	71 U	70 U	69 U	72 U	78 U	72 U
Aniline	ug/kg	44,000	400,000	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	**17 J**	34 U	34 U	35 U	38 U	36 U
Anthracene	ug/kg	1,800,000	23,000,000	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**2.6 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Azobenzene	ug/kg	5,600	26,000	NA	410 U	360 U	360 U	350 U	350 U	360 U	370 U	350 U	NA	360 U	380 U	360 U	340 U	330 U	350 U	360 U	380 U	350 U
Benzaldehyde	ug/kg	170,000	820,000	NA	R	R	R	R	R	R	R	R	NA	R	R	R	R	R	R	R	R	R
Benzo(a)anthracene	ug/kg	1,100	21,000	NA	**17 J**	**1.4 J**	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**10**	**1.7 J**	7.4 U	**1.6 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Benzo(a)pyrene	ug/kg	110	2,100	NA	**11 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**8.5**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	NA	**22 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**17**	7.7 U	7.4 U	**2.1 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	NA	**16 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**6.7 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**4.5 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	NA	820 U	190 U	180 U	R	R	180 U	190 U	180 U	NA	180 U	190 U	190 U	180 U	180 U	180 U	180 U	200 U	180 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	**2.9 J**
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	NA	**8,100**	**500**	**2,400**	340 U	350 U	360 U	370 U	350 U	NA	**500**	**72 J**	**57 J**	**2,900**	340 U	340 U	350 U	380 U	360 U
Carbazole	ug/kg	NS	NS	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**1.9 J**	7.7 U	7.4 U	**2.2 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Chrysene	ug/kg	110,000	2,100,000	NA	**19 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**16**	**2.1 J**	7.4 U	**2.7 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**2.7 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Dibenzofuran	ug/kg	7,300	100,000	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	**20 J**	**25 J**	35 U	34 U	34 U	35 U	38 U	36 U
Dimethylphthalate	ug/kg	NS	NS	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	**18 J**	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	NA	160 U	36 U	**23 J**	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U
Fluoranthene	ug/kg	240,000	3,000,000	NA	**21 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**9.8**	**2.8 J**	7.4 U	**3.1 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Fluorene	ug/kg	240,000	3,000,000	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	7.2 U	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	NA	**17 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**5.9 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Naphthalene	ug/kg	3,800	17,000	NA	**7.3 J**	7.3 U	7.2 U	6.9 U	**1.6 J**	7.2 U	7.5 U	7.1 U	NA	**5 J**	**1.9 J**	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	**8.4 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	7.2 U	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	NA	**510**	**18 J**	35 U	34 U	35 U	36 U	37 U	35 U	NA	**100**	38 U	36 U	**280**	34 U	34 U	35 U	38 U	36 U
Phenanthrene	ug/kg	NS	NS	NA	**16 J**	**3.3 J**	**2.6 J**	**2.5 J**	**2.1 J**	7.2 U	7.5 U	7.1 U	NA	**7.3**	**2.9 J**	**2.3 J**	**2.3 J**	7 U	6.9 U	7.2 U	**2.8 J**	7.2 U
Phenol	ug/kg	1,900,000	25,000,000	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	**13 J**	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U
Pyrene	ug/kg	180,000	2,300,000	NA	**31 J**	**1.7 J**	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**10**	**2.9 J**	7.4 U	**4.1 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U
Metals																						
Aluminum	mg/kg	7,700	110,000	NA	**8,300**	**14,000**	**6,400**	**7,400 J+**	**8,200 J+**	**7,700**	**14,000**	**2,700**	NA	**8,600**	**5,200**	**11,000**	**7,300**	**12,000**	**9,500**	**8,800**	**2,300**	**4,800**
Antimony	mg/kg	3.1	47	NA	**1 J**	**1.2 J**	15 U	**0.65 J-**	**0.62 J-**	**0.5 J**	**1 J**	17 U	NA	**0.72 J**	18 U	**1.1 J**	16 U	**0.57 J**	**0.77 J**	**0.91 J**	17 U	16 U
Arsenic	mg/kg	0.68	3	NA	**33**	**29**	**5**	**3.6**	**3.5**	**2.4**	**3.7**	**1.4 J**	NA	**17**	**6.3**	**16**	**2.9**	**3.2**	**3.8**	**2.3**	**0.75 J**	**1.2 J**
Barium	mg/kg	1,500	22000	NA	**28**	**55**	**16**	**26**	**26**	**25**	**60**	**15**	NA	**54**	**16**	**47**	**23**	**45**	**15 J+**	**58**	**15**	**23**
Beryllium	mg/kg	16	230	NA	**0.38**	**0.62**	**0.32**	**0.4**	**0.38**	**0.38**	**0.48**	**0.14 J**	NA	**0.43**	**0.24**	**0.34**	**0.34**	**0.52**	**0.36**	**0.27**	**0.085 J**	**0.16 J**
Cadmium	mg/kg	7.1	98	NA	**0.18 J**	0.22 U	**0.051 J**	0.22 U	0.21 U	0.23 U	0.23 U	0.22 U	NA	**0.035 J**	**0.16 J**	**0.036 J**	**0.2 J**	**0.14 J**	0.21 U	0.22 U	0.23 U	0.22 U
Calcium	mg/kg	NS	NS	NA	**12,000**	**3,700**	**7,000**	**2,400**	**2,700**	**3,300**	**4,400**	**950**	NA	**7,900**	**2,400**	**2,300**	**3,700**	**2,900**	**1,200 J+**	**2,300**	**910**	**1,500**
Chromium	mg/kg	12,000	180000	NA	**79**	**44**	**120**	**83 J-**	**84 J-**	**72**	**170**	**100**	NA	**26**	**40**	**40**	**18**	**31**	**150 J-**	**270**	**140**	**400**
Chromium-Hexavalent	mg/kg	0.3	**6.3**	NA	**2.7**	**1**	**7.6**	**3.4**	**2.9**	**4.2**	**5.5**	**5.5**	NA	**4.9**	**0.7**	**0.76**	**0.72**	**0.8**	**2.6**	**11.4**	**7.9**	**6**
Cobalt	mg/kg	2.3	35	NA	**5.7**	**13**	**3.2**	**3.2**	**3.7**	**3.8**	**6.2**	**1.2**	NA	**5.8**	**2.8**	**7.4**	**2.9**	**6.6**	**5.6**	**4**	**0.87**	**2.4**
Copper	mg/kg	310	4700	NA	**11**	**22**	**12**	**11**	**11**	**9.6**	**13**	**3.9**	NA	**11**	**5.2**	**15**	**10**	**17**	**15 J-**	**9**	**2**	**9.3**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-707									SB-708									
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	16 - 18	22 - 24	28 - 30	33 - 34
			Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19
			Sample ID	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107	OC-SB-708-0.0/10-XXX-20191104	OC-SB-708-0.0/2.0-XXX-20191104	OC-SB-708-2.0/4.0-XXX-20191104	OC-SB-708-4.0/6.0-XXX-20191104	OC-SB-708-6.0/8.0-XXX-20191104	OC-SB-708-8.0/10-XXX-20191104	OC-SB-708-16/18-XXX-20191104	OC-SB-708-22/24-XXX-20191104	OC-SB-708-28/30-XXX-20191104	OC-SB-708-33/34-XXX-20191104
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/ Comm.**																			
Iron	mg/kg	5,500	82000	NA	**16,000**	**19,000**	**7,700**	**9,500**	**10,000**	**7,800**	**16,000**	**4,500**	NA	**11,000**	**5,700**	**16,000**	**6,900**	**12,000**	**14,000**	**15,000**	**9,200**	**7,200**
Lead	mg/kg	400	800	NA	**11**	**14**	**4.8**	**5.5**	**5.4**	**4.3**	**9.2**	**1.7**	NA	**7.5**	**4.4**	**7.2**	**4.5**	**6.2**	**3**	**5.4**	**2**	**2.3**
Magnesium	mg/kg	NS	NS	NA	**3,000**	**6,400**	**3,200**	**2,500**	**2,900**	**2,500**	**4,900**	**960**	NA	**3,200**	**1,700**	**7,300**	**2,100**	**3,800**	**5,200 J-**	**4,100**	**1,000**	**2,500**
Manganese	mg/kg	180	2600	NA	**110**	**310**	**150**	**160 J+**	**180 J+**	**120**	**170**	**36**	NA	**170**	**77**	**190**	**110**	**140**	**100 J-**	**140**	**42**	**90**
Mercury	mg/kg	1.1	4.6	NA	**0.042**	0.022 U	**0.0086 J**	0.022 U	0.021 U	0.021 U	**0.02 J**	**0.011 J**	NA	**0.016 J**	**0.012 J**	0.022 U	0.019 U	0.019 U	0.022 U	0.021 U	0.021 U	**0.012 J**
Nickel	mg/kg	150	2200	NA	**15**	**40**	**13**	**8.9**	**10**	**9.8**	**19**	**3.2 J**	NA	**18**	**9.5**	**33**	**9**	**19**	**17**	**12**	**2.8 J**	**8.6**
Potassium	mg/kg	NS	NS	NA	**890**	**2,700**	**750**	**1,400**	**1,700**	**1,300**	**2,600**	**710**	NA	**1,700**	**780**	**2,800**	**1,100**	**2,400**	**1,000 J+**	**3,000**	**1,700**	**1,400**
Selenium	mg/kg	39	580	NA	5 U	4.4 U	4.1 U	4.4 U	4.2 U	4.5 U	4.5 U	4.5 U	NA	4.2 U	4.7 U	4.6 U	4.4 U	4.1 U	**1.3 J**	**0.61 J**	4.6 U	4.3 U
Sodium	mg/kg	NS	NS	NA	**86 J**	**170**	**130 J**	**240**	**310**	**370**	**470**	**110 J**	NA	**200**	**63 J**	**160**	**86 J**	**470**	**81 J**	**300**	**230**	**380**
Tin	mg/kg	4,700	70000	NA	**0.61 J**	**0.84 J**	2.1 U	**0.57 J**	**0.57 J**	**0.5 J**	**0.85 J**	2.2 U	NA	**0.65 J**	2.4 U	**0.59 J**	**0.52 J**	**0.96 J**	2.1 U	**0.68 J**	2.3 U	2.2 U
Vanadium	mg/kg	39	580	NA	**19**	**33**	**15**	**17 J**	**19 J**	**15**	**32**	**8.6**	NA	**18**	**9.9**	**28**	**17**	**36**	**31 J-**	**33**	**9.1**	**16**
Zinc	mg/kg	2,300	35000	NA	**28**	**43**	**16**	**21**	**23**	**15**	**40**	**7.8**	NA	**22**	**17**	**35**	**23**	**37**	**23**	**26**	**7.2**	**15**
General Chemistry																						
Ammonia	mg/kg	NS	NS	NA	**6**	**13**	**6.5**	**5.6 J-**	**5.5 J-**	**7.5**	**17**	**18**	NA	7.3 U	**18**	6.6 U	**15**	9.9 U	**8.5**	**17**	**62**	**150**
Chloride	mg/kg	NS	NS	NA	**5.2 J**	11 UJ	11 UJ	**4.1 J**	**5.6 J**	**9.9 J**	11 U	11 U	NA	11 UJ	12 UJ	11 UJ	10 UJ	10 UJ	11 UJ	**7.2 J**	**70 J**	**210 J**
pH	S.U.	NS	NS	**7.4 J**	NA	NA	NA	NA	NA	NA	NA	NA	**5.8 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	**170 J**	**2,100 J**	**7,100 J**	**130 J**	**150**	**190**	**53**	**46**	NA	**430 J**	**590 J**	**190 J**	**1,800 J**	**57 J**	**35 J**	**100 J**	**460 J**	**1,200 J**
Other Analyses																						
Dimethylformamide	ug/kg	260,000	1500000	NA	170 U	220 U	160 U	150 U	160 U	140 U	190 U	180 U	NA	200 U	210 U	180 U	210 U	210 U	190 U	220 U	230 U	190 U
Formaldehyde	ug/kg	11,000	50000	NA	**3,200 J**	2,200 UJ	2,200 UJ	**1,300 J**	2,100 UJ	**1,500 J**	2,300 UJ	2,100 UJ	NA	2,200 UJ	2,400 UJ	2,200 UJ	2,100 UJ	2,100 UJ	2,100 UJ	2,200 UJ	2,300 UJ	**1,900 J**
Hydrazine	ug/kg	32	140	NA	**5.6 J**	**2 J**	**9.3**	**2.7 J**	**2.6 J**	**1.7 J**	6.3 U	5.4 U	NA	**6.4**	5.9 U	5.5 U	5.5 U	5.3 UJ	5.6 UJ	**2.4 J**	**1.5 J**	5.9 UJ

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	**SB-709**									**SB-710**							
			Depth Interval (ft)	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**		**16 - 17**	**32 - 33**	**0 - 10**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**23 - 24**	**36 - 37**
			Sample Date	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**		**11/06/19**	**11/06/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/05/19**	**11/05/19**
			Sample ID	**OC-SB-709-0.0/10-XXX-20191106**	**OC-SB-709-0.0/2.0-XXX-20191106**	**OC-SB-709-2.0/4.0-XXX-20191106**	**OC-SB-709-4.0/6.0-XXX-20191106**	**OC-SB-709-6.0/8.0-XXX-20191106**	**OC-SB-709-8.0/10-XXX-20191106**	**OC-SB-709-8.0/10-DUP-20191106**	**OC-SB-709-16/17-XXX-20191106**	**OC-SB-709-32/33-XXX-20191106**	**OC-SB-710-0.0/10XXX-20191104**	**OC-SB-710-2.0/4.0-XXX-20191104**	**OC-SB-710-4.0/6.0-XXX-20191104**	**OC-SB-710-6.0/8.0-XXX-20191104**	**OC-SB-710-8.0/10-XXX-20191104**	**OC-SB-710-23/24-XXX-20191105**	**OC-SB-710-36/37-XXX-20191105**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 Direct Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/ Comm.**																
Volatiles																			
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	4.4 U	**0.52 J**	**0.89 J**	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,2-Dichloroethane	ug/kg	460	2,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	**0.47 J**
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	**0.28 J**	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	**0.35 J**	3.7 U	5.2 U	4.6 U	3.7 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
2,4,4-trimethyl-1-Pentene	ug/kg	NS	NS	NA	4.4 U	**3 J**	**2.7 J**	4.5 U	3.7 U	4.9 U	**1.2 J**	4.2 U	NA	**7.1**	**35**	**3.9**	**0.81 J**	4.6 U	3.7 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NA	4.4 U	**1.2 J**	**0.77 J**	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	**1.4 J**	**18**	**1.8 J**	5.2 U	4.6 U	3.7 U
2-Butanone	ug/kg	2,700,000	19,000,000	NA	22 U	**9.5 J**	**16 J+**	23 U	18 U	25 U	22 U	21 U	NA	24 U	**7 J+**	**18 J+**	26 U	23 U	19 U
4-Isopropyltoluene	ug/kg	NS	NS	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Acetone	ug/kg	6,100,000	67,000,000	NA	**5.8 J**	**33 J**	**77 J**	**22 J**	**11 J-**	**10 J-**	**17 J**	**9.7 J**	NA	**15 J**	**30 J**	**30 J**	**8.3 J**	230 U	**14 J**
Benzene	ug/kg	1,200	5,100	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Bromochloromethane	ug/kg	15,000	63,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Bromodichloromethane	ug/kg	290	1,300	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Carbon disulfide	ug/kg	77,000	350,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	**5.7**	**2.7 J**	5.2 U	4.6 U	3.7 U
Chlorobenzene	ug/kg	28,000	130,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Dibromomethane	ug/kg	2,400	9,900	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Ethylbenzene	ug/kg	5,800	25,000	NA	**0.42 J**	**0.27 J**	**0.33 J**	4.5 U	**0.29 J**	**0.57 J**	**0.54 J**	**0.38 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Isopropylbenzene	ug/kg	190,000	990,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
m,p-Xylene	ug/kg	58,000	250,000	NA	**1.4 J**	**0.75 J**	**1.1 J**	**0.76 J**	**0.88 J**	**1.7 J**	**1.9 J**	**1.3 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	44 U	39 U	44 U	45 U	37 UJ	49 UJ	44 U	42 U	NA	48 U	37 U	37 U	52 U	46 U	37 U
Naphthalene	ug/kg	3,800	17,000	NA	22 U	19 U	22 U	23 U	18 UJ	25 UJ	22 U	21 U	NA	24 U	18 U	19 U	26 U	23 U	19 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
n-Propylbenzene	ug/kg	380,000	2,400,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
o-Xylene	ug/kg	65,000	280,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Styrene	ug/kg	600,000	3,500,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Toluene	ug/kg	490,000	4,700,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	**0.29 J**	3.7 U	5.2 U	4.6 U	3.7 U
Xylene (total)	ug/kg	58,000	250,000	NA	**1.4 J**	**0.75 J**	**1.1 J**	**0.76 J**	**0.88 J**	**1.7 J**	**1.9 J**	**1.3 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Semivolatiles																			
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	**4.4 J**	**10 J**	**7 J**	**3.4 J**	39 U	38 U	35 U	36 U	NA	42 U	**4.4 J**	37 U	36 U	40 U	35 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	**3.9 J**	**23 J**	**14 J**	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	39 U	110 U	**3.9 J**	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
2-Methylnaphthalene	ug/kg	24,000	300,000	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Acenaphthene	ug/kg	360,000	4,500,000	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Acenaphthylene	ug/kg	NS	NS	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-709									SB-710						
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10		16 - 17	32 - 33	0 - 10	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	36 - 37
			Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19		11/06/19	11/06/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/05/19	11/05/19
			Sample ID	OC-SB-709-0.0/10-XXX-20191106	OC-SB-709-0.0/2.0-XXX-20191106	OC-SB-709-2.0/4.0-XXX-20191106	OC-SB-709-4.0/6.0-XXX-20191106	OC-SB-709-6.0/8.0-XXX-20191106	OC-SB-709-8.0/10-XXX-20191106	OC-SB-709-8.0/10-DUP-20191106	OC-SB-709-16/17-XXX-20191106	OC-SB-709-32/33-XXX-20191106	OC-SB-710-0.0/10XXX-20191104	OC-SB-710-2.0/4.0-XXX-20191104	OC-SB-710-4.0/6.0-XXX-20191104	OC-SB-710-6.0/8.0-XXX-20191104	OC-SB-710-8.0/10-XXX-20191104	OC-SB-710-23/24-XXX-20191105	OC-SB-710-36/37-XXX-20191105
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/ Comm.																
Acetophenone	ug/kg	780,000	12,000,000	NA	4.1 J	230 U	8.3 J	77 U	78 U	77 U	72 U	72 U	NA	85 U	75 U	75 U	73 U	82 U	72 U
Aniline	ug/kg	44,000	400,000	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Anthracene	ug/kg	1,800,000	23,000,000	NA	8 U	23 U	2.3 J	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Azobenzene	ug/kg	5,600	26,000	NA	390 U	380 U	380 U	380 U	380 U	380 U	360 U	350 U	NA	420 U	370 U	370 U	350 U	400 U	360 U
Benzaldehyde	ug/kg	170,000	820,000	NA	R	R	R	R	R	R	R	R	NA	R	R	R	R	R	R
Benzo(a)anthracene	ug/kg	1,100	21,000	NA	9.4	26	8.5	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	3.8 J	5.7 J	7.5 U	7.3 U	8.2 U	7.2 U
Benzo(a)pyrene	ug/kg	110	2,100	NA	8.9	22 J	7.5 J	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	4.4 J	4.7 J	7.5 U	7.3 U	8.2 U	7.2 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	NA	12	28	13	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	6.3 J	5.8 J	7.5 U	7.3 U	8.2 U	7.2 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	NA	7.4 J	13 J	6.5 J	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	4.1 J	3.2 J	7.5 U	7.3 U	8.2 U	7.2 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	NA	5.2 J	11 J	4.3 J	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	NA	200 U	580 U	200 U	190 U	R	R	180 U	180 U	NA	220 U	190 U	190 U	190 U	210 U	180 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	160,000	NA	940	6,300	6,900	6,700	390 U	380 U	50 J	360 U	NA	300 J	1,000	370 U	120 J	400 U	350 U
Carbazole	ug/kg	NS	NS	NA	8 U	5.7 J	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Chrysene	ug/kg	110,000	2,100,000	NA	12	27	12	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	5.9 J	5.8 J	7.5 U	7.3 U	8.2 U	7.2 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	NA	2.1 J	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Dibenzofuran	ug/kg	7,300	100,000	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Dimethylphthalate	ug/kg	NS	NS	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	NA	39 U	72 J	29 J	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	NA	61	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Fluoranthene	ug/kg	240,000	3,000,000	NA	14	35	16	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	6.7 J	10	7.5 U	7.3 U	8.2 U	7.2 U
Fluorene	ug/kg	240,000	3,000,000	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	NA	6.3 J	13 J	6.5 J	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	3.8 J	2.9 J	7.5 U	7.3 U	8.2 U	7.2 U
Naphthalene	ug/kg	3,800	17,000	NA	5 J	6.7 J	3.7 J	7.7 U	7.8 U	2.3 J	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	NA	49	1,600	450	27 J	39 U	38 U	35 U	36 U	NA	35 J	62	37 U	36 U	40 U	35 U
Phenanthrene	ug/kg	NS	NS	NA	8.3	15 J	9.3	2.5 J	3.6 J	2.1 J	7.2 U	7.2 U	NA	3.9 J	7.9	7.5 U	2.2 J	8.2 U	7.2 U
Phenol	ug/kg	1,900,000	25,000,000	NA	80	53 J	340	38 U	39 U	38 U	35 U	36 U	NA	42 U	11 J	37 U	36 U	40 U	35 U
Pyrene	ug/kg	180,000	2,300,000	NA	14	34	16	1.8 J	7.8 U	7.7 U	7.2 U	7.2 U	NA	6.6 J	8.9	7.5 U	7.3 U	8.2 U	7.2 U
Metals																			
Aluminum	mg/kg	7,700	110,000	NA	8,400	5,200	7,500	5,000	10,000	8,300	9,700	12,000	NA	7,300	5,800	2,100	6,500	3,900	12,000
Antimony	mg/kg	3.1	47	NA	19 U	18 U	17 U	18 U	18 U	16 U	16 U	17 U	NA	19 U	0.56 J	17 U	17 U	19 U	1.2 J
Arsenic	mg/kg	0.68	3	NA	7.6	5.6	6	3.8	7	4.8	4.2	0.97 J	NA	10	9.2	2.1 J	2 J	8.9	8.4
Barium	mg/kg	1,500	22000	NA	49 J	13 J	21 J	12 J	49 J-	46 J-	81 J	53 J	NA	43	24	14	14	26	46
Beryllium	mg/kg	16	230	NA	0.3	0.18 J	0.25 J	0.22 J	0.52	0.36 J	0.28 J	2.2 U	NA	0.32	0.21 J	0.08 J	0.27	0.17 J	0.35
Cadmium	mg/kg	7.1	98	NA	0.13 J	0.6 J	0.29 J	0.24 U	0.24 U	0.22 U	0.22 U	0.22 U	NA	0.1 J	0.05 J	0.04 J	1.9	0.25 U	0.21 U
Calcium	mg/kg	NS	NS	NA	11,000	4,600	4,200	550	2,200	1,500	2,800	8,700	NA	11,000	2,800	1,100	950	1,500	6,400
Chromium	mg/kg	12,000	180000	NA	63	29	39	420	21	17	44	420	NA	140	41	10	12	310	740
Chromium-Hexavalent	mg/kg	0.3	6.3	NA	2.2	1.2	1.7	8	0.74	0.7	3.9	6.7	NA	2	1.2	0.79	0.61	8.5	7.3
Cobalt	mg/kg	2.3	35	NA	3.7	2.6	4.6	2.1	6.6	6.5	6.8	13	NA	4.6	3.7	0.79	3.2	2.1	15
Copper	mg/kg	310	4700	NA	7.7	4.8	11	5	11	9.2	9	29	NA	14	7.5	3.8	8.6	7	25

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-709									SB-710						
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10		16 - 17	32 - 33	0 - 10	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	36 - 37
			Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19		11/06/19	11/06/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/05/19	11/05/19
			Sample ID	OC-SB-709-0.0/10-XXX-20191106	OC-SB-709-0.0/2.0-XXX-20191106	OC-SB-709-2.0/4.0-XXX-20191106	OC-SB-709-4.0/6.0-XXX-20191106	OC-SB-709-6.0/8.0-XXX-20191106	OC-SB-709-8.0/10-XXX-20191106	OC-SB-709-8.0/10-DUP-20191106	OC-SB-709-16/17-XXX-20191106	OC-SB-709-32/33-XXX-20191106	OC-SB-710-0.0/10XXX-20191104	OC-SB-710-2.0/4.0-XXX-20191104	OC-SB-710-4.0/6.0-XXX-20191104	OC-SB-710-6.0/8.0-XXX-20191104	OC-SB-710-8.0/10-XXX-20191104	OC-SB-710-23/24-XXX-20191105	OC-SB-710-36/37-XXX-20191105
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/ Comm.**																
Iron	mg/kg	5,500	82000	NA	**10,000**	**5,900**	**8,100**	**5,300**	**13,000**	**9,900**	**15,000**	**21,000**	NA	**9,900**	**8,700**	**3,200**	**5,300**	**11,000**	**26,000**
Lead	mg/kg	400	800	NA	**8.2**	**5**	**6.2**	**5.7**	**7.1**	**5.7**	**4.7**	**5.7**	NA	**7.4**	**4.4**	**1.9**	**4.8**	**4.9**	**5.6**
Magnesium	mg/kg	NS	NS	NA	**3,100**	**1,400**	**2,600**	**1,300**	**3,300 J-**	**3,000 J-**	**4,500**	**10,000**	NA	**3,000**	**3,000**	**840**	**1,900**	**1,400**	**11,000**
Manganese	mg/kg	180	2600	NA	**150**	**53**	**100**	**45**	**130 J-**	**120 J-**	**200**	**270**	NA	**170**	**130**	**47**	**69**	**72**	**290**
Mercury	mg/kg	1.1	4.6	NA	**0.022 J**	**0.042**	**0.041**	**0.014 J**	0.024 U	0.021 U	0.022 U	0.021 U	NA	**0.021 J**	**0.01 J**	0.022 U	0.02 U	0.025 U	**0.0093 J**
Nickel	mg/kg	150	2200	NA	**10**	**7.4**	**14**	**7.1**	**13**	**14**	**14**	**60**	NA	**14**	**14**	**2.5 J**	**10**	**7.1**	**39**
Potassium	mg/kg	NS	NS	NA	**1,000**	**540**	**1,000**	**580**	**1,600**	**1,800**	**3,500**	**2,700**	NA	**1,700**	**1,200**	**650**	**810**	**1,900**	**2,300**
Selenium	mg/kg	39	580	NA	5 U	4.7 U	4.5 U	4.9 U	4.9 U	4.4 U	4.3 U	4.4 U	NA	5.2 U	4.7 U	4.5 U	**0.57 J**	5.1 U	**0.58 J**
Sodium	mg/kg	NS	NS	NA	170 U	160 U	160 U	170 U	**150 J**	150 U	**160**	**870**	NA	**250**	**130 J**	**81 J**	**110 J**	**380**	**1,300**
Tin	mg/kg	4,700	70000	NA	2.5 U	**0.5 J**	**0.62 J**	2.4 U	**0.77 J**	**0.5 J**	**0.47 J**	**0.57 J**	NA	**0.74 J**	**0.51 J**	2.2 U	2.2 U	**0.55 J**	**0.75 J**
Vanadium	mg/kg	39	580	NA	**16**	**10**	**16**	**8.2**	**23**	**18**	**28**	**53**	NA	**18**	**13**	**5.2**	**9.9**	**16**	**60**
Zinc	mg/kg	2,300	35000	NA	**21**	**18**	**20**	**17**	**28 J-**	**24 J-**	**35**	**39**	NA	**28**	**19**	**6.4**	**21**	**12**	**46**
General Chemistry																			
Ammonia	mg/kg	NS	NS	NA	**4.1 J**	**7.6**	**15**	**3.5 J**	**6.7 J**	**14 J**	**8.6**	**150**	NA	**15**	**12**	**18**	**14**	**52**	**58**
Chloride	mg/kg	NS	NS	NA	12 U	11 U	12 U	**17**	12 U	11 U	11 U	11 U	NA	**19 J**	**6.9 J**	11 UJ	11 UJ	**57 J**	**670 J**
pH	S.U.	NS	NS	**6.3 J**	NA	NA	NA	NA	NA	NA	NA	NA	**5.5 J**	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	**1,300**	**12,000**	**63**	**150**	**110**	**140**	**890**	**320**	NA	**3,900 J**	**6,400 J**	**170 J**	**71 J**	**1,100 J**	**3,700 J**
Other Analyses																			
Dimethylformamide	ug/kg	260,000	1500000	NA	200 U	210 U	200 U	190 U	180 U	180 U	180 U	200 U	NA	230 U	210 U	200 U	220 U	230 U	200 U
Formaldehyde	ug/kg	11,000	50000	NA	2,400 U	**2,100 J**	**2,900 J**	2,400 UJ	2,300 UJ	2,300 UJ	**3,300 J**	**2,300 J**	NA	**2,000 J**	**4,000 J**	**11,000 J**	2,200 UJ	2,500 UJ	**3,700 J**
Hydrazine	ug/kg	32	140	NA	6.1 U	5.8 U	6.9 U	5.7 U	5.7 UJ	5.6 UJ	**4.9 J**	5.4 U	NA	5.7 UJ	**1.8 J**	**1.6 J**	**1.8 J**	**1.7 J**	**1.9 J**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-711								SB-712								
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	18 - 19	35 - 36	0 - 10		0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	37 - 38
			Sample Date	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
			Sample ID	OC-SB-711-0.0/10-XXX-20191112	OC-SB-711-0.0/2.0-XXX-20191112	OC-SB-711-2.0/4.0-XXX-20191112	OC-SB-711-4.0/6.0-XXX-20191112	OC-SB-711-6.0/8.0-XXX-20191112	OC-SB-711-8.0/10-XXX-20191112	OC-SB-711-18/19-XXX-20191112	OC-SB-711-35/36-XXX-20191112	OC-SB-712-0.0/10-XXX-20191111	OC-SB-712-0.0/10-DUP-20191111	OC-SB-712-0.0/2.0-XXX-20191111	OC-SB-712-2.0/4.0-XXX-20191111	OC-SB-712-4.0/6.0-XXX-20191111	OC-SB-712-6.0/8.0-XXX-20191111	OC-SB-712-8.0/10-XXX-20191111	OC-SB-712-23/24-XXX-20191111	OC-SB-712-37/38-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/ Comm.																	
Volatiles																				
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2-Dichloroethane	ug/kg	460	2,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
2,4,4-trimethyl-1-Pentene	ug/kg	NS	NS	NA	**1.7 J**	**3,200**	**8,000**	**4 J**	1,200 U	4 U	3.8 U	NA	NA	4.6 U	**2 J**	**4 J**	**8.6**	**2.4 J**	4.2 U	4.3 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NA	**1.3 J**	**2,600**	**6,300**	**2 J**	1,200 U	4 U	3.8 U	NA	NA	4.6 U	**0.67 J**	**1.5 J**	**3.3 J**	**0.59 J**	4.2 U	4.3 U
2-Butanone	ug/kg	2,700,000	19,000,000	NA	30 U	9,300 U	5,200 U	**5.7 J+**	6,100 U	20 U	19 U	NA	NA	23 U	**6.9 J+**	26 U	22 U	21 U	21 U	21 U
4-Isopropyltoluene	ug/kg	NS	NS	NA	5.9 U	1,900 U	**420 J**	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	**0.45 J**	4.4 U	4.2 U	4.2 U	4.3 U
Acetone	ug/kg	6,100,000	67,000,000	NA	300 U	93,000 U	52,000 U	240 UJ	61,000 U	200 U	190 U	NA	NA	230 U	220 U	260 U	220 U	210 U	210 U	210 U
Benzene	ug/kg	1,200	5,100	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	**0.49 J**	4.2 U	4.2 U	4.3 U
Bromochloromethane	ug/kg	15,000	63,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Bromodichloromethane	ug/kg	290	1,300	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Carbon disulfide	ug/kg	77,000	350,000	NA	5.9 U	1,900 U	1,000 U	**3.3 J**	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Chlorobenzene	ug/kg	28,000	130,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Dibromomethane	ug/kg	2,400	9,900	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Ethylbenzene	ug/kg	5,800	25,000	NA	5.9 U	1,900 U	**370 J**	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Isopropylbenzene	ug/kg	190,000	990,000	NA	5.9 U	1,900 U	**200 J**	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
m,p-Xylene	ug/kg	58,000	250,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	59 U	19,000 U	**330 J**	47 U	12,000 U	40 U	38 U	NA	NA	46 U	43 U	53 U	44 U	42 U	42 U	43 U
Naphthalene	ug/kg	3,800	17,000	NA	30 U	9,300 U	**150 J**	24 U	6,100 U	20 U	19 U	NA	NA	23 U	22 U	**0.9 J**	22 U	21 U	21 U	21 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
n-Propylbenzene	ug/kg	380,000	2,400,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
o-Xylene	ug/kg	65,000	280,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Styrene	ug/kg	600,000	3,500,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Toluene	ug/kg	490,000	4,700,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Xylene (total)	ug/kg	58,000	250,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Semivolatiles																				
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	**7.1 J**	**75**	**14,000**	38 U	43 U	35 U	36 U	NA	NA	**9.7 J**	**1.7 J**	**3.4 J**	110 U	36 U	36 U	35 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	**2.8 J**	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	**5.2 J**	36 U	36 U	35 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	40 U	**12 J**	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
2-Methylnaphthalene	ug/kg	24,000	300,000	NA	8 U	15 U	190 U	7.6 U	**2.7 J**	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**2.3 J**	22 U	7.4 U	7.3 U	7.2 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Acenaphthene	ug/kg	360,000	4,500,000	NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	7.5 U	**17 J**	7.4 U	7.3 U	7.2 U
Acenaphthylene	ug/kg	NS	NS	NA	**1.8 J**	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**4.7 J**	**6.3 J**	7.4 U	7.3 U	7.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-711								SB-712								
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	18 - 19	35 - 36	0 - 10		0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	37 - 38
			Sample Date	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
			Sample ID	OC-SB-711-0.0/10-XXX-20191112	OC-SB-711-0.0/2.0-XXX-20191112	OC-SB-711-2.0/4.0-XXX-20191112	OC-SB-711-4.0/6.0-XXX-20191112	OC-SB-711-6.0/8.0-XXX-20191112	OC-SB-711-8.0/10-XXX-20191112	OC-SB-711-18/19-XXX-20191112	OC-SB-711-35/36-XXX-20191112	OC-SB-712-0.0/10-XXX-20191111	OC-SB-712-0.0/10-DUP-20191111	OC-SB-712-0.0/2.0-XXX-20191111	OC-SB-712-2.0/4.0-XXX-20191111	OC-SB-712-4.0/6.0-XXX-20191111	OC-SB-712-6.0/8.0-XXX-20191111	OC-SB-712-8.0/10-XXX-20191111	OC-SB-712-23/24-XXX-20191111	OC-SB-712-37/38-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/ Comm.																	
Acetophenone	ug/kg	780,000	12,000,000	NA	80 U	150 U	1,900 U	76 U	87 U	72 U	73 U	NA	NA	400 U	73 U	**4.4 J**	220 U	74 U	73 U	72 U
Aniline	ug/kg	44,000	400,000	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Anthracene	ug/kg	1,800,000	23,000,000	NA	**6.3 J**	**4.3 J**	**60 J**	7.6 U	8.7 U	**2 J**	**2.3 J**	NA	NA	40 U	**2.6 J**	**4.3 J**	**36**	7.4 U	7.3 U	7.2 U
Azobenzene	ug/kg	5,600	26,000	NA	400 U	1,800 U	7,500 U	1,900 U	420 U	350 U	350 U	NA	NA	390 U	360 U	370 U	1,800 U	360 U	360 U	360 U
Benzaldehyde	ug/kg	170,000	820,000	NA	R	150 U	1,900 U	76 U	87 U	72 U	73 U	NA	NA	400 U	73 U	**6.7 J**	220 U	74 U	73 U	72 U
Benzo(a)anthracene	ug/kg	1,100	21,000	NA	**22**	**9.9 J**	190 U	7.6 U	**2.2 J**	**9.7**	**10**	NA	NA	**11 J**	**7.6**	**20**	**72**	7.4 U	7.3 U	7.2 U
Benzo(a)pyrene	ug/kg	110	2,100	NA	**17**	15 U	190 U	7.6 U	8.7 U	**4.9 J**	**6 J**	NA	NA	40 U	**9.5**	**23**	**67**	7.4 U	7.3 U	7.2 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	NA	**25**	**19**	190 U	7.6 U	8.7 U	**5.7 J**	**7.9**	NA	NA	**14 J**	**12**	**39**	**68**	7.4 U	7.3 U	7.2 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	NA	**11**	15 U	190 U	7.6 U	8.7 U	**2.1 J**	**3.2 J**	NA	NA	40 U	**8.2**	**24**	**56**	7.4 U	7.3 U	7.2 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	NA	**8.8**	**8.3 J**	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	**3.7 J**	**13**	**32**	7.4 U	7.3 U	7.2 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	NA	R	370 U	4,700 U	190 U	220 U	180 U	180 U	NA	NA	1,000 U	190 U	190 U	570 U	190 U	190 U	180 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	40 U	71 U	920 U	**59**	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	NA	**4,900**	**19,000**	**420,000**	**56 J**	**210 J**	**48 J**	360 U	NA	NA	**2,100**	**43 J**	**570**	**1,200**	**140 J**	360 U	350 U
Carbazole	ug/kg	NS	NS	NA	**3.5 J**	15 U	190 U	7.6 U	8.7 U	7.2 U	**1.9 J**	NA	NA	40 U	**1.7 J**	**2.4 J**	**8.1 J**	7.4 U	7.3 U	7.2 U
Chrysene	ug/kg	110,000	2,100,000	NA	**27**	**20**	190 U	7.6 U	**2.6 J**	**9.3**	**9.9**	NA	NA	**12 J**	**8.6**	**27**	**75**	7.4 U	7.3 U	7.2 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**6.1 J**	**12 J**	7.4 U	7.3 U	7.2 U
Dibenzofuran	ug/kg	7,300	100,000	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	**9.4 J**	36 U	36 U	35 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Dimethylphthalate	ug/kg	NS	NS	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	NA	**21 J**	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Fluoranthene	ug/kg	240,000	3,000,000	NA	**46**	**23**	**160 J**	7.6 U	**4.8 J**	**8.5**	**13**	NA	NA	**19 J**	**18**	**30**	**120**	7.4 U	7.3 U	7.2 U
Fluorene	ug/kg	240,000	3,000,000	NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**2 J**	**12 J**	7.4 U	7.3 U	7.2 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	NA	**11**	15 U	190 U	7.6 U	8.7 U	**1.7 J**	**2.7 J**	NA	NA	40 U	**6.5 J**	**21**	**38**	7.4 U	7.3 U	7.2 U
Naphthalene	ug/kg	3,800	17,000	NA	**4.4 J**	**22**	**79 J**	7.6 U	**3.2 J**	7.2 U	7.3 U	NA	NA	40 U	**2.1 J**	**5.7 J**	**11 J**	7.4 U	7.3 U	7.2 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	8 U	15 U	**53 J**	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**2.1 J**	22 U	7.4 U	7.3 U	7.2 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	NA	40 U	**1,700**	**54,000**	**31 J**	43 U	35 U	36 U	NA	NA	200 U	36 U	**72**	**130**	36 U	36 U	35 U
Phenanthrene	ug/kg	NS	NS	NA	**21**	**15**	**660**	7.6 U	**8.1 J**	**7.1 J**	**8.5**	NA	NA	40 U	**10**	**17**	**93**	7.4 U	**2.1 J**	7.2 U
Phenol	ug/kg	1,900,000	25,000,000	NA	40 U	**8,800**	920 U	**120**	43 U	35 U	36 U	NA	NA	200 U	36 U	**14 J**	110 U	36 U	36 U	35 U
Pyrene	ug/kg	180,000	2,300,000	NA	**40**	**20**	190 U	7.6 U	**4.8 J**	**9.2**	**12**	NA	NA	**17 J**	**15**	**26**	**150**	7.4 U	7.3 U	7.2 U
Metals																				
Aluminum	mg/kg	7,700	110,000	NA	**8,200**	**8,100 J**	**4,000**	**3,100**	**3,000**	**6,900**	**13,000**	NA	NA	**8,100**	**10,000**	**8,400**	**10,000**	**4,500**	**2,500**	**10,000**
Antimony	mg/kg	3.1	47	NA	**0.64 J**	**0.45 J-**	17 U	17 U	20 U	16 U	**0.52 J**	NA	NA	18 U	16 U	16 U	**0.86 J**	**0.53 J**	16 U	**1.5 J**
Arsenic	mg/kg	0.68	3	NA	**8.1**	**12**	**3.9**	**0.91 J**	**1.5 J**	**2.8**	**1.6 J**	NA	NA	**7.7**	**8.9**	**7.5**	**13**	**5.5**	**4.5**	**4.1**
Barium	mg/kg	1,500	22000	NA	**73**	**32**	**18**	**6.6**	**11**	**21**	**110**	NA	NA	**61**	**43**	**34**	**41**	**15**	**18**	**71**
Beryllium	mg/kg	16	230	NA	**0.34**	**0.36**	**0.16 J**	**0.11 J**	**0.12 J**	**0.38**	**0.29**	NA	NA	**0.36**	**0.54**	**0.37**	**0.5**	**0.16 J**	**0.097 J**	**0.27**
Cadmium	mg/kg	7.1	98	NA	**0.34**	**2.5**	**9.3**	**0.79**	**0.054 J**	0.21 U	0.21 U	NA	NA	**0.16 J**	**0.062 J**	**0.067 J**	**0.098 J**	0.22 U	0.21 U	0.22 U
Calcium	mg/kg	NS	NS	NA	**30,000**	**4,100 J-**	**1,200**	**1,000**	**1,300**	**1,400**	**3,000**	NA	NA	**22,000**	**4,100**	**15,000**	**3,300**	**1,500**	**850**	**12,000**
Chromium	mg/kg	12,000	180000	NA	**95**	**63 J+**	**28**	**5.9**	**5.3**	**250**	**260**	NA	NA	**78**	**35**	**38**	**38**	**130**	**32**	**250**
Chromium-Hexavalent	mg/kg	0.3	**6.3**	NA	**5.1**	**0.74**	**0.49**	**0.18 J**	**0.37 J**	**5.7**	**10.1**	NA	NA	**5.5**	**0.71**	**0.56**	**1.4**	**2.8**	**1**	**16.8**
Cobalt	mg/kg	2.3	35	NA	**3.9**	**5.4**	**1.5**	**0.92**	**1**	**3.3**	**8.4**	NA	NA	**4.2**	**5.8**	**3.7**	**7.1**	**2.5**	**1.4**	**18**
Copper	mg/kg	310	4700	NA	**8.6**	**12**	**4.3**	**2.8**	**3.6**	**14**	**28**	NA	NA	**11**	**11**	**11**	**23**	**4.8**	**2.2**	**64**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 1
2019 Containment Area Direct-Contact based Soil Results
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-711								SB-712								
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	18 - 19	35 - 36	0 - 10		0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	37 - 38
			Sample Date	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
			Sample ID	OC-SB-711-0.0/10-XXX-20191112	OC-SB-711-0.0/2.0-XXX-20191112	OC-SB-711-2.0/4.0-XXX-20191112	OC-SB-711-4.0/6.0-XXX-20191112	OC-SB-711-6.0/8.0-XXX-20191112	OC-SB-711-8.0/10-XXX-20191112	OC-SB-711-18/19-XXX-20191112	OC-SB-711-35/36-XXX-20191112	OC-SB-712-0.0/10-XXX-20191111	OC-SB-712-0.0/10-DUP-20191111	OC-SB-712-0.0/2.0-XXX-20191111	OC-SB-712-2.0/4.0-XXX-20191111	OC-SB-712-4.0/6.0-XXX-20191111	OC-SB-712-6.0/8.0-XXX-20191111	OC-SB-712-8.0/10-XXX-20191111	OC-SB-712-23/24-XXX-20191111	OC-SB-712-37/38-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample		11/2019 Direct Contact RSL		N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/ Comm.**																	
Iron	mg/kg	5,500	82000	NA	**9,300**	**11,000**	**5,300**	**2,800**	**2,700**	**7,900**	**16,000**	NA	NA	**9,800**	**11,000**	**8,900**	**13,000**	**7,700**	**5,000**	**28,000**
Lead	mg/kg	400	800	NA	**8.1**	**13**	**5.7**	**1.7**	**1.7**	**4**	**2.5**	NA	NA	**12**	**6.3**	**20**	**19**	**2.8**	**2**	**2.8**
Magnesium	mg/kg	NS	NS	NA	**3,400**	**2,800**	**940**	**860**	**900**	**2,100**	**11,000**	NA	NA	**3,300**	**3,800**	**2,200**	**4,000**	**2,600**	**1,300**	**5,700**
Manganese	mg/kg	180	2600	NA	**160**	**140 J+**	**45**	**42**	**45**	**110**	**270**	NA	NA	**160**	**190**	**130**	**210**	**120**	**58**	**310**
Mercury	mg/kg	1.1	4.6	NA	**0.035**	**0.19**	**0.029**	0.024 U	0.025 U	0.021 U	0.022 U	NA	NA	**0.048**	0.021 U	**0.069**	**0.087**	0.021 U	0.021 U	0.02 U
Nickel	mg/kg	150	2200	NA	**9.2**	**16**	**6.4**	**4.6 J**	**4.5 J**	**9.8**	**17**	NA	NA	**10**	**24**	**9.3**	**21**	**11**	**4.7 J**	**15**
Potassium	mg/kg	NS	NS	NA	**1,200**	**1,500**	**460**	**440**	**620**	**970**	**7,100**	NA	NA	**1,500**	**2,100**	**1,500**	**1,800**	**1,200**	**940**	**3,300**
Selenium	mg/kg	39	580	NA	**1.1 J**	**0.58 J**	**0.5 J**	4.5 U	**0.7 J**	**0.46 J**	4.1 U	NA	NA	4.8 U	**0.55 J**	4.3 U	4.4 U	4.4 U	4.2 U	**0.58 J**
Sodium	mg/kg	NS	NS	NA	**140 J**	**180 J**	**87 J**	**81 J**	**95 J**	**82 J**	**350**	NA	NA	**170**	**200**	**170**	**220**	**110 J**	**92 J**	**1,500**
Tin	mg/kg	4,700	70000	NA	**0.76 J**	**0.86 J**	2.3 U	2.3 U	2.7 U	2.1 U	**0.76 J**	NA	NA	**0.69 J**	**0.84 J**	**0.72 J**	**1.6 J**	2.2 U	2.1 U	**0.87 J**
Vanadium	mg/kg	39	580	NA	**16**	**19**	**7.4**	**5.2**	**5.4**	**12**	**38**	NA	NA	**19**	**22**	**17**	**25**	**12**	**7.9**	**110**
Zinc	mg/kg	2,300	35000	NA	**25**	**78 J+**	**63**	**8.8**	**9.2**	**21**	**37**	NA	NA	**25**	**24**	**24**	**41**	**15**	**7.4**	**48**
General Chemistry																				
Ammonia	mg/kg	NS	NS	NA	**14**	**8.8**	**42**	**58**	**50**	**9.2**	**42**	NA	NA	**4.4 J**	**3.6 J**	**18**	**11**	**9.9**	**5.9**	**140**
Chloride	mg/kg	NS	NS	NA	12 UJ	11 UJ	11 UJ	12 UJ	**7.2 J**	11 UJ	**42 J**	NA	NA	12 UJ	**6.8 J**	11 UJ	**12 J**	**6.7 J**	11 UJ	**250 J**
pH	S.U.	NS	NS	**8.5 J**	NA	NA	NA	NA	NA	NA	NA	**8.9 J**	**8.9 J**	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	**1,800 J**	**2,400 J**	**290 J**	**12 J**	**43 J**	**13 J**	**500 J**	NA	NA	**4,000 J**	**520 J**	**12,000 J**	**1,500 J**	**180 J**	**43 J**	**3,700 J**
Other Analyses																				
Dimethylformamide	ug/kg	260,000	1500000	NA	200 U	190 U	170 U	170 U	160 U	160 U	130 U	NA	NA	190 U	190 U	180 U	210 U	220 U	**780**	150 U
Formaldehyde	ug/kg	11,000	50000	NA	2,500 UJ	**1,500 J**	**2,900 J**	2,300 UJ	2,600 UJ	2,200 UJ	**4,700 J**	NA	NA	2,400 UJ	**2,100 J**	**2,000 J**	**2,600 J**	2,200 UJ	2,200 UJ	**6,100 J**
Hydrazine	ug/kg	32	140	NA	**1.9 J**	**5.7**	**13**	5.9 U	6 U	5.3 U	5.5 U	NA	NA	**3.8 J**	**7.7**	5.5 U	5.6 U	5.6 U	5.5 U	5.4 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-701									SB-702							
						Depth Interval (ft)	0 - 10	0 - 2		2 - 4	4 - 6	6 - 8	8 - 10	20 - 21	31 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35
						Sample Date	11/11/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19
						Sample ID	OC-SB-701-0.0/10-XXX-20191111	OC-SB-701-0.0/2.0-XXX-20191111	OC-SB-701-0.0/2.0-DUP-20191111	OC-SB-701-2.0/4.0-XXX-20191111	OC-SB-701-4.0/6.0-XXX-20191111	OC-SB-701-6.0/8.0-XXX-20191111	OC-SB-701-8.0/10-XXX-20191111	OC-SB-701-20/21-XXX-20191111	OC-SB-701-31/32-XXX-20191111	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units		S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Volatiles																							
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	4.3 U	5.8 U	4.6 U	**0.7 J**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	4.3 UJ	5.8 UJ	**1.9 J**	**0.54 J**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	4.3 U	5.8 U	**3.8 J**	**16**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	4.3 U	5.8 U	**0.82 J**	**0.79 J**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	4.3 U	5.8 U	**0.32 J**	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	4.3 UJ	5.8 UJ	**59**	**67**	**0.76 J**	5.2 U	**0.58 J**	4.1 U	NA	4.7 U	**2.4 J**	**1.2 J**	**13**	**16**	4.2 U	11 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	4.3 UJ	5.8 UJ	**24**	**34**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	**0.84 J**	4.9 U	**4.4**	**3.1 J**	4.2 U	11 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	22 U	29 U	**21 J+**	**23 J+**	21 U	26 U	26 U	20 U	NA	23 U	**14 J+**	**29 J+**	**4.4 J+**	23 U	21 U	54 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	4.3 UJ	5.8 UJ	**0.41 J**	**0.48 J**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	**14 J-**	**7.4 J-**	**82 J**	**99 J**	**16 J**	**12 J**	**16 J**	**14 J**	NA	**23 J**	**54 J**	**54 J**	**20 J**	**5.6 J**	**5.1 J**	**12 J**
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	4.3 U	5.8 U	4.6 U	**0.82 J**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	**0.37 J**	4.6 U	4.2 U	11 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	4.3 U	5.8 U	**4.2 J**	**6.6**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	4.3 U	5.8 U	**0.49 J**	**1.4 J**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	4.3 U	5.8 U	**1.2 J**	**3.7 J**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.3 U	5.8 U	4.6 U	**0.98 J**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	43 UJ	58 UJ	46 U	52 U	43 U	52 U	52 U	41 U	NA	47 U	41 U	**8.1 J**	42 U	**6.3 J**	42 U	**7.5 J**
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	22 UJ	29 UJ	**3 J**	**180**	**15 J**	26 U	26 U	20 U	NA	23 U	21 U	25 U	21 U	23 U	21 U	54 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	4.3 U	5.8 U	**1.2 J**	**7**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.3 U	5.8 U	**0.75 J**	**1.6 J**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	4.3 U	5.8 U	**0.43 J**	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.3 U	5.8 U	4.6 U	**2.6 J**	4.3 U	5.2 U	5.2 U	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U
Semivolatiles																							
1,1'-Biphenyl	ug/kg	0.87	50	1,000,000	50	5,000,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	**2 J**	37 U	75 U	35 U	38 U	35 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	40 U	41 U	**7.4 J**	**1.9 J**	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	7.1 U	7.5 U	15 U	7.1 U	7.7 U	7.2 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	7.1 U	7.5 U	**5.5 J**	7.1 U	7.7 U	7.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

						Sample Location	SB-701									SB-702							
						Depth Interval (ft)	0 - 10	0 - 2	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	20 - 21	31 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35
						Sample Date	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19
						Sample ID	OC-SB-701-0.0/10-XXX-20191111	OC-SB-701-0.0/2.0-XXX-20191111	OC-SB-701-0.0/2.0-DUP-20191111	OC-SB-701-2.0/4.0-XXX-20191111	OC-SB-701-4.0/6.0-XXX-20191111	OC-SB-701-6.0/8.0-XXX-20191111	OC-SB-701-8.0/10-XXX-20191111	OC-SB-701-20/21-XXX-20191111	OC-SB-701-31/32-XXX-20191111	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based	MassDEP criteria				N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	SSL	S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	**1.7 J**	7.5 U	**3.3 J**	7.1 U	7.7 U	7.2 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	82 U	**2.2 J**	77 U	79 U	78 U	81 U	75 U	70 U	NA	77 U	71 U	75 U	150 U	71 U	77 U	72 U
Aniline	ug/kg	4.6	NS	NS	--	--	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	NA	8.2 U	8.3 U	7.7 U	**2.1 J**	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	**2.2 J**	7.5 U	**15**	7.1 U	7.7 U	7.2 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	400 U	400 U	1,900 U	400 U	380 U	390 U	**62 J**	350 U	NA	380 U	350 U	370 U	360 U	350 U	370 U	350 U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	82 UJ	83 UJ	77 U	79 U	78 U	81 U	75 U	70 U	NA	R	R	R	R	71 U	77 U	72 U
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	8.2 U	**5.4 J**	7.7 U	**4.2 J**	7.8 U	8.1 U	7.5 U	7 U	NA	**8.8**	**11**	**3.9 J**	**49**	7.1 U	7.7 U	7.2 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	**9.7**	**10**	**3.7 J**	**45**	7.1 U	7.7 U	7.2 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	8.2 U	**5.7 J**	7.7 U	**3.2 J**	7.8 U	8.1 U	7.5 U	7 U	NA	**11**	**17**	**5.3 J**	**43**	7.1 U	7.7 U	7.2 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	**8.5**	**10**	**3.2 J**	**29**	7.1 U	7.7 U	7.2 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	**5.3 J**	**5.9 J**	7.5 U	**20**	7.1 U	7.7 U	7.2 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	NA	210 UJ	210 UJ	200 U	200 U	200 U	200 U	190 U	180 U	NA	200 U	180 U	190 U	390 U	180 U	190 U	180 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	90,000	90,000	2,000,000	2,000,000	NA	**640**	**800**	**3,900**	**150 J**	380 U	400 U	370 U	340 U	NA	**230 J**	**270 J**	**3,500**	**800**	**630**	380 U	350 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	**1.8 J**	7.5 U	**3.7 J**	7.1 U	7.7 U	7.2 U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	NA	8.2 U	**6 J**	7.7 U	**4.6 J**	7.8 U	8.1 U	7.5 U	7 U	NA	**10**	**14**	**4.5 J**	**46**	7.1 U	7.7 U	7.2 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	**3.4 J**	**2.7 J**	7.5 U	**9.6 J**	7.1 U	7.7 U	7.2 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	**2 J**	75 U	35 U	38 U	35 U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	NA	**3.5 J**	**7.9 J**	**8.2**	**6.3 J**	7.8 U	8.1 U	7.5 U	7 U	NA	**14**	**15**	**5.9 J**	**81**	**3 J**	7.7 U	7.2 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	7.1 U	7.5 U	**5.3 J**	7.1 U	7.7 U	7.2 U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	**7.3 J**	**8.7**	**2.8 J**	**25**	7.1 U	7.7 U	7.2 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	**2.5 J**	**5.6 J**	**34**	**540**	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	**1.4 J**	7.5 U	15 U	**2.2 J**	7.7 U	7.2 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U	7 U	NA	7.7 U	7.1 U	7.5 U	15 U	7.1 U	7.7 U	7.2 U
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	NA	**93**	**120**	**430**	**1,500**	38 U	40 U	37 U	34 U	NA	**13 J**	35 U	**12 J**	75 U	35 U	38 U	35 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	NA	**2.4 J**	**4.6 J**	**6.5 J**	**5.6 J**	**2.8 J**	8.1 U	7.5 U	7 U	NA	**6.4 J**	**9.4**	**4.5 J**	**48**	7.1 U	7.7 U	7.2 U
Phenol	ug/kg	330	1,000	20,000	1,000	20,000	NA	40 U	41 U	**23 J**	39 U	38 U	40 U	37 U	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	NA	8.2 U	8.3 U	**8.6**	**7.6 J**	7.8 U	8.1 U	7.5 U	7 U	NA	**13**	**14**	**6.4 J**	**87**	**3 J**	7.7 U	7.2 U
Metals																							
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	**9,900**	**8,200**	**7,400**	**4,700**	**4,000**	**3,400**	**5,200**	**13,000**	NA	**9,200**	**9,000**	**11,000**	**10,000**	**6,300**	**3,700**	**11,000**
Antimony	mg/kg	0.035	20	20	30	30	NA	**0.63 J-**	**0.53 J-**	17 U	18 U	17 U	19 U	**1.1 J**	**0.85 J**	NA	17 U	16 U	17 U	16 U	**0.55 J**	18 U	**0.74 J**
Arsenic	mg/kg	0.0015	20	20	50	50	NA	**8.6**	**10**	**7.3**	**0.76 J**	**1.9 J**	**3.5**	**11**	**2.4**	NA	**5.1**	**7.6**	**9.7**	**11**	**26**	**6.5**	**3.8**
Barium	mg/kg	16	1000	1000	5000	5000	NA	**71 J+**	**49 J+**	**46**	**7**	**7.5**	**9.9**	**16**	**58**	NA	**46**	**33**	**41**	**41**	**29**	**24**	**41**
Beryllium	mg/kg	1.9	90	90	200	200	NA	**0.46 J**	**0.34**	**0.33**	**0.16 J**	**0.18 J**	**0.16 J**	**0.31**	**0.58 J**	NA	**0.5**	**0.44**	**0.65**	**0.55**	**0.28**	**0.15 J**	**5.9**
Cadmium	mg/kg	0.069	70	70	100	100	NA	**0.37**	**0.35**	**0.17 J**	0.24 U	0.22 U	0.25 U	0.23 U	0.22 U	NA	**0.036 J**	0.21 U	0.22 U	0.22 U	0.23 U	0.23 U	0.22 U
Calcium	mg/kg	NS	NS	NS	--	--	NA	**28,000**	**24,000**	**44,000**	**2,100**	**1,100**	**1,100**	**1,300**	**7,500**	NA	**14,000**	**3,800**	**2,800**	**2,300**	**1,400**	**2,200**	**5,000**
Chromium	mg/kg	4,000,000	100	100	200	200	NA	**72 J+**	**120 J+**	**200**	**8.1**	**14**	**12**	**580**	**460**	NA	**32**	**20**	**34**	**42**	**22**	**64**	**580**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	**2.8**	**2.5**	**3.7**	**0.66**	**0.73**	**0.98**	**8.9**	**22.6**	NA	**1.6**	**0.98**	**0.71**	**0.55**	0.44 U	**1**	**7.5**
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	**3.9**	**5.2**	**3.5**	**1.1**	**1.4**	**3**	**2.1**	**11**	NA	**5.6**	**4.1**	**6.5**	**6**	**7**	**3.2**	**13**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

Sample Location							**SB-701**												**SB-702**					
Depth Interval (ft)							**0 - 10**	**0 - 2**		**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**20 - 21**	**31 - 32**	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**28 - 29**	**34 - 35**
Sample Date							**11/11/19**	**11/11/19**		**11/11/19**	**11/11/19**	**11/11/19**	**11/11/19**	**11/11/19**	**11/11/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**
Sample ID							**OC-SB-701-0.0/10-XXX-20191111**	**OC-SB-701-0.0/2.0-XXX-20191111**	**OC-SB-701-0.0/2.0-DUP-20191111**	**OC-SB-701-2.0/4.0-XXX-20191111**	**OC-SB-701-4.0/6.0-XXX-20191111**	**OC-SB-701-6.0/8.0-XXX-20191111**	**OC-SB-701-8.0/10-XXX-20191111**	**OC-SB-701-20/21-XXX-20191111**	**OC-SB-701-31/32-XXX-20191111**	**OC-SB-702-0.0/10-XXX-20191108**	**OC-SB-702-0.0/2.0-XXX-20191108**	**OC-SB-702-2.0/4.0-XXX-20191108**	**OC-SB-702-4.0/6.0-XXX-20191108**	**OC-SB-702-6.0/8.0-XXX-20191108**	**OC-SB-702-8.0/10-XXX-20191108**	**OC-SB-702-28/29-XXX-20191108**	**OC-SB-702-34/35-XXX-20191108**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
Copper	mg/kg	2.8	NS	NS	--	--	NA	**10**	**9.9**	**8.2**	**0.75 J**	**1.6**	**2.9**	**7.7**	**27**	NA	**8.2**	**9.3**	**9.4**	**12**	**9.5**	**7**	**29**
Iron	mg/kg	35	NS	NS	--	--	NA	**10,000**	**11,000**	**8,800**	**3,200**	**3,700**	**4,700**	**15,000**	**22,000**	NA	**13,000**	**9,800**	**13,000**	**13,000**	**15,000**	**8,000**	**20,000**
Lead	mg/kg	NS	200	200	600	600	NA	**11**	**12**	**7.8**	**2.5**	**1.9**	**1.9**	**3.8**	**3.7**	NA	**12**	**22**	**7.4**	**14**	**9.3**	**10**	**5**
Magnesium	mg/kg	NS	NS	NS	--	--	NA	**3,700 J+**	**2,900 J+**	**2,400**	**1,000**	**1,200**	**1,200**	**1,600**	**8,700**	NA	**4,000**	**2,600**	**3,900**	**4,500**	**3,600**	**1,700**	**6,300**
Manganese	mg/kg	2.8	NS	NS	--	--	NA	**180 J**	**150 J**	**120**	**50**	**41**	**45**	**100**	**340**	NA	**270**	**130**	**200**	**200**	**250**	**72**	**220**
Mercury	mg/kg	0.0033	20	20	30	30	NA	**0.031 J**	**0.036**	**0.069**	0.024 U	0.023 U	0.024 U	0.022 U	0.02 U	NA	**0.041**	**0.11**	**0.011 J**	**0.02 J**	0.022 U	0.022 U	0.021 U
Nickel	mg/kg	2.6	600	600	1000	1000	NA	**11**	**11**	**11**	**4.1 J**	**5.2 J**	**6.3**	**7.3**	**15**	NA	**8.2**	**10**	**23**	**23**	**31**	**3.8 J**	**15**
Potassium	mg/kg	NS	NS	NS	--	--	NA	**1,200 J+**	**1,100 J+**	**920**	**340**	**400**	**530**	**550**	**4,100**	NA	**1,300**	**1,400**	**1,800**	**1,800**	**1,500**	**1,100**	**2,100**
Selenium	mg/kg	0.052	400	400	700	700	NA	4.8 U	4.9 U	4.4 U	4.9 U	4.4 U	5 U	4.6 U	4.4 U	NA	4.6 U	4.3 U	**0.61 J**	4.4 U	4.6 U	**0.54 J**	4.4 U
Sodium	mg/kg	NS	NS	NS	--	--	NA	**150 J**	**130 J**	**160**	**97 J**	**75 J**	**73 J**	**240**	**1,100**	NA	**220**	**130 J**	**160**	**130 J**	**110 J**	**200**	**340**
Tin	mg/kg	300	NS	NS	--	--	NA	**0.72 J**	**1.1 J**	**1.1 J**	2.4 U	2.2 U	2.5 U	**0.61 J**	**0.69 J**	NA	**0.91 J**	**0.69 J**	**0.82 J**	**1.2 J**	**0.62 J**	2.3 U	**0.61 J**
Vanadium	mg/kg	8.6	400	400	700	700	NA	**19 J+**	**18 J+**	**16**	**6.1**	**6**	**6.6**	**21**	**58**	NA	**25**	**18**	**23**	**22**	**16**	**17**	**58**
Zinc	mg/kg	37	1000	1000	5000	5000	NA	**26 J+**	**28 J+**	**27**	**7**	**8.4**	**10**	**12**	**36**	NA	**30**	**28**	**28**	**33**	**26**	**11**	**32**
General Chemistry																							
Ammonia	mg/kg	NS	NS	NS	--	--	NA	**4.7**	**6.5**	**28**	**35**	**21**	**27**	**25**	**210**	NA	**4 J**	**6**	**6**	**7.8**	**13**	**11**	**41**
Chloride	mg/kg	NS	NS	NS	--	--	NA	12 UJ	12 UJ	11 UJ	12 UJ	11 UJ	12 UJ	11 UJ	**390 J**	NA	**9.3 J**	10 UJ	11 UJ	11 UJ	10 U	**5.3 J**	**5.8 J**
Sulfate	mg/kg	NS	NS	NS	--	--	NA	**12,000 J**	**13,000 J**	**15,000 J**	**230 J**	**130 J**	**250 J**	**190 J**	**3,900 J**	NA	**610 J**	**3,000 J**	**6,100 J**	**730 J**	**180**	**140**	**1,000**
Other Analyses																							
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	180 U	180 U	200 U	220 U	150 U	160 U	170 U	170 U	NA	160 U	160 U	170 U	150 U	140 U	170 U	140 U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	2,500 UJ	2,500 UJ	**1,600 J**	**1,500 J**	2,300 UJ	2,400 UJ	2,200 UJ	**5,300 J**	NA	2,300 U	**1,500 J**	2,200 UJ	2,200 UJ	2,200 UJ	2,300 UJ	2,200 UJ
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	**5.3 J**	**5.7 J**	**11**	**2.8 J**	**1.7 J**	**2.2 J**	**1.8 J**	5.3 U	NA	5.8 U	**1.5 J**	5.4 U	5.5 U	**2.1 J**	**5.5**	5.5 U
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																			
Arsenic	mg/L	0.01	0.01	0.9	--	--	**0.0097 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.0077 J**	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	**0.21 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.2 J**	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	**0.0011 J**	NA	NA	NA	NA	NA	NA	NA	NA	0.002 U	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	**0.13**	NA	NA	NA	NA	NA	NA	NA	NA	**0.017 J**	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	**0.011 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.012 J**	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-703**															
						Depth Interval (ft)	**0 - 10**		**0 - 2**		**2 - 4**				**4 - 6**		**6 - 8**		**8 - 10**		**17 - 18**		**30 - 32**	
						Sample Date	**11/05/19**		**11/05/19**		**11/05/19**				**11/05/19**		**11/05/19**		**11/05/19**		**11/05/19**		**11/05/19**	
						Sample ID	**OC-SB-703-0.0/10-XXX-20191105**		**OC-SB-703-0.0/2.0-XXX-20191105**		**OC-SB-703-2.0/4.0-XXX-20191105**		**OC-SB-703-2.0/4.0-DUP-20191105**		**OC-SB-703-4.0/6.0-XXX-20191105**		**OC-SB-703-6.0/8.0-XXX-20191105**		**OC-SB-703-8.0/10-XXX-20191105**		**OC-SB-703-17/18-XXX-20191105**		**OC-SB-703-30/32-XXX-20191105**	
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**		**N**		**N**		**FD**		**N**		**N**		**N**		**N**		**N**	
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
Volatiles																								
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	**1.1**	**J**
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA		4.7	U	**0.37**	**J-**	**0.27**	**J-**	4.6	U	5	U	5	U	4.5	U	3	U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA		**0.9**	**J**	**1.7**	**J-**	**1.4**	**J-**	4.6	U	5	U	5	U	4.5	U	3	U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA		4.7	U	**0.67**	**J-**	**0.46**	**J-**	4.6	U	5	U	5	U	4.5	U	3	U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA		**6.6**	**J**	**10**	**J**	**9.5**	**J-**	23	U	25	U	25	U	22	U	15	U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA		**30**	**J**	**37**	**J-**	**43**	**J-**	**6.5**	**J**	**23**	**J**	**4.2**	**J**	220	U	**7.6**	**J**
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	**0.78**	**J**
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA		4.7	U	**4.4**	**J-**	**6.5**	**J-**	4.6	U	5	U	5	U	4.5	U	3	U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	**4.6**	
Diethyl ether	ug/kg	88	NS	NS	--	--	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA		4.7	U	**0.77**	**J-**	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA		47	U	44	UJ	40	UJ	46	U	50	U	50	U	45	U	30	U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA		24	U	22	UJ	20	UJ	23	U	25	U	25	U	22	U	15	U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA		4.7	U	4.4	UJ	4	UJ	4.6	U	5	U	5	U	4.5	U	**0.62**	**J**
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA		4.7	U	**0.77**	**J-**	4	UJ	4.6	U	5	U	5	U	4.5	U	3	U
Semivolatiles																								
1,1'-Biphenyl	ug/kg	0.87	50	1,000,000	50	5,000,000	NA		**2.6**	**J**	**3.2**	**J**	**4.3**	**J**	40	U	41	U	36	U	37	U	36	U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA		43	U	39	U	**2.2**	**J**	40	U	41	U	36	UJ	37	U	36	U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA		43	U	39	U	38	U	40	U	41	U	36	U	37	U	36	U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA		8.7	U	7.9	U	7.7	U	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA		43	U	39	U	38	U	40	U	41	U	36	U	37	U	36	U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA		43	U	39	U	38	U	40	U	41	U	36	U	37	U	36	U
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA		8.7	U	7.9	U	7.7	U	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-703**																	
						Depth Interval (ft)	**0 - 10**		**0 - 2**		**2 - 4**				**4 - 6**		**6 - 8**		**8 - 10**		**17 - 18**		**30 - 30 - 32**	
						Sample Date	**11/05/19**		**11/05/19**		**11/05/19**				**11/05/19**		**11/05/19**		**11/05/19**		**11/05/19**		**11/05/19**	
						Sample ID	**OC-SB-703-0.0/10-XXX-20191105**		**OC-SB-703-0.0/2.0-XXX-20191105**		**OC-SB-703-2.0/4.0-XXX-20191105**		**OC-SB-703-2.0/4.0-DUP-20191105**		**OC-SB-703-4.0/6.0-XXX-20191105**		**OC-SB-703-6.0/8.0-XXX-20191105**		**OC-SB-703-8.0/10-XXX-20191105**		**OC-SB-703-17/18-XXX-20191105**		**OC-SB-703-30/32-XXX-20191105**	
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**		**N**		**N**		**FD**		**N**		**N**		**N**		**N**		**N**	
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	NA	**3**	**J**	7.9	U	7.7	U	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Acetophenone	ug/kg	58	NS	NS	--	--	NA	87	U	79	U	**2.4**	**J**	82	U	84	U	73	UJ	74	U	72	U	
Aniline	ug/kg	4.6	NS	NS	--	--	NA	43	U	39	U	38	U	40	U	41	U	36	UJ	37	U	36	U	
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	NA	**3.1**	**J**	7.9	U	7.7	U	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	430	U	400	U	370	U	410	U	410	U	360	U	360	U	360	U	
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	**10**	**J**		R	**5.8**	**J-**	82	U	84	U		R	74	U	72	U	
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	**6.9**	**J**	**3.5**	**J**	**4.3**	**J**	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	**7.3**	**J**	**3.4**	**J**	**4.3**	**J**	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	**10**		**4.1**	**J**	**6.8**	**J**	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	NA	**7.6**	**J**	**3.7**	**J**	**4.9**	**J**	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	NA	**3.1**	**J**	**3**	**J**	7.7	U	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	NA	220	U		R	**50**	**J-**	210	U	210	U		R	190	U	180	U	
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	43	U	39	U	38	U	40	U	41	U	36	U	37	U	36	U	
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	90,000	90,000	2,000,000	2,000,000	NA	**1,600**		**650**	**J**	**1,400**	**J**	400	U	410	U	**60**	**J**	370	U	360	U	
Carbazole	ug/kg	NS	NS	NS	--	--	NA	8.7	U	7.9	U	7.7	U	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	NA	**9.3**		**4.6**	**J**	**6.5**	**J**	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	**2.4**	**J**	7.9	U	7.7	U	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	43	U	39	U	38	U	40	U	41	U	36	U	37	U	36	U	
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	NA	43	U	39	U	38	U	40	U	41	U	36	U	37	U	36	U	
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	43	U	39	U	38	U	40	U	41	U	36	U	37	U	36	U	
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	NA	43	U	39	U	38	U	40	U	41	U	36	U	37	U	36	U	
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	NA	43	U	39	U	38	U	40	U	41	U	36	U	37	U	36	U	
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	NA	**14**		**6.3**	**J**	**9**		8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	8.7	U	7.9	U	7.7	U	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	**6**	**J**	**3**	**J**	**3.5**	**J**	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	**2.7**	**J**	**4.5**	**J**	**5.7**	**J**	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	8.7	U	7.9	U	7.7	U	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	NA	**37**	**J**	**130**	**J**	**350**	**J**	40	U	41	U	36	U	37	U	36	U	
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	NA	**8.1**	**J**	**3.9**	**J**	**5.4**	**J**	8.2	U	8.4	U	7.3	U	7.4	U	**2**	**J**	
Phenol	ug/kg	330	1,000	20,000	1,000	20,000	NA	43	U	39	U	**25**	**J**	40	U	41	U	36	U	37	U	36	U	
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	NA	**12**		**5.6**	**J**	**7.5**	**J**	8.2	U	8.4	U	7.3	U	7.4	U	7.2	U	
Metals																								
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	**9,000**		**6,500**	**J+**	**6,700**	**J+**	**4,700**		**4,600**		**6,100**		**1,100**		**4,800**		
Antimony	mg/kg	0.035	20	20	30	30	NA	20	U	18	U	18	U	19	U	18	U	16	U	17	U	17	U	
Arsenic	mg/kg	0.0015	20	20	50	50	NA	**13**		**4.1**		**4.7**		**3.4**		**7.5**		**4.2**		**0.91**	**J**	**3.3**		
Barium	mg/kg	16	1000	1000	5000	5000	NA	**89**	**J**	**12**	**J-**	**15**	**J-**	**11**	**J**	**10**	**J**	**15**	**J**	**20**	**J**	**14**	**J**	
Beryllium	mg/kg	1.9	90	90	200	200	NA	**0.39**		**0.21**	**J**	**0.24**		**0.19**	**J**	**0.22**	**J**	**0.3**		**0.059**	**J**	**0.14**	**J**	
Cadmium	mg/kg	0.069	70	70	100	100	NA	**0.3**	**J**	**0.06**	**J**	**0.11**	**J**	0.26	U	0.25	U	0.22	U	**0.044**	**J**	0.23	U	
Calcium	mg/kg	NS	NS	NS	--	--	NA	**92,000**		**5,900**	**J+**	**6,300**	**J+**	**3,800**		**2,000**		**1,200**		**4,800**		**5,400**		
Chromium	mg/kg	4,000,000	100	100	200	200	NA	**180**		**14**	**J+**	**20**	**J+**	**6.8**		**9.9**		**52**		**10**		**190**		
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	**5.8**		**0.7**	**J**	**2.3**	**J**	**0.29**	**J**	**0.37**	**J**	**3.2**		**0.41**	**J**	**9.8**		
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	**3.5**		**2.2**		**2.6**		**2.4**		**2.4**		**2.8**		**0.62**		**4.3**		

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

							Sample Location	**SB-703**																					
							Depth Interval (ft)	**0 - 10**		**0 - 2**		**2 - 4**				**4 - 6**		**6 - 8**		**8 - 10**		**17 - 18**		**30 - 32**	
							Sample Date	**11/05/19**		**11/05/19**		**11/05/19**				**11/05/19**		**11/05/19**		**11/05/19**		**11/05/19**		**11/05/19**	
							Sample ID	**OC-SB-703-0.0/10-XXX-20191105**		**OC-SB-703-0.0/2.0-XXX-20191105**		**OC-SB-703-2.0/4.0-XXX-20191105**		**OC-SB-703-2.0/4.0-DUP-20191105**		**OC-SB-703-4.0/6.0-XXX-20191105**		**OC-SB-703-6.0/8.0-XXX-20191105**		**OC-SB-703-8.0/10-XXX-20191105**		**OC-SB-703-17/18-XXX-20191105**		**OC-SB-703-30/32-XXX-20191105**	
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**					**N**		**N**		**N**		**FD**		**N**		**N**		**N**		**N**		**N**	
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																							
Copper	mg/kg	2.8	NS	NS	--	--		NA		**9.2**		**2.9**	**J**	**5.3**	**J**	**2.1**		**2.9**		**7.3**		**0.5**	**J**	**19**	
Iron	mg/kg	35	NS	NS	--	--		NA		**9,200**		**5,000**	**J+**	**6,400**	**J+**	**5,200**		**7,900**		**7,600**		**1,400**		**11,000**	
Lead	mg/kg	NS	200	200	600	600		NA		**9.7**		**3.6**		**6.4**		**2.3**		**2.6**		**3.6**		**1.6**		**3**	
Magnesium	mg/kg	NS	NS	NS	--	--		NA		**2,500**		**1,100**	**J+**	**1,300**	**J+**	**1,100**		**1,800**		**1,800**		**250**		**3,100**	
Manganese	mg/kg	2.8	NS	NS	--	--		NA		**110**		**63**	**J+**	**76**	**J+**	**61**		**89**		**73**		**32**		**110**	
Mercury	mg/kg	0.0033	20	20	30	30		NA		**0.037**		**0.032**		**0.025**		0.024	U	0.025	U	0.022	U	0.021	U	**0.008**	**J**
Nickel	mg/kg	2.6	600	600	1000	1000		NA		**8.9**		**7**		**8**		**4.6**	**J**	**7.3**		**7.5**		**0.9**	**J**	**5.4**	**J**
Potassium	mg/kg	NS	NS	NS	--	--		NA		**980**		**550**		**660**		**430**		**580**		**670**		**330**		**820**	
Selenium	mg/kg	0.052	400	400	700	700		NA		5.3	U	4.9	U	4.7	U	5.2	U	4.9	U	4.3	U	4.6	U	4.5	U
Sodium	mg/kg	NS	NS	NS	--	--		NA		**160**	**J**	170	U	170	U	180	U	170	U	150	U	160	U	**260**	
Tin	mg/kg	300	NS	NS	--	--		NA		**1.1**	**J**	2.4	U	**0.73**	**J**	2.6	U	2.5	U	2.2	U	2.3	U	2.3	U
Vanadium	mg/kg	8.6	400	400	700	700		NA		**16**		**8.4**		**9.7**		**7.8**		**8.9**		**12**		**3.6**		**27**	
Zinc	mg/kg	37	1000	1000	5000	5000		NA		**22**		**24**		**29**		**10**		**11**		**17**		**2.9**		**15**	
General Chemistry																													
Ammonia	mg/kg	NS	NS	NS	--	--		NA		**7**		**12**		**10**		**7.9**		**10**		**10**		**5.1**		**130**	
Chloride	mg/kg	NS	NS	NS	--	--		NA		**5.4**	**J**	12	U	11	U	12	U	**5.8**	**J**	**9.2**	**J**	11	U	**210**	
Sulfate	mg/kg	NS	NS	NS	--	--		NA		**18,000**		**10,000**		**16,000**		**430**		**180**		**160**		**16,000**		**1,300**	
Other Analyses																													
Dimethylformamide	ug/kg	1.2	NS	NS	--	--		NA		180	U	200	U	190	U	200	U	200	U	200	U	180	U	190	U
Formaldehyde	ug/kg	0.078	NS	NS	--	--		NA		**1,800**	**J**	**2,900**	**J**	**4,900**	**J**	2,500	U	2,500	U	2,200	U	2,200	U	**1,300**	**J**
Hydrazine	ug/kg	0.00022	NS	NS	--	--		NA		6.7	U	**7.4**	**J**	**4.2**	**J**	6.6	U	5.8	U	5.8	U	5.8	U	**9.4**	
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																									
Arsenic	mg/L	0.01	0.01	0.9	--	--		0.015	U		NA		NA		NA		NA		NA		NA		NA		NA
Barium	mg/L	2	2	50	--	--		**0.2**	**J**		NA		NA		NA		NA		NA		NA		NA		NA
Cadmium	mg/L	0.005	0.005	0.004	--	--		**0.00061**	**J**		NA		NA		NA		NA		NA		NA		NA		NA
Chromium	mg/L	0.1	0.1	0.3	--	--		**0.095**			NA		NA		NA		NA		NA		NA		NA		NA
Lead	mg/L	0.015	0.015	0.01	--	--		**0.012**	**J**		NA		NA		NA		NA		NA		NA		NA		NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-704									SB-705							
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18
						Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19
						Sample ID	OC-SB-704-0.0/10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Chemical	Units		S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Volatiles																							
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	7.3 U	**0.58 J**	**0.36 J**	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	**3 J**	**2.7 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	**1.4 J**	**1.1 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	**5.1 J**	**6.2**	**1.3 J**	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	**5.5**	**7.4 J-**	**11 J-**	4.3 U	3.7 U	4.2 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	7.3 U	**3 J**	**0.56 J**	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	**2.1 J**	**2.3 J-**	**3.8 J-**	4.3 U	3.7 U	4.2 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	**17 J+**	**23 J+**	**64 J+**	**9.6 J+**	**29 J+**	24 U	21 U	22 U	NA	21 U	**14 J+**	**20 J+**	**32 J+**	**560 J+**	19 U	21 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	**1.9 J**	**1.2 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	**0.52 J-**	4.7 UJ	4.3 U	3.7 U	4.2 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	**93 J**	**68 J**	**64 J**	**38 J**	**54 J**	**18 J**	210 U	**22 J**	NA	**14 J**	**46 J**	**74 J-**	**69 J-**	**18 J**	190 U	**19 J**
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	7.3 U	**0.41 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	**0.28 J**	4.3 U	3.7 U	4.2 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	7.3 U	**6**	**2.5 J**	3.7 U	**2.4 J**	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	**3.4 J**	**2.8 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	7.3 U	**1.3 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	73 U	54 U	41 U	37 U	45 U	48 U	43 U	43 U	NA	42 U	43 U	48 UJ	**150 J+**	**41 J**	37 U	42 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	**2.5 J**	**1.4 J**	20 U	19 U	23 U	24 U	21 U	22 U	NA	21 U	22 U	24 UJ	23 UJ	21 U	19 U	21 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	7.3 U	**0.49 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	**1.4 J**	**4.2 J**	**0.5 J**	**0.38 J**	4.5 U	4.8 U	4.3 U	**0.53 J**	NA	4.2 U	**0.48 J**	**0.6 J**	**0.72 J**	4.3 U	3.7 U	4.2 U
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Semivolatiles																							
1,1'-Biphenyl	ug/kg	0.87	50	1,000,000	50	5,000,000	NA	**24 J**	**7.8 J**	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	**33 J**	1,100 U	**45 J**	37 U	35 U	35 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 UJ	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	**37**	**1.9 J**	7.3 U	**2.3 J**	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	**100 J**	**51 J**	7.6 U	7.2 U	7 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	**31 J**	**6.4 J**	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	**16 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-704									SB-705							
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18
						Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19
						Sample ID	OC-SB-704-0.0/10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Chemical	Units		S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	170 U	**5.7 J**	73 U	72 U	74 U	74 U	74 U	74 U	NA	78 U	230 U	2,100 U	2,000 U	76 U	72 U	70 U
Aniline	ug/kg	4.6	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	NA	**9.1 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	410 U	370 U	370 U	360 U	340 U	340 U	360 U	350 U	NA	380 U	1,800 U	2,100 U	2,000 U	370 U	360 U	350 U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	R	**10 J-**	R	R	R	R	R	R	NA	R	**230 J-**	2,100 U	2,000 U	76 U	72 U	70 U
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	**13 J**	**2.8 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**3 J**	**8.9 J**	210 U	200 U	7.6 U	7.2 U	7 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	**10 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**2.6 J**	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	**14 J**	**2.6 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**3.1 J**	**8.2 J**	210 U	200 U	7.6 U	7.2 U	7 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	NA	**8.4 J**	**1.8 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**1.8 J**	**5.4 J**	210 U	200 U	7.6 U	7.2 U	7 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	NA	**5.2 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	NA	R	190 U	190 U	180 U	190 U	190 U	190 U	190 UJ	NA	200 U	590 U	5,400 U	5,100 U	190 U	180 U	180 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 UJ	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	90,000	90,000	2,000,000	2,000,000	NA	**7,600**	**2,400**	360 U	350 U	360 U	360 U	370 U	360 U	NA	**110 J**	**2,400**	**2,100 J**	**2,200 J**	370 U	350 U	350 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	NA	**18**	**3.7 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**2.8 J**	**7.6 J**	210 U	200 U	7.6 U	7.2 U	7 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**2.6 J**	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	**8.8 J**	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	NA	**47**	**6.9 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**4.7 J**	**11 J**	210 U	200 U	7.6 U	7.2 U	7 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	**21**	**1.9 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	**8.1 J**	**2 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**1.7 J**	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	**15 J**	**2.4 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	**4.6 J**	210 U	200 U	7.6 U	7.2 U	7 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	**23**	**2 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	**60 J**	200 U	7.6 U	7.2 U	7 U
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	NA	**390**	**26 J**	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	**400**	**2,700**	**2,500**	37 U	35 U	35 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	NA	**84**	**9.7**	**2.8 J**	7.2 U	7.4 U	**2.4 J**	7.4 U	7.4 U	NA	**4.8 J**	**7.8 J**	210 U	200 U	7.6 U	7.2 U	7 U
Phenol	ug/kg	330	1,000	20,000	1,000	20,000	NA	**330**	**68**	**42**	**14 J**	36 U	36 U	37 U	36 UJ	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	NA	**42**	**6.3 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**4.2 J**	**12 J**	210 U	200 U	7.6 U	7.2 U	7 U
Metals																							
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	**7,700**	**5,600**	**4,800**	**15,000**	**9,200**	**5,200**	**6,800**	**3,500**	NA	**5,100**	**5,400**	**5,900 J+**	**5,700 J+**	**3,700**	**5,800**	**9,700**
Antimony	mg/kg	0.035	20	20	30	30	NA	19 U	18 U	16 U	16 U	16 U	17 U	17 U	17 U	NA	17 U	17 U	20 U	19 U	17 U	16 U	17 U
Arsenic	mg/kg	0.0015	20	20	50	50	NA	**17**	**5.4**	**4.8**	**11**	**7.8**	**3.1**	**14**	**4.5**	NA	**14**	**7.1**	**6.6**	**7.1**	**6.5**	**4.4**	**3.6**
Barium	mg/kg	16	1000	1000	5000	5000	NA	**61**	**11**	**12**	**79**	**37**	**18**	**22**	**10**	NA	**12**	**17**	**16**	**15**	**9.3**	**23**	**52**
Beryllium	mg/kg	1.9	90	90	200	200	NA	**0.38**	**0.27**	**0.17 J**	**0.67 J**	**0.5 J**	**0.18 J**	**0.33**	**0.16 J**	NA	**0.28**	**0.22**	**0.23 J**	**0.24 J**	**0.14 J**	**0.34 J**	**0.4 J**
Cadmium	mg/kg	0.069	70	70	100	100	NA	**0.45**	**0.058 J**	0.22 U	0.21 U	0.21 U	0.22 U	0.22 U	**0.039 J**	NA	**0.17 J**	**0.26**	**0.45**	**0.43**	0.23 U	0.21 U	0.22 U
Calcium	mg/kg	NS	NS	NS	--	--	NA	**110,000**	**3,700**	**2,200**	**2,100**	**1,800**	**2,100**	**1,700**	**2,400**	NA	**1,200**	**1,600**	**3,600 J+**	**3,500 J+**	**1,200**	**1,800**	**3,300**
Chromium	mg/kg	4,000,000	100	100	200	200	NA	**140**	**8.6**	**13**	**63**	**97**	**58**	**310**	**300**	NA	**13**	**21**	**77 J**	**130 J**	**410**	**250**	**330**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	**4.1**	0.49 U	0.46 U	**2.4**	**5.3**	**1.3**	**4.1**	**6.3**	NA	0.46 U	**1.1**	**1.5 J**	**2.7 J**	**7.4**	**9.9**	**4.2**
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	**3.7**	**2.2**	**2.3**	**6.1**	**4.4**	**2.9**	**7.1**	**3.6**	NA	**1.9**	**2.4**	**2.9**	**2.4**	**2.1**	**3.9**	**7.4**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-704**									**SB-705**								
						Depth Interval (ft)	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**12 - 13**	**19 - 20**	**33 - 34**	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**		**6 - 8**	**8 - 10**	**17 - 18**
						Sample Date	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**		**11/08/19**	**11/08/19**	**11/08/19**
						Sample ID	**OC-SB-704-0.0/10-XXX-20191107**	**OC-SB-704-0.0/2.0-XXX-20191107**	**OC-SB-704-2.0/4.0-XXX-20191107**	**OC-SB-704-4.0/6.0-XXX-20191107**	**OC-SB-704-6.0/8.0-XXX-20191107**	**OC-SB-704-8.0/10-XXX-20191107**	**OC-SB-704-12/13-XXX-20191107**	**OC-SB-704-19/20-XXX-20191107**	**OC-SB-704-33/34-XXX-20191107**	**OC-SB-705-0.0/10-XXX-20191108**	**OC-SB-705-0.0/2.0-XXX-20191108**	**OC-SB-705-2.0/4.0-XXX-20191108**	**OC-SB-705-4.0/6.0-XXX-20191108**	**OC-SB-705-4.0/6.0-DUP-20191108**	**OC-SB-705-6.0/8.0-XXX-20191108**	**OC-SB-705-8.0/10-XXX-20191108**	**OC-SB-705-17/18-XXX-20191108**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
Copper	mg/kg	2.8	NS	NS	--	--	NA	**8.5**	**0.84 J**	**3.9**	**14**	**11**	**4.8**	**17**	**12**	NA	**4.5**	**5**	**5.5**	**6.4**	**5**	**11**	**20**
Iron	mg/kg	35	NS	NS	--	--	NA	**10,000**	**3,800**	**6,200**	**20,000**	**13,000**	**9,600**	**17,000**	**5,300**	NA	**6,400**	**6,100**	**7,700 J+**	**7,100 J+**	**4,900**	**9,000**	**16,000**
Lead	mg/kg	NS	200	200	600	600	NA	**8.3**	**3.1**	**2.7**	**5.9**	**5.2**	**4.1**	**4.2**	**2.1**	NA	**3.9**	**6.3**	**7.9**	**8.9**	**2.2**	**3.2**	**3**
Magnesium	mg/kg	NS	NS	NS	--	--	NA	**2,300**	**820**	**1,700**	**5,200**	**3,100**	**2,500**	**2,800**	**1,600**	NA	**1,600**	**1,800**	**1,900**	**1,500**	**920**	**2,500**	**6,900**
Manganese	mg/kg	2.8	NS	NS	--	--	NA	**93**	**31**	**68**	**210**	**130**	**91**	**120**	**98**	NA	**83**	**60**	**98 J+**	**88 J+**	**55**	**100**	**170**
Mercury	mg/kg	0.0033	20	20	30	30	NA	**0.035**	0.023 U	0.022 U	0.021 U	0.02 U	**0.01 J**	0.022 U	0.022 U	NA	0.022 U	**0.028**	**0.026 J**	**0.031**	0.022 U	0.022 U	0.02 U
Nickel	mg/kg	2.6	600	600	1000	1000	NA	**8.6**	**4.7 J**	**7.8**	**18**	**11**	**7**	**14**	**6.9**	NA	**6.1**	**7.6**	**8.1**	**6.9**	**4.7 J**	**11**	**17**
Potassium	mg/kg	NS	NS	NS	--	--	NA	**770**	**410**	**640**	**4,300**	**1,700**	**740**	**1,300**	**460**	NA	**650**	**970**	**700**	**570**	**380**	**950**	**2,600**
Selenium	mg/kg	0.052	400	400	700	700	NA	5 U	4.7 U	4.4 U	4.3 U	4.2 U	4.4 U	4.5 U	4.6 U	NA	**0.52 J**	4.5 U	5.5 U	5 U	**0.79 J**	4.3 U	4.5 U
Sodium	mg/kg	NS	NS	NS	--	--	NA	**190**	**80 J**	**130 J**	**280**	**240**	**100 J**	**110 J**	**2,600**	NA	**90 J**	**60 J**	**67 J**	**58 J**	**69 J**	**140 J**	**170**
Tin	mg/kg	300	NS	NS	--	--	NA	**0.97 J**	**0.51 J**	2.2 U	**0.92 J**	**0.59 J**	2.2 U	**0.66 J**	2.3 U	NA	**0.52 J**	2.2 U	**0.69 J**	**0.57 J**	2.3 U	2.1 U	**0.53 J**
Vanadium	mg/kg	8.6	400	400	700	700	NA	**18**	**7.5**	**9.4**	**34**	**21**	**14**	**26**	**9.3**	NA	**9.3**	**10**	**12**	**11**	**7**	**16**	**34**
Zinc	mg/kg	37	1000	1000	5000	5000	NA	**22**	**10**	**13**	**42**	**27**	**15**	**24**	**8.6**	NA	**11**	**25**	**22**	**22**	**7.5**	**18**	**25**
General Chemistry																							
Ammonia	mg/kg	NS	NS	NS	--	--	NA	**15**	**44**	**40**	**46**	**41**	**29**	**40**	**620**	NA	**3.8 J**	**5.8**	**7.5**	**11**	**8.2**	**29**	**39**
Chloride	mg/kg	NS	NS	NS	--	--	NA	**4.7 J**	11 UJ	11 UJ	11 UJ	**4.8 J**	10 UJ	11 UJ	**1,300 J**	NA	11 UJ	11 UJ	13 U	12 U	11 U	11 U	**5.4 J**
Sulfate	mg/kg	NS	NS	NS	--	--	NA	**18,000 J**	**16,000 J**	**760 J**	**530 J**	**150 J**	**68 J**	**270 J**	**6,100 J**	NA	**77 J**	**1,400 J**	**3,400 J**	**3,400 J**	**160**	**190**	**200 J**
Other Analyses																							
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	260 U	180 U	180 U	150 U	180 U	160 U	160 U	140 U	NA	170 U	170 U	200 U	170 U	150 U	200 U	190 U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	2,500 U	**2,700**	2,200 U	2,200 U	**1,600 J**	2,100 U	2,200 U	**1,600 J**	NA	**1,400 J**	2,200 U	**5,400 J**	**7,200 J**	**1,500 J**	2,200 UJ	2,200 UJ
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	**86**	**19**	**1.3 J**	5.5 U	**1.7 J**	5.3 U	5.7 U	5.6 U	NA	5.6 U	5.6 U	**1.7 J**	5.8 UJ	5.5 U	5.8 U	5.7 U
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																			
Arsenic	mg/L	0.01	0.01	0.9	--	--	**0.011 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.017**	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	**0.18 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.15 J**	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	**0.0014 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.0047**	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	**0.24**	NA	NA	NA	NA	NA	NA	NA	NA	**0.19**	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	**0.012 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.0097 J**	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-706								SB-707								
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17
						Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19
						Sample ID	OC-SB-706-0.0/10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Chemical	Units		S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Volatiles																							
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	**0.83 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.85 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 UJ	4.1 UJ	3.9 U	5 U	4.4 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.9 J**	5 U	3.1 U	NA	**2.5 J**	**1.4 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.6 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.5 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.5 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.2 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.68 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	4.5 U	**1.3 J**	**1.9 J**	3.7 U	**75**	**0.54 J**	**1.9 J**	NA	5.2 U	**6.3**	**1 J**	3.8 U	4.1 U	3.9 U	5 U	4.4 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**25**	5 U	3.1 U	NA	5.2 U	**3.5 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	23 U	**15 J+**	**8.2 J**	19 U	**17 J+**	25 U	15 U	NA	**15 J**	**21 J+**	21 U	19 U	**3.9 J**	19 U	25 U	22 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	230 U	210 U	190 U	190 U	210 U	250 U	150 U	NA	260 U	200 U	210 U	190 UJ	200 UJ	190 U	250 U	220 U
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2 J**	5 U	3.1 U	NA	5.2 U	**0.2 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2.6 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2.2 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.91 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**5.6**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2.9 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	45 U	42 U	39 U	37 U	42 U	50 U	31 U	NA	52 U	39 U	42 U	38 UJ	41 UJ	39 U	50 U	44 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	23 U	21 U	19 U	19 U	21 U	25 U	15 U	NA	26 U	20 U	21 U	19 UJ	20 UJ	19 U	25 U	22 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.94 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**6.1**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.5 J**	5 U	3.1 U	NA	5.2 U	**0.41 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Semivolatiles																							
1,1'-Biphenyl	ug/kg	0.87	50	1,000,000	50	5,000,000	NA	**5.3 J**	**5,500**	36 U	72 U	**910**	36 U	35 U	NA	**19 J**	36 U	35 U	34 U	35 U	36 U	37 U	35 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	**4.9 J**	350 U	36 U	72 U	40 U	36 U	35 U	NA	**68 J**	**1.7 J**	35 U	34 U	35 U	36 U	37 U	35 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**10 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	72 U	**190 J**	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-706								SB-707								
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17
						Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19
						Sample ID	OC-SB-706-0.0/10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	**4.4 J**	720 U	72 U	150 U	81 U	72 U	71 U	NA	330 U	73 U	72 U	69 U	71 U	72 U	75 U	71 U
Aniline	ug/kg	4.6	NS	NS	--	--	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	360 U	3,600 U	360 U	350 U	2,000 U	360 U	350 U	NA	410 U	360 U	360 U	350 U	350 U	360 U	370 U	350 U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	R	R	R	R	R	R	R	NA	R	R	R	R	R	R	R	R
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	**5.3 J**	72 U	7.2 U	15 U	**3.6 J**	7.2 U	7.1 U	NA	**17 J**	**1.4 J**	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	**4.7 J**	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**11 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	**6.8 J**	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**22 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	NA	**3.8 J**	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**16 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	NA	370 U	1,800 U	180 U	370 U	200 U	180 U	180 U	NA	820 U	190 U	180 U	R	R	180 U	190 U	180 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	90,000	90,000	2,000,000	2,000,000	NA	**770**	**370,000**	**170 J**	**210 J**	**120,000**	**240 J**	350 U	NA	**8,100**	**500**	**2,400**	340 U	350 U	360 U	370 U	350 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	15 U	**55 J**	7.2 U	15 U	**8.9**	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	NA	**5.6 J**	72 U	7.2 U	15 U	**4 J**	7.2 U	7.1 U	NA	**19 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	72 U	**29 J**	36 U	72 U	**4.6 J**	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	NA	72 U	**2,100**	36 U	72 U	**360**	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	NA	72 U	350 U	36 U	72 U	**47**	36 U	35 U	NA	160 U	36 U	**23 J**	34 U	35 U	36 U	37 U	35 U
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	NA	**6.6 J**	**46 J**	7.2 U	15 U	**12**	7.2 U	7.1 U	NA	**21 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	15 U	72 U	7.2 U	15 U	**3.6 J**	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	**3.2 J**	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**17 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	**4.5 J**	72 U	7.2 U	15 U	**2.5 J**	7.2 U	7.1 U	NA	**7.3 J**	7.3 U	7.2 U	6.9 U	**1.6 J**	7.2 U	7.5 U	7.1 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**8.4 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	NA	**52 J**	**28,000 J**	36 U	**25 J**	**6,200 J**	36 U	35 U	NA	**510**	**18 J**	35 U	34 U	35 U	36 U	37 U	35 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	NA	**4.5 J**	**150**	**4.5 J**	**4.5 J**	**28**	**2 J**	7.1 U	NA	**16 J**	**3.3 J**	**2.6 J**	**2.5 J**	**2.1 J**	7.2 U	7.5 U	7.1 U
Phenol	ug/kg	330	1,000	20,000	1,000	20,000	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	NA	**6.9 J**	**68 J**	7.2 U	15 U	**15**	7.2 U	7.1 U	NA	**31 J**	**1.7 J**	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Metals																							
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	**5,000**	**13,000**	**9,000**	**11,000**	**3,800**	**5,400**	**8,100**	NA	**8,300**	**14,000**	**6,400**	**7,400 J+**	**8,200 J+**	**7,700**	**14,000**	**2,700**
Antimony	mg/kg	0.035	20	20	30	30	NA	**0.63 J**	**1.1 J**	**0.95 J**	83 U	18 U	**0.6 J**	**1.3 J**	NA	**1 J**	**1.2 J**	15 U	**0.65 J-**	**0.62 J-**	**0.5 J**	**1 J**	17 U
Arsenic	mg/kg	0.0015	20	20	50	50	NA	**11**	**7.6**	**6.2**	**17**	**3.2**	**3.3**	**3.1**	NA	**33**	**29**	**5**	**3.6**	**3.5**	**2.4**	**3.7**	**1.4 J**
Barium	mg/kg	16	1000	1000	5000	5000	NA	**16**	**43**	**34**	**41**	**10**	**25**	**42**	NA	**28**	**55**	**16**	**26**	**26**	**25**	**60**	**15**
Beryllium	mg/kg	1.9	90	90	200	200	NA	**0.27**	**0.39**	**0.35**	**0.48**	**0.14 J**	**0.24**	**0.23**	NA	**0.38**	**0.62**	**0.32**	**0.4**	**0.38**	**0.38**	**0.48**	**0.14 J**
Cadmium	mg/kg	0.069	70	70	100	100	NA	**0.5**	0.22 U	0.23 U	0.22 U	0.24 U	0.22 U	0.22 U	NA	**0.18 J**	0.22 U	**0.051 J**	0.22 U	0.21 U	0.23 U	0.23 U	0.22 U
Calcium	mg/kg	NS	NS	NS	--	--	NA	**1,600**	**3,500**	**1,700**	**3,800**	**1,500**	**770**	**3,200**	NA	**12,000**	**3,700**	**7,000**	**2,400**	**2,700**	**3,300**	**4,400**	**950**
Chromium	mg/kg	4,000,000	100	100	200	200	NA	**19**	**200**	**890**	**1,300**	**310**	**460**	**460**	NA	**79**	**44**	**120**	**83 J-**	**84 J-**	**72**	**170**	**100**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	**0.95**	**2.9**	**6.6**	**20.8**	**3.6**	**4.7**	**5.6**	NA	**2.7**	**1**	**7.6**	**3.4**	**2.9**	**4.2**	**5.5**	**5.5**
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	**2.2**	**9.1**	**4.4**	**6.8**	**1.6**	**3.3**	**6.2**	NA	**5.7**	**13**	**3.2**	**3.2**	**3.7**	**3.8**	**6.2**	**1.2**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-706**								**SB-707**									
						Depth Interval (ft)	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**10 - 12**	**20 - 22**	**26 - 27**	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**		**8 - 10**	**12 - 13**	**15 - 17**
						Sample Date	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**		**11/07/19**	**11/07/19**	**11/07/19**
						Sample ID	**OC-SB-706-0.0/10-XXX-20191106**	**OC-SB-706-0.0/2.0-XXX-20191106**	**OC-SB-706-2.0/4.0-XXX-20191106**	**OC-SB-706-4.0/6.0-XXX-20191106**	**OC-SB-706-6.0/8.0-XXX-20191106**	**OC-SB-706-10/12-XXX-20191106**	**OC-SB-706-20/22-XXX-20191106**	**OC-SB-706-26/27-XXX-20191106**	**OC-SB-707-0.0/10-XXX-20191107**	**OC-SB-707-0.0/2.0-XXX-20191107**	**OC-SB-707-2.0/4.0-XXX-20191107**	**OC-SB-707-4.0/6.0-XXX-20191107**	**OC-SB-707-6.0/8.0-XXX-20191107**	**OC-SB-707-6.0/8.0-DUP-20191107**	**OC-SB-707-8.0/10-XXX-20191107**	**OC-SB-707-12/13-XXX-20191107**	**OC-SB-707-15/17-XXX-20191107**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
Copper	mg/kg	2.8	NS	NS	--	--	NA	**5.7**	**27**	**11**	**25**	**3.5**	**9.9**	**39**	NA	**11**	**22**	**12**	**11**	**11**	**9.6**	**13**	**3.9**
Iron	mg/kg	35	NS	NS	--	--	NA	**7,000**	**16,000**	**12,000**	**23,000**	**4,500**	**11,000**	**14,000**	NA	**16,000**	**19,000**	**7,700**	**9,500**	**10,000**	**7,800**	**16,000**	**4,500**
Lead	mg/kg	NS	200	200	600	600	NA	**4.7**	**8.2**	**5.6**	**21**	**3.4**	**3**	**3.8**	NA	**11**	**14**	**4.8**	**5.5**	**5.4**	**4.3**	**9.2**	**1.7**
Magnesium	mg/kg	NS	NS	NS	--	--	NA	**1,700**	**6,200**	**2,700**	**4,200**	**1,100**	**1,700**	**3,900**	NA	**3,000**	**6,400**	**3,200**	**2,500**	**2,900**	**2,500**	**4,900**	**960**
Manganese	mg/kg	2.8	NS	NS	--	--	NA	**87**	**210**	**130**	**180**	**53**	**89**	**140**	NA	**110**	**310**	**150**	**160 J+**	**180 J+**	**120**	**170**	**36**
Mercury	mg/kg	0.0033	20	20	30	30	NA	**0.011 J**	**0.09**	0.022 U	0.022 U	**0.065**	**0.01 J**	**0.0089 J**	NA	**0.042**	0.022 U	**0.0086 J**	0.022 U	0.021 U	0.021 U	**0.02 J**	**0.011 J**
Nickel	mg/kg	2.6	600	600	1000	1000	NA	**6.3**	**23**	**12**	**17**	**4 J**	**7**	**12**	NA	**15**	**40**	**13**	**8.9**	**10**	**9.8**	**19**	**3.2 J**
Potassium	mg/kg	NS	NS	NS	--	--	NA	**750**	**2,000**	**1,500**	**2,000**	**460**	**730**	**1,500**	NA	**890**	**2,700**	**750**	**1,400**	**1,700**	**1,300**	**2,600**	**710**
Selenium	mg/kg	0.052	400	400	700	700	NA	**0.82 J**	4.4 U	4.6 U	4.4 U	4.8 U	4.4 U	4.3 U	NA	5 U	4.4 U	4.1 U	4.4 U	4.2 U	4.5 U	4.5 U	4.5 U
Sodium	mg/kg	NS	NS	NS	--	--	NA	**82 J**	**220**	**210**	**330**	**58 J**	**97 J**	**290**	NA	**86 J**	**170**	**130 J**	**240**	**310**	**370**	**470**	**110 J**
Tin	mg/kg	300	NS	NS	--	--	NA	**0.59 J**	**0.78 J**	2.3 U	**0.81 J**	2.4 U	2.2 U	2.2 U	NA	**0.61 J**	**0.84 J**	2.1 U	**0.57 J**	**0.57 J**	**0.5 J**	**0.85 J**	2.2 U
Vanadium	mg/kg	8.6	400	400	700	700	NA	**10**	**40**	**19**	**35**	**8.3**	**18**	**35**	NA	**19**	**33**	**15**	**17 J**	**19 J**	**15**	**32**	**8.6**
Zinc	mg/kg	37	1000	1000	5000	5000	NA	**14**	**27**	**23**	**46**	**9.5**	**19**	**26**	NA	**28**	**43**	**16**	**21**	**23**	**15**	**40**	**7.8**
General Chemistry																							
Ammonia	mg/kg	NS	NS	NS	--	--	NA	**10**	**14**	**9.6**	**12**	**11**	**11**	**12**	NA	**6**	**13**	**6.5**	**5.6 J-**	**5.5 J-**	**7.5**	**17**	**18**
Chloride	mg/kg	NS	NS	NS	--	--	NA	11 UJ	11 UJ	**7 J**	**4.8 J**	12 UJ	11 UJ	**15 J**	NA	**5.2 J**	11 UJ	11 UJ	**4.1 J**	**5.6 J**	**9.9 J**	11 U	11 U
Sulfate	mg/kg	NS	NS	NS	--	--	NA	**1,000 J-**	**410 J**	**120 J**	**160 J**	**290 J**	**66 J**	**140 J**	NA	**170 J**	**2,100 J**	**7,100 J**	**130 J**	**150**	**190**	**53**	**46**
Other Analyses																							
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	200 U	180 U	160 U	170 U	230 U	160 U	170 U	NA	170 U	220 U	160 U	150 U	160 U	140 U	190 U	180 U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	2,300 UJ	2,200 UJ	2,200 UJ	2,200 UJ	**2,400 J**	2,200 UJ	2,200 UJ	NA	**3,200 J**	2,200 UJ	2,200 UJ	**1,300 J**	2,100 UJ	**1,500 J**	2,300 UJ	2,100 UJ
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	5.4 U	5.7 U	5.6 U	5.5 U	6.1 U	5.6 U	5.6 U	NA	**5.6 J**	**2 J**	**9.3**	**2.7 J**	**2.6 J**	**1.7 J**	6.3 U	5.4 U
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																			
Arsenic	mg/L	0.01	0.01	0.9	--	--	0.015 U	NA	NA	NA	NA	NA	NA	NA	**0.035 J+**	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	**0.19 J**	NA	NA	NA	NA	NA	NA	NA	**0.15 J**	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	**0.0028**	NA	NA	NA	NA	NA	NA	NA	**0.0018 J**	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	**0.18**	NA	NA	NA	NA	NA	NA	NA	**0.057**	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	**0.014 J**	NA	NA	NA	NA	NA	NA	NA	**0.027**	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-708**																	
						Depth Interval (ft)	**0 - 10**		**0 - 2**		**2 - 4**		**4 - 6**		**6 - 8**		**8 - 10**		**16 - 18**		**22 - 24**		**28 - 30**		**33 - 34**	
						Sample Date	**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**	
						Sample ID	**OC-SB-708-0.0/10-XXX-20191104**		**OC-SB-708-0.0/2.0-XXX-20191104**		**OC-SB-708-2.0/4.0-XXX-20191104**		**OC-SB-708-4.0/6.0-XXX-20191104**		**OC-SB-708-6.0/8.0-XXX-20191104**		**OC-SB-708-8.0/10-XXX-20191104**		**OC-SB-708-16/18-XXX-20191104**		**OC-SB-708-22/24-XXX-20191104**		**OC-SB-708-28/30-XXX-20191104**		**OC-SB-708-33/34-XXX-20191104**	
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**	
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																				
Volatiles																										
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	6.4	U	**0.37**	**J**	4.4	U	**0.43**	**J**	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	**0.63**	**J**	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	**2.7**	**J**	6	U	**5.7**		**9.1**		**2.7**	**J**	**0.74**	**J**	**1**	**J**	**0.44**	**J**	3.4	U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	**0.88**	**J**	6	U	**0.76**	**J**	**2.1**	**J**	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	32	U	**11**	**J+**	22	U	19	U	21	U	**4.1**	**J+**	18	U	22	U	**5.5**	**J+**
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	**1.3**	**J**	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	**20**	**J**	**41**	**J**	**12**	**J**	**11**	**J**	**5.3**	**J**	**13**	**J**	**4.4**	**J**	**15**	**J**	**24**	**J**
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	**1.3**	**J**
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	**3.9**	**J**	6	U	4.4	U	3.9	U	4.3	U	**2.9**	**J**	3.6	U	4.5	U	**3**	**J**
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	**1**	**J**
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	64	U	60	U	44	U	39	U	43	U	41	U	36	U	45	U	34	U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	**1.1**	**J**	30	U	22	U	19	U	21	U	21	U	18	U	22	U	**0.53**	**J**
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	**0.34**	**J**
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	**0.61**	**J**	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	**0.99**	**J**
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	6.4	U	6	U	4.4	U	3.9	U	4.3	U	4.1	U	3.6	U	4.5	U	3.4	U
Semivolatiles																										
1,1'-Biphenyl	ug/kg	0.87	50	1,000,000	50	5,000,000	NA	**3.5**	**J**	38	U	36	U	35	U	34	U	34	U	35	U	38	U	36	U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	**2.2**	**J**	38	U	36	U	**7.5**	**J**	34	U	34	U	35	U	38	U	36	U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	36	U	38	U	36	U	35	U	34	U	34	U	35	U	38	U	36	U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	7.2	U	7.7	U	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	36	U	38	U	36	U	35	U	34	U	34	U	35	U	38	U	36	U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	36	U	38	U	36	U	35	U	34	U	34	U	35	U	38	U	36	U
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	7.2	U	7.7	U	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

							Sample Location	**SB-708**																				
							Depth Interval (ft)	**0 - 10**		**0 - 2**		**2 - 4**		**4 - 6**		**6 - 8**		**8 - 10**		**16 - 18**		**22 - 24**		**28 - 30**		**33 - 34**		
							Sample Date	**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		
							Sample ID	**OC-SB-708-0.0/10-XXX-20191104**		**OC-SB-708-0.0/2.0-XXX-20191104**		**OC-SB-708-2.0/4.0-XXX-20191104**		**OC-SB-708-4.0/6.0-XXX-20191104**		**OC-SB-708-6.0/8.0-XXX-20191104**		**OC-SB-708-8.0/10-XXX-20191104**		**OC-SB-708-16/18-XXX-20191104**		**OC-SB-708-22/24-XXX-20191104**		**OC-SB-708-28/30-XXX-20191104**		**OC-SB-708-33/34-XXX-20191104**		
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**					**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**		
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																						
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000		NA		**1.6**	**J**	7.7	U	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Acetophenone	ug/kg	58	NS	NS	--	--		NA		**3.4**	**J**	77	U	74	U	71	U	70	U	69	U	72	U	78	U	72	U	
Aniline	ug/kg	4.6	NS	NS	--	--		NA		36	U	38	U	36	U	**17**	**J**	34	U	34	U	35	U	38	U	36	U	
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000		NA		**2.6**	**J**	7.7	U	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Azobenzene	ug/kg	0.93	NS	NS	--	--		NA		360	U	380	U	360	U	340	U	330	U	350	U	360	U	380	U	350	U	
Benzaldehyde	ug/kg	4.1	NS	NS	--	--		NA			R		R		R		R		R		R		R		R		R	
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000		NA		**10**		**1.7**	**J**	7.4	U	**1.6**	**J**	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000		NA		**8.5**		7.7	U	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000		NA		**17**		7.7	U	7.4	U	**2.1**	**J**	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000		NA		**6.7**	**J**	7.7	U	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000		NA		**4.5**	**J**	7.7	U	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Benzoic Acid	ug/kg	1,500	NS	NS	--	--		NA		180	U	190	U	190	U	180	U	180	U	180	U	180	U	200	U	180	U	
Benzyl Alcohol	ug/kg	48	NS	NS	--	--		NA		36	U	38	U	36	U	35	U	34	U	34	U	35	U	38	U	**2.9**	**J**	
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	90,000	90,000	2,000,000	2,000,000		NA		**500**		**72**	**J**	**57**	**J**	**2,900**		340	U	340	U	350	U	380	U	360	U	
Carbazole	ug/kg	NS	NS	NS	--	--		NA		**1.9**	**J**	7.7	U	7.4	U	**2.2**	**J**	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000		NA		**16**		**2.1**	**J**	7.4	U	**2.7**	**J**	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000		NA		**2.7**	**J**	7.7	U	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Dibenzofuran	ug/kg	15	NS	NS	--	--		NA		36	U	38	U	36	U	35	U	34	U	34	U	35	U	38	U	36	U	
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000		NA		36	U	**20**	**J**	**25**	**J**	35	U	34	U	34	U	35	U	38	U	36	U	
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000		NA		36	U	38	U	36	U	35	U	34	U	34	U	35	U	38	U	36	U	
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--		NA		**18**	**J**	38	U	36	U	35	U	34	U	34	U	35	U	38	U	36	U	
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--		NA		36	U	38	U	36	U	35	U	34	U	34	U	35	U	38	U	36	U	
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000		NA		**9.8**		**2.8**	**J**	7.4	U	**3.1**	**J**	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000		NA		7.2	U	7.7	U	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000		NA		**5.9**	**J**	7.7	U	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000		NA		**5**	**J**	**1.9**	**J**	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--		NA		7.2	U	7.7	U	7.4	U	7.1	U	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--		NA		**100**		38	U	36	U	**280**		34	U	34	U	35	U	38	U	36	U	
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000		NA		**7.3**		**2.9**	**J**	**2.3**	**J**	**2.3**	**J**	7	U	6.9	U	7.2	U	**2.8**	**J**	7.2	U	
Phenol	ug/kg	330	1,000	20,000	1,000	20,000		NA		**13**	**J**	38	U	36	U	35	U	34	U	34	U	35	U	38	U	36	U	
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000		NA		**10**		**2.9**	**J**	7.4	U	**4.1**	**J**	7	U	6.9	U	7.2	U	7.8	U	7.2	U	
Metals																												
Aluminum	mg/kg	3,000	NS	NS	--	--		NA		**8,600**		**5,200**		**11,000**		**7,300**		**12,000**		**9,500**		**8,800**		**2,300**		**4,800**		
Antimony	mg/kg	0.035	20	20	30	30		NA		**0.72**	**J**	18	U	**1.1**	**J**	16	U	**0.57**	**J**	**0.77**	**J**	**0.91**	**J**	17	U	16	U	
Arsenic	mg/kg	0.0015	20	20	50	50		NA		**17**		**6.3**		**16**		**2.9**		**3.2**		**3.8**		**2.3**		**0.75**	**J**	**1.2**	**J**	
Barium	mg/kg	16	1000	1000	5000	5000		NA		**54**		**16**		**47**		**23**		**45**		**15**	**J+**	**58**		**15**		**23**		
Beryllium	mg/kg	1.9	90	90	200	200		NA		**0.43**		**0.24**		**0.34**		**0.34**		**0.52**		**0.36**		**0.27**		**0.085**	**J**	**0.16**	**J**	
Cadmium	mg/kg	0.069	70	70	100	100		NA		**0.035**	**J**	**0.16**	**J**	**0.036**	**J**	**0.2**	**J**	**0.14**	**J**	0.21	U	0.22	U	0.23	U	0.22	U	
Calcium	mg/kg	NS	NS	NS	--	--		NA		**7,900**		**2,400**		**2,300**		**3,700**		**2,900**		**1,200**	**J+**	**2,300**		**910**		**1,500**		
Chromium	mg/kg	4,000,000	100	100	200	200		NA		**26**		**40**		**40**		**18**		**31**		**150**	**J-**	**270**		**140**		**400**		
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200		NA		**4.9**		**0.7**		**0.76**		**0.72**		**0.8**		**2.6**		**11.4**		**7.9**		**6**		
Cobalt	mg/kg	0.027	NS	NS	--	--		NA		**5.8**		**2.8**		**7.4**		**2.9**		**6.6**		**5.6**		**4**		**0.87**		**2.4**		

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-708**																		
						Depth Interval (ft)	**0 - 10**		**0 - 2**		**2 - 4**		**4 - 6**		**6 - 8**		**8 - 10**		**16 - 18**		**22 - 24**		**28 - 30**		**33 - 34**	
						Sample Date	**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**		**11/04/19**	
						Sample ID	**OC-SB-708-0.0/10-XXX-20191104**		**OC-SB-708-0.0/2.0-XXX-20191104**		**OC-SB-708-2.0/4.0-XXX-20191104**		**OC-SB-708-4.0/6.0-XXX-20191104**		**OC-SB-708-6.0/8.0-XXX-20191104**		**OC-SB-708-8.0/10-XXX-20191104**		**OC-SB-708-16/18-XXX-20191104**		**OC-SB-708-22/24-XXX-20191104**		**OC-SB-708-28/30-XXX-20191104**		**OC-SB-708-33/34-XXX-20191104**	
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**	
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Copper	mg/kg	2.8	NS	NS	--	--	NA		**11**		**5.2**		**15**		**10**		**17**		**15**	**J-**	**9**		**2**		**9.3**	
Iron	mg/kg	35	NS	NS	--	--	NA		**11,000**		**5,700**		**16,000**		**6,900**		**12,000**		**14,000**		**15,000**		**9,200**		**7,200**	
Lead	mg/kg	NS	200	200	600	600	NA		**7.5**		**4.4**		**7.2**		**4.5**		**6.2**		**3**		**5.4**		**2**		**2.3**	
Magnesium	mg/kg	NS	NS	NS	--	--	NA		**3,200**		**1,700**		**7,300**		**2,100**		**3,800**		**5,200**	**J-**	**4,100**		**1,000**		**2,500**	
Manganese	mg/kg	2.8	NS	NS	--	--	NA		**170**		**77**		**190**		**110**		**140**		**100**	**J-**	**140**		**42**		**90**	
Mercury	mg/kg	0.0033	20	20	30	30	NA		**0.016**	**J**	**0.012**	**J**	0.022	U	0.019	U	0.019	U	0.022	U	0.021	U	0.021	U	**0.012**	**J**
Nickel	mg/kg	2.6	600	600	1000	1000	NA		**18**		**9.5**		**33**		**9**		**19**		**17**		**12**		**2.8**	**J**	**8.6**	
Potassium	mg/kg	NS	NS	NS	--	--	NA		**1,700**		**780**		**2,800**		**1,100**		**2,400**		**1,000**	**J+**	**3,000**		**1,700**		**1,400**	
Selenium	mg/kg	0.052	400	400	700	700	NA		4.2	U	4.7	U	4.6	U	4.4	U	4.1	U	**1.3**	**J**	**0.61**	**J**	4.6	U	4.3	U
Sodium	mg/kg	NS	NS	NS	--	--	NA		**200**		**63**	**J**	**160**		**86**	**J**	**470**		**81**	**J**	**300**		**230**		**380**	
Tin	mg/kg	300	NS	NS	--	--	NA		**0.65**	**J**	2.4	U	**0.59**	**J**	**0.52**	**J**	**0.96**	**J**	2.1	U	**0.68**	**J**	2.3	U	2.2	U
Vanadium	mg/kg	8.6	400	400	700	700	NA		**18**		**9.9**		**28**		**17**		**36**		**31**	**J-**	**33**		**9.1**		**16**	
Zinc	mg/kg	37	1000	1000	5000	5000	NA		**22**		**17**		**35**		**23**		**37**		**23**		**26**		**7.2**		**15**	
General Chemistry																										
Ammonia	mg/kg	NS	NS	NS	--	--	NA		7.3	U	**18**		6.6	U	**15**		9.9	U	**8.5**		**17**		**62**		**150**	
Chloride	mg/kg	NS	NS	NS	--	--	NA		11	UJ	12	UJ	11	UJ	10	UJ	10	UJ	11	UJ	**7.2**	**J**	**70**	**J**	**210**	**J**
Sulfate	mg/kg	NS	NS	NS	--	--	NA		**430**	**J**	**590**	**J**	**190**	**J**	**1,800**	**J**	**57**	**J**	**35**	**J**	**100**	**J**	**460**	**J**	**1,200**	**J**
Other Analyses																										
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA		200	U	210	U	180	U	210	U	210	U	190	U	220	U	230	U	190	U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA		2,200	UJ	2,400	UJ	2,200	UJ	2,100	UJ	2,100	UJ	2,100	UJ	2,200	UJ	2,300	UJ	**1,900**	**J**
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA		**6.4**		5.9	U	5.5	U	5.5	U	5.3	UJ	5.6	UJ	**2.4**	**J**	**1.5**	**J**	5.9	UJ
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																						
Arsenic	mg/L	0.01	0.01	0.9	--	--	0.015	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Barium	mg/L	2	2	50	--	--	**0.45**	**J**	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Cadmium	mg/L	0.005	0.005	0.004	--	--	0.002	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chromium	mg/L	0.1	0.1	0.3	--	--	**0.035**		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Lead	mg/L	0.015	0.015	0.01	--	--	0.02	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-709									SB-710						
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10		16 - 17	32 - 33	0 - 10	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	36 - 37
						Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19		11/06/19	11/06/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/05/19	11/05/19
						Sample ID	OC-SB-709-0.0/10-XXX-20191106	OC-SB-709-0.0/2.0-XXX-20191106	OC-SB-709-2.0/4.0-XXX-20191106	OC-SB-709-4.0/6.0-XXX-20191106	OC-SB-709-6.0/8.0-XXX-20191106	OC-SB-709-8.0/10-XXX-20191106	OC-SB-709-8.0/10-DUP-20191106	OC-SB-709-16/17-XXX-20191106	OC-SB-709-32/33-XXX-20191106	OC-SB-710-0.0/10XXX-20191104	OC-SB-710-2.0/4.0-XXX-20191104	OC-SB-710-4.0/6.0-XXX-20191104	OC-SB-710-6.0/8.0-XXX-20191104	OC-SB-710-8.0/10-XXX-20191104	OC-SB-710-23/24-XXX-20191105	OC-SB-710-36/37-XXX-20191105
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
Chemical	Units		S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																
Volatiles																						
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	4.4 U	**0.52 J**	**0.89 J**	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	**0.47 J**
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	**0.28 J**	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	**0.35 J**	3.7 U	5.2 U	4.6 U	3.7 U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	4.4 U	**3 J**	**2.7 J**	4.5 U	3.7 U	4.9 U	**1.2 J**	4.2 U	NA	**7.1**	**35**	**3.9**	**0.81 J**	4.6 U	3.7 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	4.4 U	**1.2 J**	**0.77 J**	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	**1.4 J**	**18**	**1.8 J**	5.2 U	4.6 U	3.7 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	22 U	**9.5 J**	**16 J+**	23 U	18 U	25 U	22 U	21 U	NA	24 U	**7 J+**	**18 J+**	26 U	23 U	19 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	**5.8 J**	**33 J**	**77 J**	**22 J**	**11 J-**	**10 J-**	**17 J**	**9.7 J**	NA	**15 J**	**30 J**	**30 J**	**8.3 J**	230 U	**14 J**
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	**5.7**	**2.7 J**	5.2 U	4.6 U	3.7 U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	**0.42 J**	**0.27 J**	**0.33 J**	4.5 U	**0.29 J**	**0.57 J**	**0.54 J**	**0.38 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	**1.4 J**	**0.75 J**	**1.1 J**	**0.76 J**	**0.88 J**	**1.7 J**	**1.9 J**	**1.3 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	44 U	39 U	44 U	45 U	37 UJ	49 UJ	44 U	42 U	NA	48 U	37 U	37 U	52 U	46 U	37 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	22 U	19 U	22 U	23 U	18 UJ	25 UJ	22 U	21 U	NA	24 U	18 U	19 U	26 U	23 U	19 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	**0.29 J**	3.7 U	5.2 U	4.6 U	3.7 U
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	**1.4 J**	**0.75 J**	**1.1 J**	**0.76 J**	**0.88 J**	**1.7 J**	**1.9 J**	**1.3 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U
Semivolatiles																						
1,1'-Biphenyl	ug/kg	0.87	50	1,000,000	50	5,000,000	NA	**4.4 J**	**10 J**	**7 J**	**3.4 J**	39 U	38 U	35 U	36 U	NA	42 U	**4.4 J**	37 U	36 U	40 U	35 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	**3.9 J**	**23 J**	**14 J**	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	39 U	110 U	**3.9 J**	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-709									SB-710						
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10		16 - 17	32 - 33	0 - 10	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	36 - 37
						Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19		11/06/19	11/06/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/05/19	11/05/19
						Sample ID	OC-SB-709-0.0/10-XXX-20191106	OC-SB-709-0.0/2.0-XXX-20191106	OC-SB-709-2.0/4.0-XXX-20191106	OC-SB-709-4.0/6.0-XXX-20191106	OC-SB-709-6.0/8.0-XXX-20191106	OC-SB-709-8.0/10-XXX-20191106	OC-SB-709-8.0/10-DUP-20191106	OC-SB-709-16/17-XXX-20191106	OC-SB-709-32/33-XXX-20191106	OC-SB-710-0.0/10XXX-20191104	OC-SB-710-2.0/4.0-XXX-20191104	OC-SB-710-4.0/6.0-XXX-20191104	OC-SB-710-6.0/8.0-XXX-20191104	OC-SB-710-8.0/10-XXX-20191104	OC-SB-710-23/24-XXX-20191105	OC-SB-710-36/37-XXX-20191105
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
Chemical	Units		S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	4.1 J	230 U	8.3 J	77 U	78 U	77 U	72 U	72 U	NA	85 U	75 U	75 U	73 U	82 U	72 U
Aniline	ug/kg	4.6	NS	NS	--	--	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	NA	8 U	23 U	2.3 J	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	390 U	380 U	380 U	380 U	380 U	380 U	360 U	350 U	NA	420 U	370 U	370 U	350 U	400 U	360 U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	R	R	R	R	R	R	R	R	NA	R	R	R	R	R	R
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	9.4	26	8.5	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	3.8 J	5.7 J	7.5 U	7.3 U	8.2 U	7.2 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	8.9	22 J	7.5 J	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	4.4 J	4.7 J	7.5 U	7.3 U	8.2 U	7.2 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	12	28	13	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	6.3 J	5.8 J	7.5 U	7.3 U	8.2 U	7.2 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	NA	7.4 J	13 J	6.5 J	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	4.1 J	3.2 J	7.5 U	7.3 U	8.2 U	7.2 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	NA	5.2 J	11 J	4.3 J	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	NA	200 U	580 U	200 U	190 U	R	R	180 U	180 U	NA	220 U	190 U	190 U	190 U	210 U	180 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	90,000	90,000	2,000,000	2,000,000	NA	940	6,300	6,900	6,700	390 U	380 U	50 J	360 U	NA	300 J	1,000	370 U	120 J	400 U	350 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	8 U	5.7 J	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	NA	12	27	12	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	5.9 J	5.8 J	7.5 U	7.3 U	8.2 U	7.2 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	2.1 J	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	NA	39 U	72 J	29 J	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	NA	61	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	NA	14	35	16	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	6.7 J	10	7.5 U	7.3 U	8.2 U	7.2 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	6.3 J	13 J	6.5 J	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	3.8 J	2.9 J	7.5 U	7.3 U	8.2 U	7.2 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	5 J	6.7 J	3.7 J	7.7 U	7.8 U	2.3 J	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	NA	49	1,600	450	27 J	39 U	38 U	35 U	36 U	NA	35 J	62	37 U	36 U	40 U	35 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	NA	8.3	15 J	9.3	2.5 J	3.6 J	2.1 J	7.2 U	7.2 U	NA	3.9 J	7.9	7.5 U	2.2 J	8.2 U	7.2 U
Phenol	ug/kg	330	1,000	20,000	1,000	20,000	NA	80	53 J	340	38 U	39 U	38 U	35 U	36 U	NA	42 U	11 J	37 U	36 U	40 U	35 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	NA	14	34	16	1.8 J	7.8 U	7.7 U	7.2 U	7.2 U	NA	6.6 J	8.9	7.5 U	7.3 U	8.2 U	7.2 U
Metals																						
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	8,400	5,200	7,500	5,000	10,000	8,300	9,700	12,000	NA	7,300	5,800	2,100	6,500	3,900	12,000
Antimony	mg/kg	0.035	20	20	30	30	NA	19 U	18 U	17 U	18 U	18 U	16 U	16 U	17 U	NA	19 U	0.56 J	17 U	17 U	19 U	1.2 J
Arsenic	mg/kg	0.0015	20	20	50	50	NA	7.6	5.6	6	3.8	7	4.8	4.2	0.97 J	NA	10	9.2	2.1 J	2 J	8.9	8.4
Barium	mg/kg	16	1000	1000	5000	5000	NA	49 J	13 J	21 J	12 J	49 J-	46 J-	81 J	53 J	NA	43	24	14	14	26	46
Beryllium	mg/kg	1.9	90	90	200	200	NA	0.3	0.18 J	0.25 J	0.22 J	0.52	0.36 J	0.28 J	2.2 U	NA	0.32	0.21 J	0.08 J	0.27	0.17 J	0.35
Cadmium	mg/kg	0.069	70	70	100	100	NA	0.13 J	0.6 J	0.29 J	0.24 U	0.24 U	0.22 U	0.22 U	0.22 U	NA	0.1 J	0.05 J	0.04 J	1.9	0.25 U	0.21 U
Calcium	mg/kg	NS	NS	NS	--	--	NA	11,000	4,600	4,200	550	2,200	1,500	2,800	8,700	NA	11,000	2,800	1,100	950	1,500	6,400
Chromium	mg/kg	4,000,000	100	100	200	200	NA	63	29	39	420	21	17	44	420	NA	140	41	10	12	310	740
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	2.2	1.2	1.7	8	0.74	0.7	3.9	6.7	NA	2	1.2	0.79	0.61	8.5	7.3
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	3.7	2.6	4.6	2.1	6.6	6.5	6.8	13	NA	4.6	3.7	0.79	3.2	2.1	15

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-709**									**SB-710**						
						Depth Interval (ft)	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**		**16 - 17**	**32 - 33**	**0 - 10**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**23 - 24**	**36 - 37**
						Sample Date	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**		**11/06/19**	**11/06/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/05/19**	**11/05/19**
						Sample ID	**OC-SB-709-0.0/10-XXX-20191106**	**OC-SB-709-0.0/2.0-XXX-20191106**	**OC-SB-709-2.0/4.0-XXX-20191106**	**OC-SB-709-4.0/6.0-XXX-20191106**	**OC-SB-709-6.0/8.0-XXX-20191106**	**OC-SB-709-8.0/10-XXX-20191106**	**OC-SB-709-8.0/10-DUP-20191106**	**OC-SB-709-16/17-XXX-20191106**	**OC-SB-709-32/33-XXX-20191106**	**OC-SB-710-0.0/10XXX-20191104**	**OC-SB-710-2.0/4.0-XXX-20191104**	**OC-SB-710-4.0/6.0-XXX-20191104**	**OC-SB-710-6.0/8.0-XXX-20191104**	**OC-SB-710-8.0/10-XXX-20191104**	**OC-SB-710-23/24-XXX-20191105**	**OC-SB-710-36/37-XXX-20191105**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																
Copper	mg/kg	2.8	NS	NS	--	--	NA	**7.7**	**4.8**	**11**	**5**	**11**	**9.2**	**9**	**29**	NA	**14**	**7.5**	**3.8**	**8.6**	**7**	**25**
Iron	mg/kg	35	NS	NS	--	--	NA	**10,000**	**5,900**	**8,100**	**5,300**	**13,000**	**9,900**	**15,000**	**21,000**	NA	**9,900**	**8,700**	**3,200**	**5,300**	**11,000**	**26,000**
Lead	mg/kg	NS	200	200	600	600	NA	**8.2**	**5**	**6.2**	**5.7**	**7.1**	**5.7**	**4.7**	**5.7**	NA	**7.4**	**4.4**	**1.9**	**4.8**	**4.9**	**5.6**
Magnesium	mg/kg	NS	NS	NS	--	--	NA	**3,100**	**1,400**	**2,600**	**1,300**	**3,300 J-**	**3,000 J-**	**4,500**	**10,000**	NA	**3,000**	**3,000**	**840**	**1,900**	**1,400**	**11,000**
Manganese	mg/kg	2.8	NS	NS	--	--	NA	**150**	**53**	**100**	**45**	**130 J-**	**120 J-**	**200**	**270**	NA	**170**	**130**	**47**	**69**	**72**	**290**
Mercury	mg/kg	0.0033	20	20	30	30	NA	**0.022 J**	**0.042**	**0.041**	**0.014 J**	0.024 U	0.021 U	0.022 U	0.021 U	NA	**0.021 J**	**0.01 J**	0.022 U	0.02 U	0.025 U	**0.0093 J**
Nickel	mg/kg	2.6	600	600	1000	1000	NA	**10**	**7.4**	**14**	**7.1**	**13**	**14**	**14**	**60**	NA	**14**	**14**	**2.5 J**	**10**	**7.1**	**39**
Potassium	mg/kg	NS	NS	NS	--	--	NA	**1,000**	**540**	**1,000**	**580**	**1,600**	**1,800**	**3,500**	**2,700**	NA	**1,700**	**1,200**	**650**	**810**	**1,900**	**2,300**
Selenium	mg/kg	0.052	400	400	700	700	NA	5 U	4.7 U	4.5 U	4.9 U	4.9 U	4.4 U	4.3 U	4.4 U	NA	5.2 U	4.7 U	4.5 U	**0.57 J**	5.1 U	**0.58 J**
Sodium	mg/kg	NS	NS	NS	--	--	NA	170 U	160 U	160 U	170 U	**150 J**	150 U	**160**	**870**	NA	**250**	**130 J**	**81 J**	**110 J**	**380**	**1,300**
Tin	mg/kg	300	NS	NS	--	--	NA	2.5 U	**0.5 J**	**0.62 J**	2.4 U	**0.77 J**	**0.5 J**	**0.47 J**	**0.57 J**	NA	**0.74 J**	**0.51 J**	2.2 U	2.2 U	**0.55 J**	**0.75 J**
Vanadium	mg/kg	8.6	400	400	700	700	NA	**16**	**10**	**16**	**8.2**	**23**	**18**	**28**	**53**	NA	**18**	**13**	**5.2**	**9.9**	**16**	**60**
Zinc	mg/kg	37	1000	1000	5000	5000	NA	**21**	**18**	**20**	**17**	**28 J-**	**24 J-**	**35**	**39**	NA	**28**	**19**	**6.4**	**21**	**12**	**46**
General Chemistry																						
Ammonia	mg/kg	NS	NS	NS	--	--	NA	**4.1 J**	**7.6**	**15**	**3.5 J**	**6.7 J**	**14 J**	**8.6**	**150**	NA	**15**	**12**	**18**	**14**	**52**	**58**
Chloride	mg/kg	NS	NS	NS	--	--	NA	12 U	11 U	12 U	**17**	12 U	11 U	11 U	11 U	NA	**19 J**	**6.9 J**	11 UJ	11 UJ	**57 J**	**670 J**
Sulfate	mg/kg	NS	NS	NS	--	--	NA	**1,300**	**12,000**	**63**	**150**	**110**	**140**	**890**	**320**	NA	**3,900 J**	**6,400 J**	**170 J**	**71 J**	**1,100 J**	**3,700 J**
Other Analyses																						
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	200 U	210 U	200 U	190 U	180 U	180 U	180 U	200 U	NA	230 U	210 U	200 U	220 U	230 U	200 U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	2,400 U	**2,100 J**	**2,900 J**	2,400 UJ	2,300 UJ	2,300 UJ	**3,300 J**	**2,300 J**	NA	**2,000 J**	**4,000 J**	**11,000 J**	2,200 UJ	2,500 UJ	**3,700 J**
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	6.1 U	5.8 U	6.9 U	5.7 U	5.7 UJ	5.6 UJ	**4.9 J**	5.4 U	NA	5.7 UJ	**1.8 J**	**1.6 J**	**1.8 J**	**1.7 J**	**1.9 J**
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																		
Arsenic	mg/L	0.01	0.01	0.9	--	--	0.015 U	NA	NA	NA	NA	NA	NA	NA	NA	**0.015**	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	**0.27 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.23 J**	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	**0.0037**	NA	NA	NA	NA	NA	NA	NA	NA	**0.0016 J**	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	**0.056**	NA	NA	NA	NA	NA	NA	NA	NA	**0.045**	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	**0.015 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.0068 J**	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-711								SB-712								
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	18 - 19	35 - 36	0 - 10		0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	37 - 38
						Sample Date	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
						Sample ID	OC-SB-711-0.0/10-XXX-20191112	OC-SB-711-0.0/2.0-XXX-20191112	OC-SB-711-2.0/4.0-XXX-20191112	OC-SB-711-4.0/6.0-XXX-20191112	OC-SB-711-6.0/8.0-XXX-20191112	OC-SB-711-8.0/10-XXX-20191112	OC-SB-711-18/19-XXX-20191112	OC-SB-711-35/36-XXX-20191112	OC-SB-712-0.0/10-XXX-20191111	OC-SB-712-0.0/10-DUP-20191111	OC-SB-712-0.0/2.0-XXX-20191111	OC-SB-712-2.0/4.0-XXX-20191111	OC-SB-712-4.0/6.0-XXX-20191111	OC-SB-712-6.0/8.0-XXX-20191111	OC-SB-712-8.0/10-XXX-20191111	OC-SB-712-23/24-XXX-20191111	OC-SB-712-37/38-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Chemical	Units		S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Volatiles																							
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	**1.7 J**	**3,200**	**8,000**	**4 J**	1,200 U	4 U	3.8 U	NA	NA	4.6 U	**2 J**	**4 J**	**8.6**	**2.4 J**	4.2 U	4.3 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	**1.3 J**	**2,600**	**6,300**	**2 J**	1,200 U	4 U	3.8 U	NA	NA	4.6 U	**0.67 J**	**1.5 J**	**3.3 J**	**0.59 J**	4.2 U	4.3 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	30 U	9,300 U	5,200 U	**5.7 J+**	6,100 U	20 U	19 U	NA	NA	23 U	**6.9 J+**	26 U	22 U	21 U	21 U	21 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	5.9 U	1,900 U	**420 J**	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	**0.45 J**	4.4 U	4.2 U	4.2 U	4.3 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	300 U	93,000 U	52,000 U	240 UJ	61,000 U	200 U	190 U	NA	NA	230 U	220 U	260 U	220 U	210 U	210 U	210 U
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	**0.49 J**	4.2 U	4.2 U	4.3 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	5.9 U	1,900 U	1,000 U	**3.3 J**	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	5.9 U	1,900 U	**370 J**	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	5.9 U	1,900 U	**200 J**	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	59 U	19,000 U	**330 J**	47 U	12,000 U	40 U	38 U	NA	NA	46 U	43 U	53 U	44 U	42 U	42 U	43 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	30 U	9,300 U	**150 J**	24 U	6,100 U	20 U	19 U	NA	NA	23 U	22 U	**0.9 J**	22 U	21 U	21 U	21 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Semivolatiles																							
1,1'-Biphenyl	ug/kg	0.87	50	1,000,000	50	5,000,000	NA	**7.1 J**	**75**	**14,000**	38 U	43 U	35 U	36 U	NA	NA	**9.7 J**	**1.7 J**	**3.4 J**	110 U	36 U	36 U	35 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	**2.8 J**	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	**5.2 J**	36 U	36 U	35 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	40 U	**12 J**	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	8 U	15 U	190 U	7.6 U	**2.7 J**	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**2.3 J**	22 U	7.4 U	7.3 U	7.2 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	7.5 U	**17 J**	7.4 U	7.3 U	7.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

							Sample Location	SB-711								SB-712								
							Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	18 - 19	35 - 36	0 - 10		0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	37 - 38
							Sample Date	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
							Sample ID	OC-SB-711-0.0/10-XXX-20191112	OC-SB-711-0.0/2.0-XXX-20191112	OC-SB-711-2.0/4.0-XXX-20191112	OC-SB-711-4.0/6.0-XXX-20191112	OC-SB-711-6.0/8.0-XXX-20191112	OC-SB-711-8.0/10-XXX-20191112	OC-SB-711-18/19-XXX-20191112	OC-SB-711-35/36-XXX-20191112	OC-SB-712-0.0/10-XXX-20191111	OC-SB-712-0.0/10-DUP-20191111	OC-SB-712-0.0/2.0-XXX-20191111	OC-SB-712-2.0/4.0-XXX-20191111	OC-SB-712-4.0/6.0-XXX-20191111	OC-SB-712-6.0/8.0-XXX-20191111	OC-SB-712-8.0/10-XXX-20191111	OC-SB-712-23/24-XXX-20191111	OC-SB-712-37/38-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria					N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Chemical	Units		S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																		
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000		NA	**1.8 J**	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**4.7 J**	**6.3 J**	7.4 U	7.3 U	7.2 U
Acetophenone	ug/kg	58	NS	NS	--	--		NA	80 U	150 U	1,900 U	76 U	87 U	72 U	73 U	NA	NA	400 U	73 U	**4.4 J**	220 U	74 U	73 U	72 U
Aniline	ug/kg	4.6	NS	NS	--	--		NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000		NA	**6.3 J**	**4.3 J**	**60 J**	7.6 U	8.7 U	**2 J**	**2.3 J**	NA	NA	40 U	**2.6 J**	**4.3 J**	**36**	7.4 U	7.3 U	7.2 U
Azobenzene	ug/kg	0.93	NS	NS	--	--		NA	400 U	1,800 U	7,500 U	1,900 U	420 U	350 U	350 U	NA	NA	390 U	360 U	370 U	1,800 U	360 U	360 U	360 U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--		NA	R	150 U	1,900 U	76 U	87 U	72 U	73 U	NA	NA	400 U	73 U	**6.7 J**	220 U	74 U	73 U	72 U
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000		NA	**22**	**9.9 J**	190 U	7.6 U	**2.2 J**	**9.7**	**10**	NA	NA	**11 J**	**7.6**	**20**	**72**	7.4 U	7.3 U	7.2 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000		NA	**17**	15 U	190 U	7.6 U	8.7 U	**4.9 J**	**6 J**	NA	NA	40 U	**9.5**	**23**	**67**	7.4 U	7.3 U	7.2 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000		NA	**25**	**19**	190 U	7.6 U	8.7 U	**5.7 J**	**7.9**	NA	NA	**14 J**	**12**	**39**	**68**	7.4 U	7.3 U	7.2 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000		NA	**11**	15 U	190 U	7.6 U	8.7 U	**2.1 J**	**3.2 J**	NA	NA	40 U	**8.2**	**24**	**56**	7.4 U	7.3 U	7.2 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000		NA	**8.8**	**8.3 J**	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	**3.7 J**	**13**	**32**	7.4 U	7.3 U	7.2 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--		NA	R	370 U	4,700 U	190 U	220 U	180 U	180 U	NA	NA	1,000 U	190 U	190 U	570 U	190 U	190 U	180 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--		NA	40 U	71 U	920 U	**59**	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	90,000	90,000	2,000,000	2,000,000		NA	**4,900**	**19,000**	**420,000**	**56 J**	**210 J**	**48 J**	360 U	NA	NA	**2,100**	**43 J**	**570**	**1,200**	**140 J**	360 U	350 U
Carbazole	ug/kg	NS	NS	NS	--	--		NA	**3.5 J**	15 U	190 U	7.6 U	8.7 U	7.2 U	**1.9 J**	NA	NA	40 U	**1.7 J**	**2.4 J**	**8.1 J**	7.4 U	7.3 U	7.2 U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000		NA	**27**	**20**	190 U	7.6 U	**2.6 J**	**9.3**	**9.9**	NA	NA	**12 J**	**8.6**	**27**	**75**	7.4 U	7.3 U	7.2 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000		NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**6.1 J**	**12 J**	7.4 U	7.3 U	7.2 U
Dibenzofuran	ug/kg	15	NS	NS	--	--		NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	**9.4 J**	36 U	36 U	35 U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000		NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000		NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--		NA	**21 J**	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--		NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000		NA	**46**	**23**	**160 J**	7.6 U	**4.8 J**	**8.5**	**13**	NA	NA	**19 J**	**18**	**30**	**120**	7.4 U	7.3 U	7.2 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000		NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**2 J**	**12 J**	7.4 U	7.3 U	7.2 U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000		NA	**11**	15 U	190 U	7.6 U	8.7 U	**1.7 J**	**2.7 J**	NA	NA	40 U	**6.5 J**	**21**	**38**	7.4 U	7.3 U	7.2 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000		NA	**4.4 J**	**22**	**79 J**	7.6 U	**3.2 J**	7.2 U	7.3 U	NA	NA	40 U	**2.1 J**	**5.7 J**	**11 J**	7.4 U	7.3 U	7.2 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--		NA	8 U	15 U	**53 J**	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**2.1 J**	22 U	7.4 U	7.3 U	7.2 U
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--		NA	40 U	**1,700**	**54,000**	**31 J**	43 U	35 U	36 U	NA	NA	200 U	36 U	**72**	**130**	36 U	36 U	35 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000		NA	**21**	**15**	**660**	7.6 U	**8.1 J**	**7.1 J**	**8.5**	NA	NA	40 U	**10**	**17**	**93**	7.4 U	**2.1 J**	7.2 U
Phenol	ug/kg	330	1,000	20,000	1,000	20,000		NA	40 U	**8,800**	920 U	**120**	43 U	35 U	36 U	NA	NA	200 U	36 U	**14 J**	110 U	36 U	36 U	35 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000		NA	**40**	**20**	190 U	7.6 U	**4.8 J**	**9.2**	**12**	NA	NA	**17 J**	**15**	**26**	**150**	7.4 U	7.3 U	7.2 U
Metals																								
Aluminum	mg/kg	3,000	NS	NS	--	--		NA	**8,200**	**8,100 J**	**4,000**	**3,100**	**3,000**	**6,900**	**13,000**	NA	NA	**8,100**	**10,000**	**8,400**	**10,000**	**4,500**	**2,500**	**10,000**
Antimony	mg/kg	0.035	20	20	30	30		NA	**0.64 J**	**0.45 J-**	17 U	17 U	20 U	16 U	**0.52 J**	NA	NA	18 U	16 U	16 U	**0.86 J**	**0.53 J**	16 U	**1.5 J**
Arsenic	mg/kg	0.0015	20	20	50	50		NA	**8.1**	**12**	**3.9**	**0.91 J**	**1.5 J**	**2.8**	**1.6 J**	NA	NA	**7.7**	**8.9**	**7.5**	**13**	**5.5**	**4.5**	**4.1**
Barium	mg/kg	16	1000	1000	5000	5000		NA	**73**	**32**	**18**	**6.6**	**11**	**21**	**110**	NA	NA	**61**	**43**	**34**	**41**	**15**	**18**	**71**
Beryllium	mg/kg	1.9	90	90	200	200		NA	**0.34**	**0.36**	**0.16 J**	**0.11 J**	**0.12 J**	**0.38**	**0.29**	NA	NA	**0.36**	**0.54**	**0.37**	**0.5**	**0.16 J**	**0.097 J**	**0.27**
Cadmium	mg/kg	0.069	70	70	100	100		NA	**0.34**	**2.5**	**9.3**	**0.79**	**0.054 J**	0.21 U	0.21 U	NA	NA	**0.16 J**	**0.062 J**	**0.067 J**	**0.098 J**	0.22 U	0.21 U	0.22 U
Calcium	mg/kg	NS	NS	NS	--	--		NA	**30,000**	**4,100 J-**	**1,200**	**1,000**	**1,300**	**1,400**	**3,000**	NA	NA	**22,000**	**4,100**	**15,000**	**3,300**	**1,500**	**850**	**12,000**
Chromium	mg/kg	4,000,000	100	100	200	200		NA	**95**	**63 J+**	**28**	**5.9**	**5.3**	**250**	**260**	NA	NA	**78**	**35**	**38**	**38**	**130**	**32**	**250**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200		NA	**5.1**	**0.74**	**0.49**	**0.18 J**	**0.37 J**	**5.7**	**10.1**	NA	NA	**5.5**	**0.71**	**0.56**	**1.4**	**2.8**	**1**	**16.8**
Cobalt	mg/kg	0.027	NS	NS	--	--		NA	**3.9**	**5.4**	**1.5**	**0.92**	**1**	**3.3**	**8.4**	NA	NA	**4.2**	**5.8**	**3.7**	**7.1**	**2.5**	**1.4**	**18**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 2
2019 Containment Area Leaching-Based Soil Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-711**								**SB-712**								
						Depth Interval (ft)	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**18 - 19**	**35 - 36**	**0 - 10**		**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**23 - 24**	**37 - 38**
						Sample Date	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/11/19**		**11/11/19**	**11/11/19**	**11/11/19**	**11/11/19**	**11/11/19**	**11/11/19**	**11/11/19**
						Sample ID	**OC-SB-711-0.0/10-XXX-20191112**	**OC-SB-711-0.0/2.0-XXX-20191112**	**OC-SB-711-2.0/4.0-XXX-20191112**	**OC-SB-711-4.0/6.0-XXX-20191112**	**OC-SB-711-6.0/8.0-XXX-20191112**	**OC-SB-711-8.0/10-XXX-20191112**	**OC-SB-711-18/19-XXX-20191112**	**OC-SB-711-35/36-XXX-20191112**	**OC-SB-712-0.0/10-XXX-20191111**	**OC-SB-712-0.0/10-DUP-20191111**	**OC-SB-712-0.0/2.0-XXX-20191111**	**OC-SB-712-2.0/4.0-XXX-20191111**	**OC-SB-712-4.0/6.0-XXX-20191111**	**OC-SB-712-6.0/8.0-XXX-20191111**	**OC-SB-712-8.0/10-XXX-20191111**	**OC-SB-712-23/24-XXX-20191111**	**OC-SB-712-37/38-XXX-20191111**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
Copper	mg/kg	2.8	NS	NS	--	--	NA	**8.6**	**12**	**4.3**	**2.8**	**3.6**	**14**	**28**	NA	NA	**11**	**11**	**11**	**23**	**4.8**	**2.2**	**64**
Iron	mg/kg	35	NS	NS	--	--	NA	**9,300**	**11,000**	**5,300**	**2,800**	**2,700**	**7,900**	**16,000**	NA	NA	**9,800**	**11,000**	**8,900**	**13,000**	**7,700**	**5,000**	**28,000**
Lead	mg/kg	NS	200	200	600	600	NA	**8.1**	**13**	**5.7**	**1.7**	**1.7**	**4**	**2.5**	NA	NA	**12**	**6.3**	**20**	**19**	**2.8**	**2**	**2.8**
Magnesium	mg/kg	NS	NS	NS	--	--	NA	**3,400**	**2,800**	**940**	**860**	**900**	**2,100**	**11,000**	NA	NA	**3,300**	**3,800**	**2,200**	**4,000**	**2,600**	**1,300**	**5,700**
Manganese	mg/kg	2.8	NS	NS	--	--	NA	**160**	**140 J+**	**45**	**42**	**45**	**110**	**270**	NA	NA	**160**	**190**	**130**	**210**	**120**	**58**	**310**
Mercury	mg/kg	0.0033	20	20	30	30	NA	**0.035**	**0.19**	**0.029**	0.024 U	0.025 U	0.021 U	0.022 U	NA	NA	**0.048**	0.021 U	**0.069**	**0.087**	0.021 U	0.021 U	0.02 U
Nickel	mg/kg	2.6	600	600	1000	1000	NA	**9.2**	**16**	**6.4**	**4.6 J**	**4.5 J**	**9.8**	**17**	NA	NA	**10**	**24**	**9.3**	**21**	**11**	**4.7 J**	**15**
Potassium	mg/kg	NS	NS	NS	--	--	NA	**1,200**	**1,500**	**460**	**440**	**620**	**970**	**7,100**	NA	NA	**1,500**	**2,100**	**1,500**	**1,800**	**1,200**	**940**	**3,300**
Selenium	mg/kg	0.052	400	400	700	700	NA	**1.1 J**	**0.58 J**	**0.5 J**	4.5 U	**0.7 J**	**0.46 J**	4.1 U	NA	NA	4.8 U	**0.55 J**	4.3 U	4.4 U	4.4 U	4.2 U	**0.58 J**
Sodium	mg/kg	NS	NS	NS	--	--	NA	**140 J**	**180 J**	**87 J**	**81 J**	**95 J**	**82 J**	**350**	NA	NA	**170**	**200**	**170**	**220**	**110 J**	**92 J**	**1,500**
Tin	mg/kg	300	NS	NS	--	--	NA	**0.76 J**	**0.86 J**	2.3 U	2.3 U	2.7 U	2.1 U	**0.76 J**	NA	NA	**0.69 J**	**0.84 J**	**0.72 J**	**1.6 J**	2.2 U	2.1 U	**0.87 J**
Vanadium	mg/kg	8.6	400	400	700	700	NA	**16**	**19**	**7.4**	**5.2**	**5.4**	**12**	**38**	NA	NA	**19**	**22**	**17**	**25**	**12**	**7.9**	**110**
Zinc	mg/kg	37	1000	1000	5000	5000	NA	**25**	**78 J+**	**63**	**8.8**	**9.2**	**21**	**37**	NA	NA	**25**	**24**	**24**	**41**	**15**	**7.4**	**48**
General Chemistry																							
Ammonia	mg/kg	NS	NS	NS	--	--	NA	**14**	**8.8**	**42**	**58**	**50**	**9.2**	**42**	NA	NA	**4.4 J**	**3.6 J**	**18**	**11**	**9.9**	**5.9**	**140**
Chloride	mg/kg	NS	NS	NS	--	--	NA	12 UJ	11 UJ	11 UJ	12 UJ	**7.2 J**	11 UJ	**42 J**	NA	NA	12 UJ	**6.8 J**	11 UJ	**12 J**	**6.7 J**	11 UJ	**250 J**
Sulfate	mg/kg	NS	NS	NS	--	--	NA	**1,800 J**	**2,400 J**	**290 J**	**12 J**	**43 J**	**13 J**	**500 J**	NA	NA	**4,000 J**	**520 J**	**12,000 J**	**1,500 J**	**180 J**	**43 J**	**3,700 J**
Other Analyses																							
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	200 U	190 U	170 U	170 U	160 U	160 U	130 U	NA	NA	190 U	190 U	180 U	210 U	220 U	**780**	150 U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	2,500 UJ	**1,500 J**	**2,900 J**	2,300 UJ	2,600 UJ	2,200 UJ	**4,700 J**	NA	NA	2,400 UJ	**2,100 J**	**2,000 J**	**2,600 J**	2,200 UJ	2,200 UJ	**6,100 J**
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	**1.9 J**	**5.7**	**13**	5.9 U	6 U	5.3 U	5.5 U	NA	NA	**3.8 J**	**7.7**	5.5 U	5.6 U	5.6 U	5.5 U	5.4 U
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																			
Arsenic	mg/L	0.01	0.01	0.9	--	--	**0.012 J**	NA	NA	NA	NA	NA	NA	NA	**0.013 J**	**0.011 J**	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	**0.28 J**	NA	NA	NA	NA	NA	NA	NA	**0.29 J**	**0.26 J**	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	**0.0025**	NA	NA	NA	NA	NA	NA	NA	**0.0012 J**	**0.0015 J**	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	**0.1**	NA	NA	NA	NA	NA	NA	NA	**0.12**	**0.15**	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	**0.011 J**	NA	NA	NA	NA	NA	NA	NA	**0.059 J**	**0.022 J**	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	STOCKPILE																	
			Depth Interval (ft)																		
			Sample Date	08/08/00		08/11/00			08/26/00			09/05/00		09/14/00				09/22/00		
			Sample ID	97598-BAY1-8/7	97598-BAY4-8/7	97598-DB-SP-1	97598-DB-SP-2E	97598-DB-SP-2W	1120-DA-SP-3A	1120-DA-SP-3B	1120-DA-SP-3C	1120-DA-SP-3E	1120-DA-SP-4	1120-DA-SP-3D	1120-DA-SP-5A	1120-DA-SP-5B	1120-DA-SP-5C	1120-DA-SP-6A	1120-DA-SP-6B	1120-DA-SP-6C
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 Direct-Contact RSL		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/Comm.																	
Volatiles																				
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	23,000	100,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 U	1,300 U	130 U	130 U	130 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	45 U	34 U	**130**	**90**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	**130**	**45**	**720**	**490**	**79**	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	**170**	**61**	**1,300**	**850**	**110**	45 U	34 U	31 U	130 U	120 U	140 U	**160**	150 UC	1,300 U	130 U	130 U	130 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	460	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	**130**	**51**	**910**	**610**	**69**	45 U	34 U	31 U	130 U	120 U	140 U	**160**	150 UC	1,300 U	130 U	130 U	130 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	45 U	34 U	69 U	1,000 U	42 U	45 U	34 U	31 U	**14,000**	**640**	140 U	140 U	**1,200 C**	**43,000**	130 U	130 U	**570**
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	45 U	34 U	69 U	450 U	42 U	45 U	34 U	31 U	**5,700**	120 U	140 U	140 U	**520 C**	**16,000**	130 U	130 U	130 U
2-Butanone	ug/kg	2,700,000	19,000,000	450 U	340 U	690 U	430 U	420 U	450 U	340 U	310 U	2,500 U	2,500 U	2,900 U	2,800 U	3,000 UC	26,000 U	2,700 U	2,700 U	2,700 U
2-Hexanone	ug/kg	20,000	130,000	450 U	340 U	690 U	430 U	420 U	450 U	340 U	310 U	500 U	490 U	580 U	560 U	600 UC	5,200 U	530 U	540 U	530 U
4-Isopropyltoluene	ug/kg	NS	NS	45 U	34 U	**51 J**	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	**3,300**	130 U	130 U	130 U
Acetone	ug/kg	6,100,000	67,000,000	450 U	340 U	690 U	430 U	420 U	450 U	340 U	310 U	2,500 U	2,500 U	2,900 U	2,800 U	3,000 UC	26,000 U	2,700 U	2,700 U	2,700 U
Benzene	ug/kg	1,200	5,100	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 U	1,300 U	130 U	130 U	130 U
Bromochloromethane	ug/kg	15,000	63,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	290	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	77,000	350,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	28,000	130,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	320	1,400	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 U	1,300 U	130 U	130 U	130 U
Dibromomethane	ug/kg	2,400	9,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	5,800	25,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
Isopropylbenzene	ug/kg	190,000	990,000	45 U	34 U	**170**	**100**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
m,p-Xylene	ug/kg	58,000	250,000	45 U	34 U	**100**	**69**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	35,000	320,000	89 U	67 U	140 U	85 U	84 U	89 UB	68 UB	63 UB	130 U	120 U	140 U	140 U	150 UC	1,300 U	**150 B**	130 UB	**150 B**
Naphthalene	ug/kg	3,800	17,000	220 U	170 U	140 U	85 U	84 U	89 U	68 U	63 U	1,300 U	1,200 U	1,400 U	1,400 U	1,500 UC	13,000 U	1,300 U	1,300 U	1,300 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	380,000	2,400,000	45 U	34 U	**150**	**99**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
o-Xylene	ug/kg	65,000	280,000	45 U	34 U	**140**	**100**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
Styrene	ug/kg	600,000	3,500,000	45 U	34 U	**130**	**96**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
Tetrachloroethene	ug/kg	8,100	39,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 U	1,300 U	130 U	130 U	130 U
Toluene	ug/kg	490,000	4,700,000	45 U	34 U	**83**	**28 J**	42 U	45 U	**110**	31 U	130 U	120 U	140 U	**140 J**	**1,100 C**	**14,000**	130 U	130 U	130 U
Trichloroethene	ug/kg	410	1,900	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
Xylene (total)	ug/kg	58,000	250,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	STOCKPILE																
			Depth Interval (ft)																	
			Sample Date	08/08/00		08/11/00			08/26/00			09/05/00		09/14/00				09/22/00		
			Sample ID	97598-BAY1-8/7	97598-BAY4-8/7	97598-DB-SP-1	97598-DB-SP-2E	97598-DB-SP-2W	1120-DA-SP-3A	1120-DA-SP-3B	1120-DA-SP-3C	1120-DA-SP-3E	1120-DA-SP-4	1120-DA-SP-3D	1120-DA-SP-5A	1120-DA-SP-5B	1120-DA-SP-5C	1120-DA-SP-6A	1120-DA-SP-6B	1120-DA-SP-6C
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																	
Semivolatiles																				
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	**63 J**	**99 J**	**610 F**	**450**	**390**	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	24,000	300,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
2-Methylphenol	ug/kg	320,000	4,100,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	630,000	8,200,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	NS	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Acetophenone	ug/kg	780,000	12,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	44,000	400,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	1,800,000	23,000,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Azobenzene	ug/kg	5,600	26,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	170,000	820,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	1,100	21,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	NA	NA	NA	370 U
Benzo(a)pyrene	ug/kg	110	2,100	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	NA	2,100 U	NA	NA	NA	NA	370 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	NA	NA	NA	370 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	280 U	280 U	290 UF	**97 J**	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	570 U	**630**	**1,400 F**	**940**	**1,100**	640 U	540 U	500 U	8,800 U	3,700 U	11,000 U	11,000 U	100,000 U	220,000 UC	180,000 UC	180,000 UC	1,800 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	**6,700**	**6,900**	**9,100 BF**	**43,000 F**	**29,000 F**	**1,800**	**3,900**	**2,000**	**23,000**	**5,800**	**17,000**	**31,000**	**287,000**	**856,000 C**	**622,000 C**	**511,000 C**	**1,300**
Butylbenzylphthalate	ug/kg	290,000	1,200,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Carbazole	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	110,000	2,100,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	280 U	280 U	290 UF	**96 J**	290 U	320 U	270 U	250 U	1,800 U	740 U	NA	2,100 U	NA	NA	NA	NA	370 U
Dibenzofuran	ug/kg	7,300	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	5,100,000	66,000,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Dimethylphthalate	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	280 U	280 U	**1,800 F**	**910**	**580**	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	**103,000 C**	36,000 UC	**32,000 JC**	370 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Fluorene	ug/kg	240,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	NA	NA	NA	370 U
Naphthalene	ug/kg	3,800	17,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	**3,500 #**	**1,700 #**	**990 #F**	**4,500 #**	**3,400 #**	320 U	270 U	250 U	1,800 U	**1,100**	2,200 U	**3,200**	**19,000 J**	44,000 UC	**37,000 C**	**61,000 C**	370 U
Phenanthrene	ug/kg	NS	NS	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	**280 J**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	**STOCKPILE**																	
			Depth Interval (ft)																		
			Sample Date	**08/08/00**		**08/11/00**			**08/26/00**			**09/05/00**		**09/14/00**					**09/22/00**		
			Sample ID	**97598-BAY1-8/7**	**97598-BAY4-8/7**	**97598-DB-SP-1**	**97598-DB-SP-2E**	**97598-DB-SP-2W**	**1120-DA-SP-3A**	**1120-DA-SP-3B**	**1120-DA-SP-3C**	**1120-DA-SP-3E**	**1120-DA-SP-4**	**1120-DA-SP-3D**	**1120-DA-SP-5A**	**1120-DA-SP-5B**	**1120-DA-SP-5C**	**1120-DA-SP-6A**	**1120-DA-SP-6B**	**1120-DA-SP-6C**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																		
Phenol	ug/kg	1,900,000	25,000,000	280 U	280 U	290 UF	**98 J**	**360**	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Pyrene	ug/kg	180,000	2,300,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Pesticides/PCBs																					
4,4'-DDD	ug/kg	190	2,500	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	20 U	17 U	17 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
4,4'-DDE	ug/kg	2,000	9,300	**6.9**	**4.9**	1.8 U	1.8 U	1.9 U	20 U	17 U	17 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
4,4'-DDT	ug/kg	1,900	8,500	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	20 U	17 U	17 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Aldrin	ug/kg	39	180	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	9.9 U	9.9 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
alpha-BHC	ug/kg	86	**360**	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	**240**	**430**	**15**	9.9 U	**14 C**	13 U	13 U	**24**	13 U	10 U	11 U	11 U
beta-BHC	ug/kg	300	1,300	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	**130**	**150**	**8.3**	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
cis-Chlordane	ug/kg	NS	NS	0.89 U	**3**	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	1.8 U	**3.1**	**3.3**	**5.3**	**4.5**	20 U	17 U	17 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Endosulfan I	ug/kg	NS	NS	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Endrin	ug/kg	1,900	25,000	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	20 U	17 U	17 U	9.9 U	11 U	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Endrin Aldehyde	ug/kg	NS	NS	**13**	**6.6**	1.8 U	1.8 U	1.9 U	20 U	17 U	17 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Endrin Ketone	ug/kg	NS	NS	1.8 U	1.8 U	1.8 U	**14**	1.9 U	20 U	17 U	17 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	**180**	**250**	**1,200 F**	**370**	**420**	10 U	**11**	8.3 U	9.9 U	11 UC	13 U	**24**	**21**	13 U	10 U	11 U	11 U
Heptachlor	ug/kg	130	630	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	9.9 U	11 U	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Heptachlor Epoxide	ug/kg	70	330	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Technical Chlordane	ug/kg	NS	NS	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																					
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																					
Aluminum	mg/kg	7,700	110,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/kg	3.1	47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.68	**3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/kg	1,500	22,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	16	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	7.1	98	0.68 U	0.64 U	0.7 U	0.68 U	0.69 U	0.77 U	0.67 U	0.65 U	0.3 U	0.3 U	**0.35**	**0.74**	**3**	**3.2**	**0.79**	**0.46**	0.3 U
Calcium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	12,000	180,000	**47**	**70**	**54**	**75**	**46**	**37**	**21**	**11**	**24**	**11**	**39**	**38**	**37**	**25**	**68**	**20**	**10**
Chromium-Hexavalent	mg/kg	0.3	**6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	2.3	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	310	4,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	5,500	82,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	400	800	**7.2**	**8.2**	**6.8**	**7.9**	**5.6**	**14**	**7.1**	**5.8**	**6**	**3.6**	**6.3**	**6.2**	**5.4**	**3.7**	**5.6**	**4.2**	**6.6**
Magnesium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	180	2,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	**STOCKPILE**																
			Depth Interval (ft)																	
			Sample Date	**08/08/00**		**08/11/00**			**08/26/00**			**09/05/00**		**09/14/00**				**09/22/00**		
			Sample ID	**97598-BAY1-8/7**	**97598-BAY4-8/7**	**97598-DB-SP-1**	**97598-DB-SP-2E**	**97598-DB-SP-2W**	**1120-DA-SP-3A**	**1120-DA-SP-3B**	**1120-DA-SP-3C**	**1120-DA-SP-3E**	**1120-DA-SP-4**	**1120-DA-SP-3D**	**1120-DA-SP-5A**	**1120-DA-SP-5B**	**1120-DA-SP-5C**	**1120-DA-SP-6A**	**1120-DA-SP-6B**	**1120-DA-SP-6C**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																	
Mercury	mg/kg	1.1	4.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	150	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.078	**1.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	4,700	70,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	2,300	35,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																				
Ammonia	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																				
Dimethylformamide	ug/kg	260,000	1,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	11,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	STOCKPILE								AREA-1		AREA 1-1	AREA 1-2	AREA 1-4	AREA 1-5	AREA-2	BD-C1	BD-C4	BD-C7	BD-C10	BD-C13
			Depth Interval (ft)									0 - 1		0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	4.6 - 4.6	7.5 - 7.5	7.96 - 7.9	10.3 - 10.3	10.1 - 10.1
			Sample Date	09/26/00								07/08/91	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	07/09/91	10/10/00	10/10/00	10/12/00	10/12/00	10/12/00
			Sample ID	1120-DA-SP-8A	1120-DA-SP-8B	1120-DA-SP-8C	1120-DA-SP-8D	1120-DA-SP-8E	1120-DA-SP-8F	1120-DA-SP-8G	1120-DA-SP-8H	AREA 01	AREA 1 (COMP)	AREA 1-1	AREA 1-2	AREA 1-4	AREA 1-5	AREA 02	1120-BD-C1	1120-BD-C4	1120-BD-C7	1120-BD-C10	1120-BD-C13
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 Direct-Contact RSL		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/Comm.																				
Volatiles																							
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	**11**	5 U	**230**	6 U	5.5 UJ	120 U	150 U	160 U	150 U	150 U
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	23,000	100,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	**18**	6 U	5.5 UJ	120 U	150 U	160 U	150 U	150 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U	150 U	150 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U	150 U	150 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U	150 U	150 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	460	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U	150 U	150 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	130 U	**140,000**	**1,800**	**14,000**	**21,000**	**27,000**	120 U	**650**	16 U	NA	6 U	5 U	8 U	6 U	11 U	120 U	150 U	160 U	150 U	150 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	130 U	**106,000**	**670**	**5,100**	**8,300**	**12,000**	120 U	**190**	16 U	NA	6 U	5 U	8 U	6 U	11 U	120 U	150 U	160 U	150 U	150 U
2-Butanone	ug/kg	2,700,000	19,000,000	2,500 U	24,000 U	2,700 U	2,700 U	2,600 U	13,000 U	2,400 U	2,500 U	24 UJ	NA	12 U	11 U	16 U	12 U	16 UJ	2,500 U	3,000 U	3,200 U	3,100 U	3,100 U
2-Hexanone	ug/kg	20,000	130,000	510 U	4,900 U	540 U	540 U	520 U	2,600 U	470 U	500 U	24 UJ	NA	12 U	11 U	16 U	12 U	16 UJ	500 U	590 U	630 U	610 U	620 U
4-Isopropyltoluene	ug/kg	NS	NS	130 U	**27,000**	**1,500**	130 U	**220**	**2,300**	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U	150 U	150 U
Acetone	ug/kg	6,100,000	67,000,000	2,500 U	24,000 U	2,700 U	2,700 U	2,600 U	13,000 U	2,400 U	2,500 U	24 UJ	NA	**29 B**	**10 J**	**36**	**5 J**	16 U	2,500 U	3,000 U	3,200 U	3,100 U	3,100 U
Benzene	ug/kg	1,200	5,100	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	8 U	6 U	5.5 UJ	120 U	150 U	160 U	150 U	150 U
Bromochloromethane	ug/kg	15,000	63,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	290	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	77,000	350,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	28,000	130,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	320	1,400	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	8 U	6 U	5.5 UJ	120 U	150 U	160 U	150 U	150 U
Dibromomethane	ug/kg	2,400	9,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	5,800	25,000	130 U	1,200 U	130 U	**390**	**110 J**	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	8 U	6 U	5.5 UJ	120 U	150 U	160 U	150 U	150 U
Isopropylbenzene	ug/kg	190,000	990,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U	150 U	150 U
m,p-Xylene	ug/kg	58,000	250,000	130 U	1,200 U	130 U	**1,400**	**120 J**	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U	150 U	150 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	35,000	320,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	16 U	NA	**7**	5 U	8 U	6 U	18 UJ	120 U	150 U	160 U	150 U	150 U
Naphthalene	ug/kg	3,800	17,000	1,300 U	12,000 U	1,300 U	1,300 U	1,300 U	6,500 U	1,200 U	1,300 U	NA	NA	NA	NA	NA	NA	NA	1,200 U	1,500 U	1,600 U	1,500 U	1,500 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	380,000	2,400,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U	150 U	150 U
o-Xylene	ug/kg	65,000	280,000	130 U	1,200 U	130 U	**400**	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U	150 U	150 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U	150 U	150 U
Styrene	ug/kg	600,000	3,500,000	130 U	1,200 U	130 U	130 U	**810**	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	8 U	6 U	5.5 UJ	120 U	150 U	160 U	150 U	150 U
Tetrachloroethene	ug/kg	8,100	39,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	8 U	6 U	5.5 UJ	120 U	150 U	160 U	150 U	150 U
Toluene	ug/kg	490,000	4,700,000	130 U	1,200 U	**290**	**7,100**	**5,300**	650 U	120 U	**680**	8 UJ	NA	6 U	5 U	**3 J**	6 U	5.5 UJ	120 U	150 U	160 U	150 U	150 U
Trichloroethene	ug/kg	410	1,900	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	**9**	6 U	5.5 UJ	120 U	150 U	160 U	150 U	150 U
Xylene (total)	ug/kg	58,000	250,000	NA	NA	NA	NA	NA	NA	NA	NA	8 UJ	NA	6 U	5 U	8 U	6 U	5.5 UJ	120 U	150 U	160 U	150 U	150 U

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	STOCKPILE								AREA-1		AREA 1-1	AREA 1-2	AREA 1-4	AREA 1-5	AREA-2	BD-C1	BD-C4	BD-C7	BD-C10	BD-C13
			Depth Interval (ft)									0 - 1		0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	4.6 - 4.6	7.5 - 7.5	7.96 - 7.9	10.3 - 10.3	10.1 - 10.1
			Sample Date	09/26/00								07/08/91	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	07/09/91	10/10/00	10/10/00	10/12/00	10/12/00	10/12/00
			Sample ID	1120-DA-SP-8A	1120-DA-SP-8B	1120-DA-SP-8C	1120-DA-SP-8D	1120-DA-SP-8E	1120-DA-SP-8F	1120-DA-SP-8G	1120-DA-SP-8H	AREA 01	AREA 1 (COMP)	AREA 1-1	AREA 1-2	AREA 1-4	AREA 1-5	AREA 02	1120-BD-C1	1120-BD-C4	1120-BD-C7	1120-BD-C10	1120-BD-C13
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 Direct-Contact RSL		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/Comm.																				
Semivolatiles																							
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	NA	NA	760 U	400 U	410 U	400 U	410 U	420 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	24,000	300,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	NA	NA	**67 J**	400 U	410 U	400 U	410 U	420 U
2-Methylphenol	ug/kg	320,000	4,100,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	NA	NA	760 U	400 U	410 U	400 U	410 U	420 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,100 U	390 U	NA	NA	NA	NA	760 U	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	NS	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	NA	NA	760 U	400 U	410 U	400 U	410 U	420 U
Acetophenone	ug/kg	780,000	12,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	44,000	400,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	1,800,000	23,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	NA	NA	760 U	400 U	410 U	400 U	410 U	420 U
Azobenzene	ug/kg	5,600	26,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	170,000	820,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	1,100	21,000	NA	NA	NA	3,600 U	NA	NA	NA	NA	**99 J**	390 U	NA	NA	NA	NA	**75 J**	400 U	410 U	400 U	410 U	420 U
Benzo(a)pyrene	ug/kg	110	2,100	NA	NA	NA	NA	NA	NA	NA	NA	**59 J**	390 U	NA	NA	NA	NA	**57 J**	400 U	410 U	400 U	410 U	420 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	NA	NA	NA	3,600 U	NA	NA	NA	NA	**180 J**	390 U	NA	NA	NA	NA	**130 J**	400 U	410 U	400 U	410 U	420 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	NA	NA	760 U	400 U	410 U	400 U	410 U	420 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	**65 J**	390 U	NA	NA	NA	NA	**42 J**	400 U	410 U	400 U	410 U	420 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	180,000 U	360,000 U	910,000 U	18,000 U	170,000 U	180,000 U	180,000 U	180,000 U	5,300 U	1,900 U	NA	NA	NA	NA	3,700 U	2,000 U	2,000 U	2,000 U	2,000 U	2,100 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	**244,000**	**1,087,000**	**2,356,000**	**26,000**	**365,000**	**501,000**	**679,000**	**676,000**	**2,900**	**130 JB**	NA	NA	NA	NA	**130 J**	400 U	**3,900**	400 U	410 U	420 U
Butylbenzylphthalate	ug/kg	290,000	1,200,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	NA	NA	760 U	400 U	410 U	400 U	410 U	420 U
Carbazole	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	110,000	2,100,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	**170 J**	390 U	NA	NA	NA	NA	**150 J**	400 U	410 U	400 U	410 U	420 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	NA	NA	NA	NA	NA	NA	NA	NA	1,100 U	390 U	NA	NA	NA	NA	760 U	400 U	410 U	400 U	410 U	420 U
Dibenzofuran	ug/kg	7,300	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	5,100,000	66,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	**44 JB**	NA	NA	NA	NA	760 U	400 U	410 U	400 U	410 U	420 U
Dimethylphthalate	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	36,000 U	**87,000**	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	**27 JB**	NA	NA	NA	NA	**14 J**	400 U	410 U	400 U	410 U	420 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	NA	NA	760 U	400 U	410 U	400 U	410 U	420 U
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	**250 J**	390 U	NA	NA	NA	NA	**190 J**	400 U	410 U	400 U	410 U	420 U
Fluorene	ug/kg	240,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	NA	NA	NA	3,600 U	NA	NA	NA	NA	**64 J**	390 U	NA	NA	NA	NA	**51 J**	400 U	410 U	400 U	410 U	420 U
Naphthalene	ug/kg	3,800	17,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	NA	NA	**49 J**	400 U	410 U	400 U	410 U	420 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	36,000 U	**86,000**	180,000 U	3,600 U	**24,000 J**	36,000 U	**473,000**	36,000 U	1,100 U	390 U	NA	NA	NA	NA	760 U	400 U	410 U	400 U	410 U	420 U
Phenanthrene	ug/kg	NS	NS	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	**160 J**	390 U	NA	NA	NA	NA	**170 J**	400 U	410 U	400 U	410 U	420 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	STOCKPILE								AREA-1		AREA 1-1	AREA 1-2	AREA 1-4	AREA 1-5	AREA-2	BD-C1	BD-C4	BD-C7	BD-C10	BD-C13
			Depth Interval (ft)									0 - 1		0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	4.6 - 4.6	7.5 - 7.5	7.96 - 7.9	10.3 - 10.3	10.1 - 10.1
			Sample Date	09/26/00								07/08/91	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	07/09/91	10/10/00	10/10/00	10/12/00	10/12/00	10/12/00
			Sample ID	1120-DA-SP-8A	1120-DA-SP-8B	1120-DA-SP-8C	1120-DA-SP-8D	1120-DA-SP-8E	1120-DA-SP-8F	1120-DA-SP-8G	1120-DA-SP-8H	AREA 01	AREA 1 (COMP)	AREA 1-1	AREA 1-2	AREA 1-4	AREA 1-5	AREA 02	1120-BD-C1	1120-BD-C4	1120-BD-C7	1120-BD-C10	1120-BD-C13
Normal (N) or Field Duplicate (FD) Sample		**11/2019 Direct-Contact RSL**		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Phenol	ug/kg	1,900,000	25,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	NA	NA	760 U	400 U	410 U	400 U	410 U	420 U
Pyrene	ug/kg	180,000	2,300,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	**160 J**	390 U	NA	NA	NA	NA	**140 J**	400 U	410 U	400 U	410 U	420 U
Pesticides/PCBs																							
4,4'-DDD	ug/kg	190	2,500	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	53 UJ	3.8 U	NA	NA	NA	NA	37 UJ	12 U	12 U	12 U	12 U	12 U
4,4'-DDE	ug/kg	2,000	9,300	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	53 UJ	3.8 U	NA	NA	NA	NA	37 UJ	12 U	12 U	12 U	12 U	12 U
4,4'-DDT	ug/kg	1,900	8,500	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	53 UJ	3.8 U	NA	NA	NA	NA	37 UJ	12 U	12 U	12 U	12 U	12 U
Aldrin	ug/kg	39	180	**14**	11 U	10 U	11 U	11 U	54 U	11 U	**59**	26 UJ	2 U	NA	NA	NA	NA	18 UJ	12 U	12 U	12 U	12 U	12 U
alpha-BHC	ug/kg	86	**360**	**25**	11 U	**48**	11 U	11 U	54 U	11 U	**100**	26 UJ	2 U	NA	NA	NA	NA	18 UJ	12 U	12 U	12 U	12 U	12 U
beta-BHC	ug/kg	300	1,300	11 U	11 U	10 U	11 U	11 U	54 U	11 U	**33**	26 UJ	2 U	NA	NA	NA	NA	18 UJ	12 U	12 U	12 U	12 U	12 U
cis-Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	260 UJ	2 U	NA	NA	NA	NA	180 UJ	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	53 UJ	3.8 U	NA	NA	NA	NA	37 UJ	12 U	12 U	12 U	12 U	12 U
Endosulfan I	ug/kg	NS	NS	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	26 UJ	2 U	NA	NA	NA	NA	18 UJ	12 U	12 U	12 U	12 U	12 U
Endrin	ug/kg	1,900	25,000	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	53 UJ	3.8 U	NA	NA	NA	NA	37 UJ	12 U	12 U	12 U	12 U	12 U
Endrin Aldehyde	ug/kg	NS	NS	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	26 UJ	3.8 U	NA	NA	NA	NA	18 UJ	12 U	12 U	12 U	12 U	12 U
Endrin Ketone	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	53 UJ	3.8 U	NA	NA	NA	NA	37 UJ	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	11 U	**180**	**20**	11 U	11 U	**180**	**63**	**31**	26 UJ	2 U	NA	NA	NA	NA	18 UJ	12 U	12 U	12 U	12 U	12 U
Heptachlor	ug/kg	130	630	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	26 UJ	2 U	NA	NA	NA	NA	18 UJ	12 U	12 U	12 U	12 U	12 U
Heptachlor Epoxide	ug/kg	70	330	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	26 UJ	2 U	NA	NA	NA	NA	18 UJ	12 U	12 U	12 U	12 U	12 U
Technical Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	260 UJ	2 U	NA	NA	NA	NA	180 UJ	NA	NA	NA	NA	NA
EPH																							
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																							
Aluminum	mg/kg	7,700	110,000	NA	NA	NA	NA	NA	NA	NA	NA	**8,000**	**2,250 E**	NA	NA	NA	NA	**5,900**	**3,400**	**3,700**	**4,200**	**2,600**	**2,600**
Antimony	mg/kg	3.1	47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.68	**3**	NA	NA	NA	NA	NA	NA	NA	NA	**24**	**1.2 B**	NA	NA	NA	NA	**7**	2 U	1 U	**2**	2 U	1 U
Barium	mg/kg	1,500	22,000	NA	NA	NA	NA	NA	NA	NA	NA	**25**	**5.8 B**	NA	NA	NA	NA	**38**	NA	NA	NA	NA	NA
Beryllium	mg/kg	16	230	NA	NA	NA	NA	NA	NA	NA	NA	1.5 U	0.18 U	NA	NA	NA	NA	1.5 U	NA	NA	NA	NA	NA
Cadmium	mg/kg	7.1	98	**1**	**0.85**	**54**	**0.34**	**3.3**	**1.8**	**14**	**7.3**	1.1 U	0.18 U	NA	NA	NA	NA	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Calcium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	**1,200**	**1,000**	NA	NA	NA	NA	**720**	NA	NA	NA	NA	NA
Chromium	mg/kg	12,000	180,000	**36**	**20**	**27**	**24**	**84**	**650**	**200**	**41**	**320**	**9.1 E**	NA	NA	NA	NA	**8.8**	**5.3**	**4.9**	**6.2**	**4.8**	**5**
Chromium-Hexavalent	mg/kg	0.3	**6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	2.3	35	NA	NA	NA	NA	NA	NA	NA	NA	**9.9**	**1.3 B**	NA	NA	NA	NA	1.5 U	NA	NA	NA	NA	NA
Copper	mg/kg	310	4,700	NA	NA	NA	NA	NA	NA	NA	NA	**14**	**2.9 B**	NA	NA	NA	NA	**12**	NA	NA	NA	NA	NA
Iron	mg/kg	5,500	82,000	NA	NA	NA	NA	NA	NA	NA	NA	**16,000**	**2,090 E**	NA	NA	NA	NA	**6,900**	**2,700**	**2,100**	**2,900**	**2,300**	**2,500**
Lead	mg/kg	400	800	**4.7**	**4.3**	**4.6**	**6.3**	**3.5**	**4.1**	**3**	**4**	**58**	**2**	NA	NA	NA	NA	**36**	**1.8**	**2.1**	**1.9**	**2**	**1.8**
Magnesium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	**1,200**	**706 BE**	NA	NA	NA	NA	**610**	NA	NA	NA	NA	NA
Manganese	mg/kg	180	2,600	NA	NA	NA	NA	NA	NA	NA	NA	**530**	**27.7 E**	NA	NA	NA	NA	**40**	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	STOCKPILE								AREA-1		AREA 1-1	AREA 1-2	AREA 1-4	AREA 1-5	AREA-2	BD-C1	BD-C4	BD-C7	BD-C10	BD-C13
			Depth Interval (ft)									0 - 1		0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	4.6 - 4.6	7.5 - 7.5	7.96 - 7.9	10.3 - 10.3	10.1 - 10.1
			Sample Date	09/26/00								07/08/91	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	07/09/91	10/10/00	10/10/00	10/12/00	10/12/00	10/12/00
			Sample ID	1120-DA-SP-8A	1120-DA-SP-8B	1120-DA-SP-8C	1120-DA-SP-8D	1120-DA-SP-8E	1120-DA-SP-8F	1120-DA-SP-8G	1120-DA-SP-8H	AREA 01	AREA 1 (COMP)	AREA 1-1	AREA 1-2	AREA 1-4	AREA 1-5	AREA 02	1120-BD-C1	1120-BD-C4	1120-BD-C7	1120-BD-C10	1120-BD-C13
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Mercury	mg/kg	1.1	4.6	NA	NA	NA	NA	NA	NA	NA	NA	0.14 U	**0.11 N**	NA	NA	NA	NA	**0.15**	0.05 U	0.05 U	0.06 U	0.05 U	0.05 U
Nickel	mg/kg	150	2,200	NA	NA	NA	NA	NA	NA	NA	NA	**5.8**	**4 B**	NA	NA	NA	NA	**4.7**	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	**520**	**222 B**	NA	NA	NA	NA	**240**	NA	NA	NA	NA	NA
Selenium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	**44**	**50.8 B**	NA	NA	NA	NA	**42**	NA	NA	NA	NA	NA
Thallium	mg/kg	0.078	**1.2**	NA	NA	NA	NA	NA	NA	NA	NA	0.52 U	1.4 UN	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA	NA
Tin	mg/kg	4,700	70,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	**18**	**4.3 B**	NA	NA	NA	NA	**18**	NA	NA	NA	NA	NA
Zinc	mg/kg	2,300	35,000	NA	NA	NA	NA	NA	NA	NA	NA	**24**	**13.1**	NA	NA	NA	NA	**31**	NA	NA	NA	NA	NA
General Chemistry																							
Ammonia	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	**43**	**143**	NA	NA	NA	NA	**25**	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	**49 J**	NA	NA	NA	NA	NA	**68 J**	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	**190 J**	NA	NA	NA	NA	NA	**4.2 J**	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																							
Dimethylformamide	ug/kg	260,000	1,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	11,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	BH1	BH2	BH3	BH4	BH6	BH7	BH8	BH9	BH10	BS017PND	CP-C36	CP-C38	CP-C39	CP-C41	CP-C42	CP-C43	CP-C45	CP-C46	CP-C47	CP-C49
			Depth Interval (ft)	4.3 - 6.3	3.5 - 5.5	4.2 - 6.2	6.3 - 8.3	4.4 - 6.4	3 - 5	3 - 5	2.6 - 4.6	3.8 - 5.8	0 - 0	5.4 - 5.4	6.2 - 6.2	6.7 - 6.7	6.5 - 6.5	6.3 - 6.3	5 - 5	6.6 - 6.6	6.1 - 6.1	5.4 - 5.4	6.8 - 6.8
			Sample Date	06/05/91	06/05/91	06/05/91	06/05/91	06/06/91	06/06/91	06/07/91	06/07/91	06/07/91	01/21/97	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00
			Sample ID	BH-01	BH-02	BH-03	BH-04	BH-06	BH-07	BH-08	BH-09	BH-10	BS017PND	1140-CP-C36	1140-CP-C38	1140-CP-C39	1140-CP-C41	1140-CP-C42	1140-CP-C43	1140-CP-C45	1140-CP-C46	1140-CP-C47	1140-CP-C49
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Volatiles																							
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	23,000	100,000	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	460	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	0.0013 U	11 U	**2 J**	11 U	11 U	11 U	**35**	**3,300 J**	**18**	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	0.0013 U	11 U	**1 J**	11 U	11 U	11 U	**16**	**910 J**	**10 J**	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
2-Butanone	ug/kg	2,700,000	19,000,000	**490 J**	82 U	**1 J**	**3 J**	**1 J**	16 U	16 U	16 U	18 U	NA	NA	NA	2,500 U	NA	NA	NA	NA	NA	3,000 U	2,900 U
2-Hexanone	ug/kg	20,000	130,000	2,000 U	82 U	16 U	82 U	16 U	16 U	16 U	**61**	18 U	NA	NA	NA	490 U	NA	NA	NA	NA	NA	600 U	580 U
4-Isopropyltoluene	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
Acetone	ug/kg	6,100,000	67,000,000	**17,000**	**500**	**130**	**460**	16 U	16 U	16 U	19 U	18 U	NA	NA	NA	2,500 U	NA	NA	NA	NA	NA	3,000 U	2,900 U
Benzene	ug/kg	1,200	5,100	**100 J**	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
Bromochloromethane	ug/kg	15,000	63,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	290	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	77,000	350,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	28,000	130,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	320	1,400	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	**2 J**	6 U	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
Dibromomethane	ug/kg	2,400	9,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	5,800	25,000	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
Isopropylbenzene	ug/kg	190,000	990,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
m,p-Xylene	ug/kg	58,000	250,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	35,000	320,000	**2,000**	55 U	11 U	55 U	11 U	11 U	11 U	11 U	12 U	NA	NA	NA	**300 B**	NA	NA	NA	NA	NA	**210 B**	**440 B**
Naphthalene	ug/kg	3,800	17,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,200 U	NA	NA	NA	NA	NA	1,500 U	1,400 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	380,000	2,400,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
o-Xylene	ug/kg	65,000	280,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
Styrene	ug/kg	600,000	3,500,000	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
Tetrachloroethene	ug/kg	8,100	39,000	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	**1 J**	6 U	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
Toluene	ug/kg	490,000	4,700,000	**150 J**	28 U	5.5 U	28 U	5.5 U	5.5 U	**1 J**	**1 J**	**1 J**	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
Trichloroethene	ug/kg	410	1,900	**80 J**	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U
Xylene (total)	ug/kg	58,000	250,000	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA	NA	150 U	140 U

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	BH1	BH2	BH3	BH4	BH6	BH7	BH8	BH9	BH10	BS017PND	CP-C36	CP-C38	CP-C39	CP-C41	CP-C42	CP-C43	CP-C45	CP-C46	CP-C47	CP-C49
			Depth Interval (ft)	4.3 - 6.3	3.5 - 5.5	4.2 - 6.2	6.3 - 8.3	4.4 - 6.4	3 - 5	3 - 5	2.6 - 4.6	3.8 - 5.8	0 - 0	5.4 - 5.4	6.2 - 6.2	6.7 - 6.7	6.5 - 6.5	6.3 - 6.3	5 - 5	6.6 - 6.6	6.1 - 6.1	5.4 - 5.4	6.8 - 6.8
			Sample Date	06/05/91	06/05/91	06/05/91	06/05/91	06/06/91	06/06/91	06/07/91	06/07/91	06/07/91	01/21/97	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00
			Sample ID	BH-01	BH-02	BH-03	BH-04	BH-06	BH-07	BH-08	BH-09	BH-10	BS017PND	1140-CP-C36	1140-CP-C38	1140-CP-C39	1140-CP-C41	1140-CP-C42	1140-CP-C43	1140-CP-C45	1140-CP-C46	1140-CP-C47	1140-CP-C49
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 Direct-Contact RSL		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Semivolatiles																							
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	730 U	730 U	760 U	760 U	730 U	730 U	**86 J**	690 U	**75 J**	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	24,000	300,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
2-Methylphenol	ug/kg	320,000	4,100,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	630,000	8,200,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	NS	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Acetophenone	ug/kg	780,000	12,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	44,000	400,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	1,800,000	23,000,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**28 J**	790 U	**10 J**	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Azobenzene	ug/kg	5,600	26,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	170,000	820,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	1,100	21,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**80 J**	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Benzo(a)pyrene	ug/kg	110	2,100	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**55 J**	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**84 J**	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	3,500 U	3,500 U	3,700 U	3,700 U	3,500 U	3,500 U	3,500 U	3,400 U	3,800 U	8,800 U	4,100 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,100 U	1,900 U	2,000 U	2,100 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	1,400 U	**3,500**	**1,700**	**27,000 J**	820 U	**2,500**	**3,900**	690 U	**8,200**	**8,600 B**	**6,200**	**2,000**	400 U	**540**	390 U	390 U	410 U	380 U	**250 J**	420 U
Butylbenzylphthalate	ug/kg	290,000	1,200,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	**35 J**	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Carbazole	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	110,000	2,100,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**86 J**	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Dibenzofuran	ug/kg	7,300	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	5,100,000	66,000,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	**53 JB**	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Dimethylphthalate	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	**46 JB**	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	730 U	730 U	760 U	**73 J**	**60 J**	**14 J**	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**160 J**	790 U	**37 J**	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Fluorene	ug/kg	240,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Naphthalene	ug/kg	3,800	17,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	**630 J**	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	730 U	**160 J**	760 U	**290 J**	730 U	**150 J**	**570 J**	690 U	**980**	**260 J**	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Phenanthrene	ug/kg	NS	NS	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**120 J**	790 U	**44 J**	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	BH1	BH2	BH3	BH4	BH6	BH7	BH8	BH9	BH10	BS017PND	CP-C36	CP-C38	CP-C39	CP-C41	CP-C42	CP-C43	CP-C45	CP-C46	CP-C47	CP-C49
			Depth Interval (ft)	4.3 - 6.3	3.5 - 5.5	4.2 - 6.2	6.3 - 8.3	4.4 - 6.4	3 - 5	3 - 5	2.6 - 4.6	3.8 - 5.8	0 - 0	5.4 - 5.4	6.2 - 6.2	6.7 - 6.7	6.5 - 6.5	6.3 - 6.3	5 - 5	6.6 - 6.6	6.1 - 6.1	5.4 - 5.4	6.8 - 6.8
			Sample Date	06/05/91	06/05/91	06/05/91	06/05/91	06/06/91	06/06/91	06/07/91	06/07/91	06/07/91	01/21/97	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00
			Sample ID	BH-01	BH-02	BH-03	BH-04	BH-06	BH-07	BH-08	BH-09	BH-10	BS017PND	1140-CP-C36	1140-CP-C38	1140-CP-C39	1140-CP-C41	1140-CP-C42	1140-CP-C43	1140-CP-C45	1140-CP-C46	1140-CP-C47	1140-CP-C49
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Phenol	ug/kg	1,900,000	25,000,000	730 U	730 U	760 U	760 U	730 U	730 U	**100 J**	690 U	**75 J**	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Pyrene	ug/kg	180,000	2,300,000	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**130 J**	790 U	**39 J**	820 U	400 U	400 U	390 U	390 U	390 U	410 U	380 U	400 U	420 U
Pesticides/PCBs																							
4,4'-DDD	ug/kg	190	2,500	35 U	35 U	35 U	35 U	35 U	35 U	35 U	34 U	38 U	**0.19 J**	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
4,4'-DDE	ug/kg	2,000	9,300	35 U	35 U	35 U	35 U	35 U	35 U	35 U	34 U	38 U	**1.6 J**	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
4,4'-DDT	ug/kg	1,900	8,500	35 U	35 U	35 U	35 U	35 U	35 U	35 U	34 U	38 U	**3.2 J**	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
Aldrin	ug/kg	39	180	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	2.3 U	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
alpha-BHC	ug/kg	86	**360**	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	**0.56 J**	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
beta-BHC	ug/kg	300	1,300	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	2.3 U	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
cis-Chlordane	ug/kg	NS	NS	180 U	180 U	180 U	180 U	180 U	180 UJ	180 U	170 U	190 U	2.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	35 U	35 U	35 U	35 U	35 U	35 U	35 U	34 U	38 U	**0.4 J**	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
Endosulfan I	ug/kg	NS	NS	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	2.3 U	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
Endrin	ug/kg	1,900	25,000	35 U	35 U	35 U	35 U	35 U	35 U	35 U	34 U	38 U	4.5 U	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
Endrin Aldehyde	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.5 U	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
Endrin Ketone	ug/kg	NS	NS	35 U	35 U	**45**	35 U	35 U	35 UJ	35 U	34 U	38 U	4.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	18 U	18 U	**48**	18 U	18 U	18 U	18 U	17 U	19 U	**1.4 J**	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
Heptachlor	ug/kg	130	630	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	2.3 U	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
Heptachlor Epoxide	ug/kg	70	330	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	2.3 U	NA	NA	11 U	NA	NA	NA	NA	NA	12 U	13 U
Technical Chlordane	ug/kg	NS	NS	180 U	180 U	180 U	180 U	180 U	180 UJ	180 U	170 U	190 U	2.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																							
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																							
Aluminum	mg/kg	7,700	110,000	**7,600**	**8,300**	**9,000**	**9,200**	**10,000**	**7,900**	**4,100**	**9,800**	**460**	**4,810**	NA	NA	**5,000**	NA	NA	NA	NA	NA	**4,400**	**3,700**
Antimony	mg/kg	3.1	47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.68	**3**	**8**	**12**	**21**	**13**	**16**	**4.3**	**4.6**	**13**	**1.1**	**24.5**	NA	NA	**4.8**	NA	NA	NA	NA	NA	**2.8**	**3.2**
Barium	mg/kg	1,500	22,000	**16**	**30**	**29**	**36**	**39**	**28**	**14**	**23**	**6.6**	**9.2 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	16	230	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	0.24 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	7.1	98	1 U	1 U	**1.8**	**1.4**	**1.2**	1 U	**1.4**	**1.2**	1 U	0.24 U	NA	NA	0.3 U	NA	NA	NA	NA	NA	0.3 U	0.3 U
Calcium	mg/kg	NS	NS	**16,000**	**3,700**	**8,700**	**4,900**	**2,500**	**4,300**	**4,500**	**1,600**	**2,600**	**371 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	12,000	180,000	**100**	**21**	**36**	**41**	**25**	**160**	**22**	**27**	**7.3**	**305**	**500**	**490**	**1,600**	**230**	**710**	**490**	**560**	**420**	**260**	**660**
Chromium-Hexavalent	mg/kg	0.3	**6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	2.3	35	**2.9**	**3.8**	**5**	**6.2**	**7.2**	**2.3**	**1.8**	**5.2**	1.5 U	**1.9 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	310	4,700	**8.2**	**9.8**	**10**	**47**	**14**	**12**	**4**	**10**	2.5 U	**4.3 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	5,500	82,000	**7,800**	**9,500**	**11,000**	**14,000**	**13,000**	**9,400**	**5,100**	**15,000**	**840**	**20,000 ***	NA	NA	**3,800**	NA	NA	NA	NA	NA	**5,400**	**4,000**
Lead	mg/kg	400	800	10 U	**11**	10 U	**52**	10 U	10 U	10 U	10 U	10 U	**14.1**	NA	NA	**4**	NA	NA	NA	NA	NA	**2.6**	**2.2**
Magnesium	mg/kg	NS	NS	**1,900**	**2,600**	**4,000**	**3,800**	**4,000**	**2,300**	**1,800**	**4,700**	**150**	**325 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	180	2,600	**72**	**140**	**130**	**230**	**250**	**140**	**76**	**320**	**7.6**	**99.9**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	BH1	BH2	BH3	BH4	BH6	BH7	BH8	BH9	BH10	BS017PND	CP-C36	CP-C38	CP-C39	CP-C41	CP-C42	CP-C43	CP-C45	CP-C46	CP-C47	CP-C49
			Depth Interval (ft)	4.3 - 6.3	3.5 - 5.5	4.2 - 6.2	6.3 - 8.3	4.4 - 6.4	3 - 5	3 - 5	2.6 - 4.6	3.8 - 5.8	0 - 0	5.4 - 5.4	6.2 - 6.2	6.7 - 6.7	6.5 - 6.5	6.3 - 6.3	5 - 5	6.6 - 6.6	6.1 - 6.1	5.4 - 5.4	6.8 - 6.8
			Sample Date	06/05/91	06/05/91	06/05/91	06/05/91	06/06/91	06/06/91	06/07/91	06/07/91	06/07/91	01/21/97	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00
			Sample ID	BH-01	BH-02	BH-03	BH-04	BH-06	BH-07	BH-08	BH-09	BH-10	BS017PND	1140-CP-C36	1140-CP-C38	1140-CP-C39	1140-CP-C41	1140-CP-C42	1140-CP-C43	1140-CP-C45	1140-CP-C46	1140-CP-C47	1140-CP-C49
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Mercury	mg/kg	1.1	4.6	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.12 U	NA	NA	0.05 U	NA	NA	NA	NA	NA	0.05 U	0.05 U
Nickel	mg/kg	150	2,200	**6.7**	**11**	**18**	**14**	**18**	**8.9**	**4.8**	**12**	4 U	**1.8 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	**670**	**1,100**	**1,800**	**1,400**	**2,100**	**1,100**	**1,000**	**1,300**	**160**	**119 BE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	**67**	**79**	**100**	**240**	**160**	**140**	**95**	**140**	**70**	**85.4 BE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.078	**1.2**	0.5 U	0.5 U	0.5 U	0.5 U	0.64 U	0.5 U	0.5 U	0.5 U	0.5 U	1.7 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	4,700	70,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	39	580	**12**	**12**	**17**	**21**	**18**	**16**	**5.9**	**18**	1.5 U	**18.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	2,300	35,000	**21**	**24**	**30**	**84**	**31**	**17**	**14**	**27**	2.5 U	**7 E**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																							
Ammonia	mg/kg	NS	NS	**210 J**	**91 J**	**28 J**	**100 J**	**30 J**	**48 J**	**33 J**	**8.4 J**	**72 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	**100 J**	**57 J**	40 UJ	40 UJ	**88 J**	**71 J**	40 UJ	40 UJ	**62 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	**16,000 J**	**7,700 J**	**6,600 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	NA	NA	**33,000 J**	**1,300 J**	**680 J**	**2,000 J**	**210 J**	**6,100 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	**28,000 J**	NA	**8,700**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																							
Dimethylformamide	ug/kg	260,000	1,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	11,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	CP-C50	CP-C52	CP-C53	CP-C54	CP-C55	CP-C56	CP-C57	CP-C58	CP-C59	CP-C60	CP-C61	CP-C62	CP-C64	CP-C65	CP-C66	CP-C67	CP-C68	CP-C69	CP-C70	CPDA-1	CPDA-1-A
			Depth Interval (ft)	4.8 - 4.8	8.7 - 8.7	8.5 - 8.5	3.3 - 3.3	4.1 - 4.1	4.1 - 4.1	4.4 - 4.4	4.5 - 4.5	4.9 - 4.9	5.5 - 5.5	5.4 - 5.4	3.7 - 3.7	5.2 - 5.2	5.3 - 5.3	5.1 - 5.1	4.7 - 4.7	4.1 - 4.1	4.3 - 4.3	4.2 - 4.2	0 - 1	2.9 - 5.09
			Sample Date	10/05/00	10/09/00	10/09/00	10/10/00	10/10/00	10/10/00	10/10/00	10/10/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	12/16/96	01/24/00
			Sample ID	1140-CP-C50	1140-CP-C52	1140-CP-C53	1140-CP-C54	1140-CP-C55	1140-CP-C56	1140-CP-C57	1140-CP-C58	1140-CP-C59	1140-CP-C60	1140-CP-C61	1140-CP-C62	1140-CP-C64	1140-CP-C65	1140-CP-C66	1140-CP-C67	1140-CP-C68	1140-CP-C69	1140-CP-C70	CPDA-1	CPD-1-A (0-3 FT)
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Volatiles																								
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	7 U	NA
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	23,000	100,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	7 U	NA
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	NA	NA
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	NA	NA
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	460	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	NA	NA
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	**410**	NA	NA	NA	140 U	NA	7 U	NA
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	7 U	NA
2-Butanone	ug/kg	2,700,000	19,000,000	NA	NA	NA	NA	NA	3,000 U	NA	NA	NA	3,900 U	NA	NA	NA	2,900 U	NA	NA	NA	2,700 U	NA	14 U	NA
2-Hexanone	ug/kg	20,000	130,000	NA	NA	NA	NA	NA	590 U	NA	NA	NA	790 U	NA	NA	NA	570 U	NA	NA	NA	540 U	NA	14 U	NA
4-Isopropyltoluene	ug/kg	NS	NS	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	NA	NA
Acetone	ug/kg	6,100,000	67,000,000	NA	NA	NA	NA	NA	3,000 U	NA	NA	NA	3,900 U	NA	NA	NA	2,900 U	NA	NA	NA	2,700 U	NA	**13 J**	NA
Benzene	ug/kg	1,200	5,100	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	7 U	NA
Bromochloromethane	ug/kg	15,000	63,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	290	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	77,000	350,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	28,000	130,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	320	1,400	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	7 U	NA
Dibromomethane	ug/kg	2,400	9,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	5,800	25,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	7 U	NA
Isopropylbenzene	ug/kg	190,000	990,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	NA	NA
m,p-Xylene	ug/kg	58,000	250,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	NA	NA
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	35,000	320,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	**150**	NA	7 U	NA
Naphthalene	ug/kg	3,800	17,000	NA	NA	NA	NA	NA	1,500 U	NA	NA	NA	2,000 U	NA	NA	NA	1,400 U	NA	NA	NA	1,400 U	NA	NA	NA
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	380,000	2,400,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	NA	NA
o-Xylene	ug/kg	65,000	280,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	NA	NA
sec-Butylbenzene	ug/kg	780,000	12,000,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	NA	NA
Styrene	ug/kg	600,000	3,500,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	7 U	NA
Tetrachloroethene	ug/kg	8,100	39,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	7 U	NA
Toluene	ug/kg	490,000	4,700,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	**230**	NA	NA	NA	140 U	NA	7 U	NA
Trichloroethene	ug/kg	410	1,900	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	7 U	NA
Xylene (total)	ug/kg	58,000	250,000	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA	NA	140 U	NA	7 U	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	CP-C50	CP-C52	CP-C53	CP-C54	CP-C55	CP-C56	CP-C57	CP-C58	CP-C59	CP-C60	CP-C61	CP-C62	CP-C64	CP-C65	CP-C66	CP-C67	CP-C68	CP-C69	CP-C70	CPDA-1	CPDA-1-A
			Depth Interval (ft)	4.8 - 4.8	8.7 - 8.7	8.5 - 8.5	3.3 - 3.3	4.1 - 4.1	4.1 - 4.1	4.4 - 4.4	4.5 - 4.5	4.9 - 4.9	5.5 - 5.5	5.4 - 5.4	3.7 - 3.7	5.2 - 5.2	5.3 - 5.3	5.1 - 5.1	4.7 - 4.7	4.1 - 4.1	4.3 - 4.3	4.2 - 4.2	0 - 1	2.9 - 5.09
			Sample Date	10/05/00	10/09/00	10/09/00	10/10/00	10/10/00	10/10/00	10/10/00	10/10/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	12/16/96	01/24/00
			Sample ID	1140-CP-C50	1140-CP-C52	1140-CP-C53	1140-CP-C54	1140-CP-C55	1140-CP-C56	1140-CP-C57	1140-CP-C58	1140-CP-C59	1140-CP-C60	1140-CP-C61	1140-CP-C62	1140-CP-C64	1140-CP-C65	1140-CP-C66	1140-CP-C67	1140-CP-C68	1140-CP-C69	1140-CP-C70	CPDA-1	CPD-1-A (0-3 FT)
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Semivolatiles																								
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	660 U	NA
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	24,000	300,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	660 U	NA
2-Methylphenol	ug/kg	320,000	4,100,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	660 U	NA
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660 U	NA
Acenaphthene	ug/kg	360,000	4,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	NS	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	660 U	NA
Acetophenone	ug/kg	780,000	12,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	44,000	400,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	1,800,000	23,000,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	660 U	NA
Azobenzene	ug/kg	5,600	26,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	170,000	820,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	1,100	21,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	**35 J**	NA
Benzo(a)pyrene	ug/kg	110	2,100	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	NA	NA	1,600 U	NA	NA	NA	400 U	400 U	390 U	400 U	400 U	**42 J**	NA
Benzo(b)fluoranthene	ug/kg	1,100	21,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	**51 J**	NA
Benzo(g,h,i)perylene	ug/kg	NS	NS	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	660 U	NA
Benzo(k)fluoranthene	ug/kg	11,000	210,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	**55 J**	NA
Benzoic Acid	ug/kg	25,000,000	330,000,000	1,800 U	1,900 U	2,000 U	2,100 U	1,900 U	2,000 U	1,900 U	1,900 U	18,000 UC	27,000 U	8,000 U	11,000 U	19,000 UC	38,000 UC	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	3,200 U	NA
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	370 U	390 U	400 U	**460**	370 U	**1,100**	**1,000**	**670**	**26,000 C**	**5,000 J**	**5,500**	**7,900**	**22,000 C**	**46,000 C**	**220 J**	**540**	**540**	400 U	400 U	**850 B**	NA
Butylbenzylphthalate	ug/kg	290,000	1,200,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 U	7,600 UC	400 U	400 U	390 U	400 U	400 U	660 U	NA
Carbazole	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	110,000	2,100,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	**52 J**	NA
Dibenz(a,h)anthracene	ug/kg	110	2,100	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	NA	NA	1,600 U	NA	NA	NA	400 U	400 U	390 U	400 U	400 U	660 U	NA
Dibenzofuran	ug/kg	7,300	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	5,100,000	66,000,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	**36 J**	NA
Dimethylphthalate	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	**67 JB**	NA
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	660 U	NA
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	**100 J**	NA
Fluorene	ug/kg	240,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	660 U	NA
Naphthalene	ug/kg	3,800	17,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	660 U	NA
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	**11,000 C**	**3,100 J**	1,600 U	**9,900**	**54,000 C**	**15,000 C**	400 U	400 U	390 U	400 U	400 U	660 U	NA
Phenanthrene	ug/kg	NS	NS	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	**52 J**	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	CP-C50	CP-C52	CP-C53	CP-C54	CP-C55	CP-C56	CP-C57	CP-C58	CP-C59	CP-C60	CP-C61	CP-C62	CP-C64	CP-C65	CP-C66	CP-C67	CP-C68	CP-C69	CP-C70	CPDA-1	CPDA-1-A
			Depth Interval (ft)	4.8 - 4.8	8.7 - 8.7	8.5 - 8.5	3.3 - 3.3	4.1 - 4.1	4.1 - 4.1	4.4 - 4.4	4.5 - 4.5	4.9 - 4.9	5.5 - 5.5	5.4 - 5.4	3.7 - 3.7	5.2 - 5.2	5.3 - 5.3	5.1 - 5.1	4.7 - 4.7	4.1 - 4.1	4.3 - 4.3	4.2 - 4.2	0 - 1	2.9 - 5.09
			Sample Date	10/05/00	10/09/00	10/09/00	10/10/00	10/10/00	10/10/00	10/10/00	10/10/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	10/20/00	12/16/96	01/24/00
			Sample ID	1140-CP-C50	1140-CP-C52	1140-CP-C53	1140-CP-C54	1140-CP-C55	1140-CP-C56	1140-CP-C57	1140-CP-C58	1140-CP-C59	1140-CP-C60	1140-CP-C61	1140-CP-C62	1140-CP-C64	1140-CP-C65	1140-CP-C66	1140-CP-C67	1140-CP-C68	1140-CP-C69	1140-CP-C70	CPDA-1	CPD-1-A (0-3 FT)
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Phenol	ug/kg	1,900,000	25,000,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U	390 U	400 U	400 U	660 U	NA
Pyrene	ug/kg	180,000	2,300,000	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UCK	5,500 UK	1,600 UK	2,300 UK	3,800 UC	7,600 UCK	400 UK	400 UK	390 U	400 U	400 UK	**76 J**	NA
Pesticides/PCBs																								
4,4'-DDD	ug/kg	190	2,500	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	**1.6 J**	NA
4,4'-DDE	ug/kg	2,000	9,300	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	**2 J**	NA
4,4'-DDT	ug/kg	1,900	8,500	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	6 U	NA
Aldrin	ug/kg	39	180	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	3.1 U	NA
alpha-BHC	ug/kg	86	**360**	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	3.1 U	NA
beta-BHC	ug/kg	300	1,300	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	3.1 U	NA
cis-Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.9**	NA
Dieldrin	ug/kg	34	140	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	6 U	NA
Endosulfan I	ug/kg	NS	NS	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	**1.9 J**	NA
Endrin	ug/kg	1,900	25,000	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	6 U	NA
Endrin Aldehyde	ug/kg	NS	NS	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	6 U	NA
Endrin Ketone	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6 U	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	**0.73 J**	NA
Heptachlor	ug/kg	130	630	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	3.1 U	NA
Heptachlor Epoxide	ug/kg	70	330	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA	NA	12 U	NA	3.1 U	NA
Technical Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.1 U	NA
EPH																								
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																								
Aluminum	mg/kg	7,700	110,000	NA	NA	NA	NA	NA	**5,700**	NA	NA	NA	**6,600**	NA	NA	NA	**5,500**	NA	NA	NA	**5,500**	NA	NA	**4,800**
Antimony	mg/kg	3.1	47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.68	**3**	NA	NA	NA	NA	NA	**4.9**	NA	NA	NA	**8.8**	NA	NA	NA	**6**	NA	NA	NA	**89**	NA	NA	NA
Barium	mg/kg	1,500	22,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.1**
Beryllium	mg/kg	16	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.12**
Cadmium	mg/kg	7.1	98	NA	NA	NA	NA	NA	0.3 U	NA	NA	NA	0.4 U	NA	NA	NA	**0.36**	NA	NA	NA	**0.37**	NA	NA	0.2 U
Calcium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**560**
Chromium	mg/kg	12,000	180,000	**630**	**970**	**29**	**510**	**410**	**680**	**240**	**530**	**27**	**100**	**350**	**88**	**20**	**52**	**470**	**250**	**280**	**540**	**37**	**3,010 *N**	**24**
Chromium-Hexavalent	mg/kg	0.3	**6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	2.3	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.7**
Copper	mg/kg	310	4,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23 U
Iron	mg/kg	5,500	82,000	NA	NA	NA	NA	NA	**5,000**	NA	NA	NA	**9,000**	NA	NA	NA	**6,900**	NA	NA	NA	**25,000**	NA	NA	**3,500**
Lead	mg/kg	400	800	NA	NA	NA	NA	NA	**3.1**	NA	NA	NA	**17**	NA	NA	NA	**6.6**	NA	NA	NA	**4.2**	NA	NA	**3.4**
Magnesium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**950**
Manganese	mg/kg	180	2,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**34**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	**CP-C50**	**CP-C52**	**CP-C53**	**CP-C54**	**CP-C55**	**CP-C56**	**CP-C57**	**CP-C58**	**CP-C59**	**CP-C60**	**CP-C61**	**CP-C62**	**CP-C64**	**CP-C65**	**CP-C66**	**CP-C67**	**CP-C68**	**CP-C69**	**CP-C70**	**CPDA-1**	**CPDA-1-A**
			Depth Interval (ft)	**4.8 - 4.8**	**8.7 - 8.7**	**8.5 - 8.5**	**3.3 - 3.3**	**4.1 - 4.1**	**4.1 - 4.1**	**4.4 - 4.4**	**4.5 - 4.5**	**4.9 - 4.9**	**5.5 - 5.5**	**5.4 - 5.4**	**3.7 - 3.7**	**5.2 - 5.2**	**5.3 - 5.3**	**5.1 - 5.1**	**4.7 - 4.7**	**4.1 - 4.1**	**4.3 - 4.3**	**4.2 - 4.2**	**0 - 1**	**2.9 - 5.09**
			Sample Date	**10/05/00**	**10/09/00**	**10/09/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**12/16/96**	**01/24/00**
			Sample ID	**1140-CP-C50**	**1140-CP-C52**	**1140-CP-C53**	**1140-CP-C54**	**1140-CP-C55**	**1140-CP-C56**	**1140-CP-C57**	**1140-CP-C58**	**1140-CP-C59**	**1140-CP-C60**	**1140-CP-C61**	**1140-CP-C62**	**1140-CP-C64**	**1140-CP-C65**	**1140-CP-C66**	**1140-CP-C67**	**1140-CP-C68**	**1140-CP-C69**	**1140-CP-C70**	**CPDA-1**	**CPD-1-A (0-3 FT)**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Mercury	mg/kg	1.1	4.6	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	**0.12**	NA	NA	NA	0.05 U	NA	NA	NA	0.05 U	NA	NA	0.05 U
Nickel	mg/kg	150	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.4**
Potassium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**230**
Selenium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**80**
Thallium	mg/kg	0.078	**1.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.8 U
Tin	mg/kg	4,700	70,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.7**
Zinc	mg/kg	2,300	35,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**11**
General Chemistry																								
Ammonia	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**363**	NA
Chloride	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**590**	NA
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																								
Dimethylformamide	ug/kg	260,000	1,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	11,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	CPDA-2	CPDA-3	CPDA-4	DA-C2	DA-C3	DA-C4	DA-C5	DA-C6	DA-C7	DA-C8	DA-C9	DA-C10	DA-C11	DA-C12	DA-C13	DA-C14	DA-C15	DA-C16	DA-C17	DA-C18	DA-C19
			Depth Interval (ft)	0 - 1	0 - 1	0 - 1	1.4 - 4.4	1.6 - 4.6	1.7 - 4.7	0.3 - 2.3	0.5 - 3.5	7.2 - 7.2	6.9 - 6.9	0.3 - 0.3	0.2 - 1.8	0 - 3	7 - 7	7 - 7	5.9 - 5.9	1.2 - 4.2	1.2 - 4.2	6.2 - 6.2	6.3 - 6.3	1.3 - 4.3
			Sample Date	12/16/96	12/16/96	12/16/96	09/18/00	09/29/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00
			Sample ID	CPDA-2	CPDA-3	CPDA-4	1120-DA-C2	1120-DA-C3	1120-DA-C4	1120-DA-C5	1120-DA-C6	1120-DA-C7	1120-DA-C8	1120-DA-C9	1120-DA-C10	1120-DA-C11	1120-DA-C12	1120-DA-C13	1120-DA-C14	1120-DA-C15	1120-DA-C16	1120-DA-C17	1120-DA-C18	1120-DA-C19
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Volatiles																								
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	23,000	100,000	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	460	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	11 U	7 UJ	**14 J**	130 U	130 U	140 U	120 U	120 U	140 U	**670**	120 U	130 U	120 U	150 U	**68,000**	**7,100**	130 U	120 U	**440**	140 U	130 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	**180**	120 U	130 U	120 U	150 U	**27,000**	**2,600**	130 U	120 U	140 U	140 U	130 U
2-Butanone	ug/kg	2,700,000	19,000,000	22 U	13 U	28 U	2,700 U	2,600 U	2,800 U	2,500 U	2,300 U	2,800 U	2,800 U	2,400 U	2,600 U	2,400 U	3,000 U	15,000 U	2,500 U	2,600 U	2,300 U	2,700 U	2,900 U	2,600 U
2-Hexanone	ug/kg	20,000	130,000	22 U	13 UJ	28 UJ	540 U	520 U	560 U	500 U	460 U	560 U	570 U	470 U	530 U	490 U	590 U	3,000 U	510 U	520 U	460 U	550 U	580 U	520 U
4-Isopropyltoluene	ug/kg	NS	NS	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	**3,200**	**1,700**	130 U	120 U	**9,200**	140 U	130 U
Acetone	ug/kg	6,100,000	67,000,000	**56**	31 U	60 U	2,700 U	2,600 U	2,800 U	2,500 U	2,300 U	2,800 U	2,800 U	2,400 U	2,600 U	2,400 U	3,000 U	15,000 U	2,500 U	2,600 U	2,300 U	2,700 U	2,900 U	2,600 U
Benzene	ug/kg	1,200	5,100	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
Bromochloromethane	ug/kg	15,000	63,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	290	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	77,000	350,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	28,000	130,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	320	1,400	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
Dibromomethane	ug/kg	2,400	9,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	5,800	25,000	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
Isopropylbenzene	ug/kg	190,000	990,000	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	**220**	140 U	130 U
m,p-Xylene	ug/kg	58,000	250,000	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	35,000	320,000	**4 J**	7 U	14 U	**160 B**	**160 B**	**170 B**	**200 B**	**170 B**	**180 B**	**240 B**	**170 B**	**210 B**	**170 B**	**150 JB**	740 U	130 U	**180 B**	**160 B**	140 U	**190**	**180**
Naphthalene	ug/kg	3,800	17,000	NA	NA	NA	1,300 U	1,300 U	1,400 U	1,200 U	1,200 U	1,400 U	1,400 U	1,200 U	1,300 U	1,200 U	1,500 U	7,400 U	1,300 U	1,300 U	1,200 U	1,400 U	1,400 U	1,300 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	380,000	2,400,000	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
o-Xylene	ug/kg	65,000	280,000	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
Styrene	ug/kg	600,000	3,500,000	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
Tetrachloroethene	ug/kg	8,100	39,000	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
Toluene	ug/kg	490,000	4,700,000	11 U	7 U	**5 J**	130 U	130 U	140 U	120 U	120 U	140 U	**1,500**	120 U	130 U	120 U	**140 J**	**7,500**	130 U	130 U	120 U	140 U	140 U	130 U
Trichloroethene	ug/kg	410	1,900	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U
Xylene (total)	ug/kg	58,000	250,000	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U	740 U	130 U	130 U	120 U	140 U	140 U	130 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	CPDA-2	CPDA-3	CPDA-4	DA-C2	DA-C3	DA-C4	DA-C5	DA-C6	DA-C7	DA-C8	DA-C9	DA-C10	DA-C11	DA-C12	DA-C13	DA-C14	DA-C15	DA-C16	DA-C17	DA-C18	DA-C19
			Depth Interval (ft)	0 - 1	0 - 1	0 - 1	1.4 - 4.4	1.6 - 4.6	1.7 - 4.7	0.3 - 2.3	0.5 - 3.5	7.2 - 7.2	6.9 - 6.9	0.3 - 0.3	0.2 - 1.8	0 - 3	7 - 7	7 - 7	5.9 - 5.9	1.2 - 4.2	1.2 - 4.2	6.2 - 6.2	6.3 - 6.3	1.3 - 4.3
			Sample Date	12/16/96	12/16/96	12/16/96	09/18/00	09/29/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00
			Sample ID	CPDA-2	CPDA-3	CPDA-4	1120-DA-C2	1120-DA-C3	1120-DA-C4	1120-DA-C5	1120-DA-C6	1120-DA-C7	1120-DA-C8	1120-DA-C9	1120-DA-C10	1120-DA-C11	1120-DA-C12	1120-DA-C13	1120-DA-C14	1120-DA-C15	1120-DA-C16	1120-DA-C17	1120-DA-C18	1120-DA-C19
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 Direct-Contact RSL		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/Comm.																					
Semivolatiles																								
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	24,000	300,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
2-Methylphenol	ug/kg	320,000	4,100,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	630,000	8,200,000	630 U	960 U	660 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	NS	630 U	960 U	**66 J**	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Acetophenone	ug/kg	780,000	12,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	44,000	400,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	1,800,000	23,000,000	630 U	960 U	**57 J**	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Azobenzene	ug/kg	5,600	26,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	170,000	820,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	1,100	21,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	NA	NA	350 U	340 U	19,000 U	20,000 U	340 U
Benzo(a)pyrene	ug/kg	110	2,100	630 U	960 U	660 U	730 U	770 U	380 U	360 U	NA	430 U	840 U	350 U	350 U	350 U	420 U	NA	NA	350 U	340 U	NA	NA	340 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	NA	NA	350 U	340 U	19,000 U	20,000 U	340 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	**200 J**	4,600 U	**260 J**	3,600 U	3,800 U	1,900 U	1,800 U	18,000 U	2,200 U	4,200 U	1,800 U	1,800 U	1,800 U	2,100 U	200,000 UC	190,000 U	1,700 U	1,700 U	97,000 U	98,000 U	1,700 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	**540 JB**	**5,300**	**1,100**	**8,500**	**9,600**	**3,900**	**1,700**	**19,000**	**7,600**	**980**	**2,300**	**3,800**	**5,800**	**8,200**	**448,000 C**	**1,582,000**	**1,200**	**420**	**381,000**	**370,000**	**1,100**
Butylbenzylphthalate	ug/kg	290,000	1,200,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Carbazole	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	110,000	2,100,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	630 U	960 U	660 U	730 U	770 U	380 U	360 U	NA	430 U	840 U	350 U	350 U	350 U	420 U	NA	NA	350 U	340 U	NA	NA	340 U
Dibenzofuran	ug/kg	7,300	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	5,100,000	66,000,000	**24 J**	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Dimethylphthalate	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	**23 JB**	960 U	660 U	**390 J**	770 U	**1,600**	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	**98,000 C**	**109,000**	350 U	340 U	19,000 U	20,000 U	340 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	630 U	960 U	**98 J**	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Fluorene	ug/kg	240,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	NA	NA	350 U	340 U	19,000 U	20,000 U	340 U
Naphthalene	ug/kg	3,800	17,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	630 U	960 U	660 U	**1,200**	**480 J**	380 U	360 U	3,500 U	430 U	840 U	350 U	**240 J**	**320 J**	**6,000**	40,000 UC	**49,000**	350 U	340 U	19,000 U	20,000 U	340 U
Phenanthrene	ug/kg	NS	NS	630 U	960 U	**120 J**	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	CPDA-2	CPDA-3	CPDA-4	DA-C2	DA-C3	DA-C4	DA-C5	DA-C6	DA-C7	DA-C8	DA-C9	DA-C10	DA-C11	DA-C12	DA-C13	DA-C14	DA-C15	DA-C16	DA-C17	DA-C18	DA-C19
			Depth Interval (ft)	0 - 1	0 - 1	0 - 1	1.4 - 4.4	1.6 - 4.6	1.7 - 4.7	0.3 - 2.3	0.5 - 3.5	7.2 - 7.2	6.9 - 6.9	0.3 - 0.3	0.2 - 1.8	0 - 3	7 - 7	7 - 7	5.9 - 5.9	1.2 - 4.2	1.2 - 4.2	6.2 - 6.2	6.3 - 6.3	1.3 - 4.3
			Sample Date	12/16/96	12/16/96	12/16/96	09/18/00	09/29/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00
			Sample ID	CPDA-2	CPDA-3	CPDA-4	1120-DA-C2	1120-DA-C3	1120-DA-C4	1120-DA-C5	1120-DA-C6	1120-DA-C7	1120-DA-C8	1120-DA-C9	1120-DA-C10	1120-DA-C11	1120-DA-C12	1120-DA-C13	1120-DA-C14	1120-DA-C15	1120-DA-C16	1120-DA-C17	1120-DA-C18	1120-DA-C19
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Phenol	ug/kg	1,900,000	25,000,000	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Pyrene	ug/kg	180,000	2,300,000	630 U	960 U	**68 J**	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U
Pesticides/PCBs																								
4,4'-DDD	ug/kg	190	2,500	6.3 U	**1.3 J**	6.6 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 UC	12 U	12 U	10 U
4,4'-DDE	ug/kg	2,000	9,300	6.3 U	**2.6 J**	6.6 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 UC	12 U	12 U	10 U
4,4'-DDT	ug/kg	1,900	8,500	6.3 U	**12 J**	6.6 UJ	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 UC	12 U	12 U	10 U
Aldrin	ug/kg	39	180	**0.96 J**	3.5 U	**0.11 J**	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 UC	12 U	12 U	10 U
alpha-BHC	ug/kg	86	**360**	3.3 U	3.5 U	3.4 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 UC	12 U	12 U	10 U
beta-BHC	ug/kg	300	1,300	3.3 U	3.5 U	3.4 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 UC	12 U	12 U	10 U
cis-Chlordane	ug/kg	NS	NS	3.3 U	3.5 U	3.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	6.3 U	6.9 U	6.6 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 UC	12 U	12 U	10 U
Endosulfan I	ug/kg	NS	NS	3.3 U	3.5 U	3.4 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 UC	12 U	12 U	10 U
Endrin	ug/kg	1,900	25,000	6.3 U	6.9 U	6.6 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 U	12 U	12 U	10 U
Endrin Aldehyde	ug/kg	NS	NS	6.3 U	6.9 U	6.6 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 UC	12 U	12 U	10 U
Endrin Ketone	ug/kg	NS	NS	6.3 U	**3.1 J**	6.6 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	3.3 U	**6.1**	3.4 U	**690 F**	**27**	11 U	11 U	**74**	**20**	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 UC	12 U	12 U	10 U
Heptachlor	ug/kg	130	630	3.3 U	3.5 U	**0.4 J**	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 U	12 U	12 U	10 U
Heptachlor Epoxide	ug/kg	70	330	3.3 U	3.5 U	3.4 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U	12 U	11 U	10 U	10 UC	12 U	12 U	10 U
Technical Chlordane	ug/kg	NS	NS	3.3 U	3.5 UJ	3.4 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																								
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																								
Aluminum	mg/kg	7,700	110,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/kg	3.1	47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.68	**3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/kg	1,500	22,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	16	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	7.1	98	NA	NA	NA	**1.4**	**7.3**	**0.32**	0.3 U	0.3 U	**0.35**	0.3 U	**0.71**	0.3 U	0.3 U	0.3 U	**0.56**	0.3 U	0.3 U	0.3 U	**1.4**	**1.4**	0.3 U
Calcium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	12,000	180,000	**3.6 *N**	**270**	**17**	**94**	**42**	**43**	**52**	**60**	**73**	**5.1**	**4.5**	**27**	**10**	**30**	**10**	**18**	**7.8**	**23**	**20**	**15**	**41**
Chromium-Hexavalent	mg/kg	0.3	**6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	2.3	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	310	4,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	5,500	82,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	400	800	NA	NA	NA	**3.9**	**4.3**	**10**	**7.1**	**4.4**	**2.5**	**2.1**	**1.5**	**2**	**3**	**4.2**	**2.4**	**3**	**2**	**6.1**	**3.4**	**2.6**	**2.8**
Magnesium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	180	2,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	CPDA-2	CPDA-3	CPDA-4	DA-C2	DA-C3	DA-C4	DA-C5	DA-C6	DA-C7	DA-C8	DA-C9	DA-C10	DA-C11	DA-C12	DA-C13	DA-C14	DA-C15	DA-C16	DA-C17	DA-C18	DA-C19
			Depth Interval (ft)	0 - 1	0 - 1	0 - 1	1.4 - 4.4	1.6 - 4.6	1.7 - 4.7	0.3 - 2.3	0.5 - 3.5	7.2 - 7.2	6.9 - 6.9	0.3 - 0.3	0.2 - 1.8	0 - 3	7 - 7	7 - 7	5.9 - 5.9	1.2 - 4.2	1.2 - 4.2	6.2 - 6.2	6.3 - 6.3	1.3 - 4.3
			Sample Date	12/16/96	12/16/96	12/16/96	09/18/00	09/29/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00
			Sample ID	CPDA-2	CPDA-3	CPDA-4	1120-DA-C2	1120-DA-C3	1120-DA-C4	1120-DA-C5	1120-DA-C6	1120-DA-C7	1120-DA-C8	1120-DA-C9	1120-DA-C10	1120-DA-C11	1120-DA-C12	1120-DA-C13	1120-DA-C14	1120-DA-C15	1120-DA-C16	1120-DA-C17	1120-DA-C18	1120-DA-C19
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Mercury	mg/kg	1.1	4.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	150	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.078	**1.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	4,700	70,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	2,300	35,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																								
Ammonia	mg/kg	NS	NS	**126**	**153**	**161**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	**26,800**	**650**	**24,900**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																								
Dimethylformamide	ug/kg	260,000	1,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	11,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	DA-C20	DA-C21	DA-C22	DA-C23	DA-C24	DA-C27	DA-C28	DA-C29	DA-C30	DA-C31	DA-C32	DA-C35	DB-C3	DB-C4	DB-C5	DB-C6	DB-C7	DB-C8	DB-C9	DB-C10	DB-C11
			Depth Interval (ft)	0.3 - 3.3	6.4 - 6.4	6 - 6	6.1 - 6.1	5.7 - 5.7	1.6 - 4.6	2.7 - 5.7	6.2 - 6.2	6.5 - 9.5	4.9 - 7.9	5 - 8	7.9 - 7.9	1.2 - 4.2	6.8 - 6.8	1.4 - 4.4	1.4 - 4.4	6 - 6	5.7 - 5.7	1.6 - 4.6	0.8 - 3.8	6.2 - 6.2
			Sample Date	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/29/00	09/29/00	09/29/00	09/29/00	09/29/00	09/29/00	09/29/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00
			Sample ID	1120-DA-C20	1120-DA-C21	1120-DA-C22	1120-DA-C23	1120-DA-C24	1120-DA-C27	1120-DA-C28	1120-DA-C29-RISK	1120-DA-C30	1120-DA-C31	1120-DA-C32	1120-DA-C35	97598-DB-C3	97598-DB-C4	97598-DB-C5	97598-DB-C6	97598-DB-C7	97598-DB-C8	97598-DB-C9	97598-DB-C10	97598-DB-C11
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Volatiles																								
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	23,000	100,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	**150**	59 U	50 U	59 U	87 U	58 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	**690**	59 U	50 U	59 U	87 U	58 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	**130**	**4,600**	59 U	50 U	59 U	87 U	58 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	460	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	**85**	**2,900**	59 U	50 U	59 U	87 U	58 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	130 U	**420**	**1,000**	160 U	150 U	130 U	140 U	**4,650**	**370**	120 U	130 U	**2,600**	74 U	42 U	NA	**370**	59 U	50 U	59 U	87 U	58 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	130 U	150 U	**350**	160 U	150 U	130 U	140 U	**1,800**	130 U	120 U	130 U	**7,300**	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U
2-Butanone	ug/kg	2,700,000	19,000,000	2,600 U	3,000 U	2,700 U	3,100 U	3,000 U	2,600 U	2,800 U	3,000 U	2,600 U	2,500 U	2,600 U	3,000 U	740 U	420 U	490 U	680 U	590 U	500 U	590 U	870 U	580 U
2-Hexanone	ug/kg	20,000	130,000	520 U	590 U	530 U	620 U	590 U	510 U	560 U	610 U	520 U	500 U	510 U	600 U	740 U	420 U	490 U	680 U	590 U	500 U	590 U	870 U	580 U
4-Isopropyltoluene	ug/kg	NS	NS	130 U	150 U	130 U	160 U	150 U	130 U	140 U	**750**	130 U	120 U	130 U	**18,000**	74 U	42 U	49 U	**370**	59 U	50 U	59 U	87 U	58 U
Acetone	ug/kg	6,100,000	67,000,000	2,600 U	3,000 U	2,700 U	3,100 U	3,000 U	2,600 U	2,800 U	3,000 U	2,600 U	2,500 U	2,600 U	3,000 U	740 U	420 U	490 U	680 U	590 U	500 U	590 U	870 U	580 U
Benzene	ug/kg	1,200	5,100	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U
Bromochloromethane	ug/kg	15,000	63,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	290	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	77,000	350,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	28,000	130,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	320	1,400	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U
Dibromomethane	ug/kg	2,400	9,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	5,800	25,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	**620**	74 U	42 U	49 U	**160**	59 U	50 U	59 U	87 U	58 U
Isopropylbenzene	ug/kg	190,000	990,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	**370**	74 U	42 U	49 U	**650**	59 U	50 U	59 U	87 U	58 U
m,p-Xylene	ug/kg	58,000	250,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	**96 JB**	120 U	130 U	150 U	74 U	42 U	49 U	**350**	59 U	50 U	59 U	87 U	58 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	35,000	320,000	**170**	**230**	**180**	**210**	**190**	130 U	140 U	150 U	130 U	120 U	130 U	150 U	**320 B**	**400 B**	**500 B**	**300 B**	**150 B**	**290 B**	**420 B**	**580 B**	**640 B**
Naphthalene	ug/kg	3,800	17,000	1,300 U	1,500 U	1,300 U	1,600 U	1,500 U	1,300 U	1,400 U	1,500 U	1,300 U	1,200 U	1,300 U	1,500 U	150 U	85 U	99 U	140 U	120 U	100 U	120 U	170 U	120 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	380,000	2,400,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	**590**	59 U	50 U	59 U	87 U	58 U
o-Xylene	ug/kg	65,000	280,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	**530**	59 U	50 U	59 U	87 U	58 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	**210**	59 U	50 U	59 U	87 U	58 U
Styrene	ug/kg	600,000	3,500,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	**430**	59 U	50 U	59 U	87 U	58 U
Tetrachloroethene	ug/kg	8,100	39,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U
Toluene	ug/kg	490,000	4,700,000	130 U	150 U	130 U	**510**	150 U	130 U	140 U	150 U	**450**	120 U	130 U	**13,000**	74 U	42 U	49 U	**94**	59 U	50 U	59 U	87 U	58 U
Trichloroethene	ug/kg	410	1,900	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U
Xylene (total)	ug/kg	58,000	250,000	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	**96 JB**	120 U	130 U	150 U	74 U	42 U	49 U	**880**	59 U	50 U	59 U	87 U	58 U

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	DA-C20	DA-C21	DA-C22	DA-C23	DA-C24	DA-C27	DA-C28	DA-C29	DA-C30	DA-C31	DA-C32	DA-C35	DB-C3	DB-C4	DB-C5	DB-C6	DB-C7	DB-C8	DB-C9	DB-C10	DB-C11
			Depth Interval (ft)	0.3 - 3.3	6.4 - 6.4	6 - 6	6.1 - 6.1	5.7 - 5.7	1.6 - 4.6	2.7 - 5.7	6.2 - 6.2	6.5 - 9.5	4.9 - 7.9	5 - 8	7.9 - 7.9	1.2 - 4.2	6.8 - 6.8	1.4 - 4.4	1.4 - 4.4	6 - 6	5.7 - 5.7	1.6 - 4.6	0.8 - 3.8	6.2 - 6.2
			Sample Date	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/29/00	09/29/00	09/29/00	09/29/00	09/29/00	09/29/00	09/29/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00
			Sample ID	1120-DA-C20	1120-DA-C21	1120-DA-C22	1120-DA-C23	1120-DA-C24	1120-DA-C27	1120-DA-C28	1120-DA-C29-RISK	1120-DA-C30	1120-DA-C31	1120-DA-C32	1120-DA-C35	97598-DB-C3	97598-DB-C4	97598-DB-C5	97598-DB-C6	97598-DB-C7	97598-DB-C8	97598-DB-C9	97598-DB-C10	97598-DB-C11
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Semivolatiles																								
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	**270 JF**	280 U	290 U	290 U	265.1 U	400 U	300 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	24,000	300,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U
2-Methylphenol	ug/kg	320,000	4,100,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U
Acenaphthene	ug/kg	360,000	4,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	NS	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U
Acetophenone	ug/kg	780,000	12,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	44,000	400,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	1,800,000	23,000,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U
Azobenzene	ug/kg	5,600	26,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	170,000	820,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	1,100	21,000	340 U	4,100 U	3,800 U	NA	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U
Benzo(a)pyrene	ug/kg	110	2,100	340 U	NA	NA	NA	1,900 U	710 U	370 U	NA	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	340 U	4,100 U	3,800 U	NA	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	340 U	4,100 U	3,800 U	NA	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	1,700 U	21,000 U	19,000 U	2,000,000 U	9,700 U	3,500 U	1,800 U	42,000 UC	1,800 U	9,000 U	1,800 U	2,000 U	620 U	600 U	**770 F**	**1,100**	570 U	580 U	530 U	810 U	590 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	340 U	**73,000**	**94,000**	**1,590,000**	**16,000**	**7,200**	**6,200**	**119,000 C**	**3,400**	**12,000**	**860**	**7,900**	**860 B**	**810 B**	**10,000 F**	**8,600**	290 UB	290 UB	270 UB	**1,100 B**	300 UB
Butylbenzylphthalate	ug/kg	290,000	1,200,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U
Carbazole	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	110,000	2,100,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	340 U	NA	NA	NA	1,900 U	710 U	370 U	NA	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U
Dibenzofuran	ug/kg	7,300	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	5,100,000	66,000,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U
Dimethylphthalate	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	**480 F**	**990**	290 U	290 U	265.1 U	400 U	300 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U
Fluorene	ug/kg	240,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	340 U	4,100 U	3,800 U	NA	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U
Naphthalene	ug/kg	3,800	17,000	340 U	4,100 U	3,800 U	NA	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 UF	280 U	290 U	290 U	265.1 U	400 U	300 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	340 U	4,100 U	**2,800 J**	400,000 U	1,900 U	710 U	**800**	**6,500 JC**	**480**	1,800 U	370 U	410 U	310 U	**120 J**	**1,400 F**	**700**	290 U	290 U	265.1 U	400 U	300 U
Phenanthrene	ug/kg	NS	NS	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	DA-C20	DA-C21	DA-C22	DA-C23	DA-C24	DA-C27	DA-C28	DA-C29	DA-C30	DA-C31	DA-C32	DA-C35	DB-C3	DB-C4	DB-C5	DB-C6	DB-C7	DB-C8	DB-C9	DB-C10	DB-C11
			Depth Interval (ft)	0.3 - 3.3	6.4 - 6.4	6 - 6	6.1 - 6.1	5.7 - 5.7	1.6 - 4.6	2.7 - 5.7	6.2 - 6.2	6.5 - 9.5	4.9 - 7.9	5 - 8	7.9 - 7.9	1.2 - 4.2	6.8 - 6.8	1.4 - 4.4	1.4 - 4.4	6 - 6	5.7 - 5.7	1.6 - 4.6	0.8 - 3.8	6.2 - 6.2
			Sample Date	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/29/00	09/29/00	09/29/00	09/29/00	09/29/00	09/29/00	09/29/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00
			Sample ID	1120-DA-C20	1120-DA-C21	1120-DA-C22	1120-DA-C23	1120-DA-C24	1120-DA-C27	1120-DA-C28	1120-DA-C29-RISK	1120-DA-C30	1120-DA-C31	1120-DA-C32	1120-DA-C35	97598-DB-C3	97598-DB-C4	97598-DB-C5	97598-DB-C6	97598-DB-C7	97598-DB-C8	97598-DB-C9	97598-DB-C10	97598-DB-C11
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Phenol	ug/kg	1,900,000	25,000,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 UF	280 U	290 U	290 U	265.1 U	400 U	300 U
Pyrene	ug/kg	180,000	2,300,000	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U
Pesticides/PCBs																								
4,4'-DDD	ug/kg	190	2,500	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U
4,4'-DDE	ug/kg	2,000	9,300	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U
4,4'-DDT	ug/kg	1,900	8,500	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U
Aldrin	ug/kg	39	180	10 U	12 U	12 U	12 U	12 U	10 U	11 U	**14**	**15**	10 U	10 U	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U
alpha-BHC	ug/kg	86	**360**	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U
beta-BHC	ug/kg	300	1,300	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	**63**	9.1 U
cis-Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U
Dieldrin	ug/kg	34	140	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U
Endosulfan I	ug/kg	NS	NS	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U
Endrin	ug/kg	1,900	25,000	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	**22**	10 U	10 U	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U
Endrin Aldehyde	ug/kg	NS	NS	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U
Endrin Ketone	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U
gamma-BHC (Lindane)	ug/kg	570	2,500	10 U	**200**	12 U	12 U	12 U	**170**	**47**	12 U	**28**	10 U	10 U	12 U	9.9 U	**28**	**230**	**660**	9.2 U	9.1 U	8.3 U	13 U	9.1 U
Heptachlor	ug/kg	130	630	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U
Heptachlor Epoxide	ug/kg	70	330	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U
Technical Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.9 U	9.4 U	8.6 U	**42**	9.2 U	9.1 U	8.3 U	**20**	9.1 U
EPH																								
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																								
Aluminum	mg/kg	7,700	110,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/kg	3.1	47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.68	**3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/kg	1,500	22,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	16	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	7.1	98	0.3 U	0.3 U	0.3 U	**2.3**	0.3 U	0.3 U	**0.82**	0.3 U	0.3 U	0.3 U	0.3 U	0.4 U	0.73 U	0.76 U	0.67 U	0.7 U	0.69 U	0.67 U	0.62 U	4.8 U	0.73 U
Calcium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	12,000	180,000	**23**	**6.8**	**5.7**	**8.4**	**5.8**	**13**	**22**	**50**	**27**	**34**	**5.8**	**7.7**	**4**	**27**	**88**	**240**	**6.8**	**5**	**15**	**25**	**8.7**
Chromium-Hexavalent	mg/kg	0.3	**6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	2.3	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	310	4,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	5,500	82,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	400	800	**6.1**	**2**	**2.5**	**2.8**	**2**	**1.7**	**3.6**	**2.6**	**3**	**1.8**	**2.4**	**2.5**	**3.9**	3.8 U	**3.6**	**4.2**	3.5 U	**1.8 J**	**3.5**	24 U	3.6 U
Magnesium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	180	2,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	**DA-C20**	**DA-C21**	**DA-C22**	**DA-C23**	**DA-C24**	**DA-C27**	**DA-C28**	**DA-C29**	**DA-C30**	**DA-C31**	**DA-C32**	**DA-C35**	**DB-C3**	**DB-C4**	**DB-C5**	**DB-C6**	**DB-C7**	**DB-C8**	**DB-C9**	**DB-C10**	**DB-C11**
			Depth Interval (ft)	**0.3 - 3.3**	**6.4 - 6.4**	**6 - 6**	**6.1 - 6.1**	**5.7 - 5.7**	**1.6 - 4.6**	**2.7 - 5.7**	**6.2 - 6.2**	**6.5 - 9.5**	**4.9 - 7.9**	**5 - 8**	**7.9 - 7.9**	**1.2 - 4.2**	**6.8 - 6.8**	**1.4 - 4.4**	**1.4 - 4.4**	**6 - 6**	**5.7 - 5.7**	**1.6 - 4.6**	**0.8 - 3.8**	**6.2 - 6.2**
			Sample Date	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**
			Sample ID	**1120-DA-C20**	**1120-DA-C21**	**1120-DA-C22**	**1120-DA-C23**	**1120-DA-C24**	**1120-DA-C27**	**1120-DA-C28**	**1120-DA-C29-RISK**	**1120-DA-C30**	**1120-DA-C31**	**1120-DA-C32**	**1120-DA-C35**	**97598-DB-C3**	**97598-DB-C4**	**97598-DB-C5**	**97598-DB-C6**	**97598-DB-C7**	**97598-DB-C8**	**97598-DB-C9**	**97598-DB-C10**	**97598-DB-C11**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Mercury	mg/kg	1.1	4.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	150	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.078	**1.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	4,700	70,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	2,300	35,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																								
Ammonia	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NA	NA	NA	NA	NA	**6.36**	**6.7**	**7.34**	**6.85**	**7.06**	**4.75**	**7.66**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																								
Dimethylformamide	ug/kg	260,000	1,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	11,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	DB-C12	DB-C13	DB-C14	DB-C15	DB-C16	DRMA-COMP-	DRMA-COMP-	DRMB-COMP	G1-DRMB	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA
			Depth Interval (ft)	5.9 - 5.9	1.9 - 4.9	1.3 - 1.7	1.9 - 4.9	5.3 - 5.3	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
			Sample Date	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96
			Sample ID	97598-DB-C12	97598-DB-C13	97598-DB-C14	97598-DB-C15	97598-DB-C16	DRMA (COMP A)	DRMA (COMP B)	DRMB (COMP)	G1-DRMB	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 Direct-Contact RSL		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/Comm.																				
Volatiles																							
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	52 U	**87**	55 U	73 U	39 U	NA	NA	NA	**13**	**16**	**10**	**8**	**2 J**	5 U	5 U	**8**	**9**	5 U	**10**	**18**
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	23,000	100,000	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	52 U	**160**	55 U	73 U	39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	52 U	**790**	55 U	**71 J**	39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	52 U	**3,900**	**130**	**370**	39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	460	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	52 U	**2,600**	**60**	**250**	39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	52 U	550 U	55 U	73 U	39 U	NA	NA	NA	6 U	**0.8 J**	5 U	**4 J**	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U	7 U	5 U	**1 J**	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U
2-Butanone	ug/kg	2,700,000	19,000,000	520 U	620 U	550 U	730 U	390 U	NA	NA	NA	**1 J**	**4 J**	11 U	11 U	11 U	11 U	11 U	11 U	11 U	10 U	12 U	12 U
2-Hexanone	ug/kg	20,000	130,000	520 U	620 U	550 U	730 U	390 U	NA	NA	NA	11 U	14 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	10 U	12 U	12 U
4-Isopropyltoluene	ug/kg	NS	NS	52 U	**160**	55 U	73 U	39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	ug/kg	6,100,000	67,000,000	520 U	620 U	550 U	730 U	390 U	NA	NA	NA	**8 JB**	**22 B**	**9 JB**	**10 JB**	**6 JB**	**7 JB**	**10 JB**	**21 B**	**10 JB**	**10 B**	**13 B**	**19**
Benzene	ug/kg	1,200	5,100	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U
Bromochloromethane	ug/kg	15,000	63,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	290	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	77,000	350,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	28,000	130,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	320	1,400	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U
Dibromomethane	ug/kg	2,400	9,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	5,800	25,000	52 U	**120**	55 U	73 U	39 U	NA	NA	NA	6 U	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U
Isopropylbenzene	ug/kg	190,000	990,000	52 U	**470**	55 U	73 U	39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	ug/kg	58,000	250,000	52 U	**290**	55 U	73 U	39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	35,000	320,000	**310 B**	**880 B**	**120 B**	**370 B**	**200 B**	NA	NA	NA	6 U	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U
Naphthalene	ug/kg	3,800	17,000	100 U	**620**	110 U	150 U	77 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	380,000	2,400,000	52 U	**560**	55 U	73 U	39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	ug/kg	65,000	280,000	52 U	**450**	55 U	**42 J**	39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	ug/kg	780,000	12,000,000	52 U	**150**	55 U	73 U	39 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	ug/kg	600,000	3,500,000	52 U	**290**	55 U	73 U	39 U	NA	NA	NA	6 U	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U
Tetrachloroethene	ug/kg	8,100	39,000	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U
Toluene	ug/kg	490,000	4,700,000	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U	7 U	**0.7 J**	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	**0.9 J**
Trichloroethene	ug/kg	410	1,900	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U
Xylene (total)	ug/kg	58,000	250,000	52 U	**740**	NA	**42 J**	39 U	NA	NA	NA	6 U	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	DB-C12	DB-C13	DB-C14	DB-C15	DB-C16	DRMA-COMP-	DRMA-COMP-	DRMB-COMP	G1-DRMB	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA
			Depth Interval (ft)	5.9 - 5.9	1.9 - 4.9	1.3 - 1.7	1.9 - 4.9	5.3 - 5.3	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
			Sample Date	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96
			Sample ID	97598-DB-C12	97598-DB-C13	97598-DB-C14	97598-DB-C15	97598-DB-C16	DRMA (COMP A)	DRMA (COMP B)	DRMB (COMP)	G1-DRMB	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Semivolatiles																							
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**100 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	24,000	300,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	ug/kg	320,000	4,100,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**49 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	630,000	8,200,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**340 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	NS	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	ug/kg	780,000	12,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	44,000	400,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	1,800,000	23,000,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**20 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Azobenzene	ug/kg	5,600	26,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	170,000	820,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	1,100	21,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**47 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/kg	110	2,100	290 U	270 U	270 U	300 U	290 U	NA	1,600 U	380 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/kg	1,100	21,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/kg	NS	NS	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/kg	11,000	210,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid	ug/kg	25,000,000	330,000,000	570 U	550 U	530 U	**380 J**	590 U	44,000 U	7,800 U	**640 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	290 UB	**16,000**	**1,400 B**	**3,500 B**	**90 JB**	**1,300 JB**	**5,300 B**	**2,900 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	ug/kg	290,000	1,200,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	110,000	2,100,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**52 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/kg	110	2,100	290 U	270 U	270 U	300 U	290 U	NA	1,600 U	380 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	ug/kg	7,300	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	5,100,000	66,000,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	290 U	**220 J**	270 U	300 U	290 U	**200 JB**	**130 JB**	**330 JB**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	290 U	270 U	270 U	300 U	290 U	9,100 U	**45 J**	**110 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/kg	240,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/kg	3,800	17,000	290 U	**260 J**	270 U	300 U	290 U	9,100 U	1,600 U	**99 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	290 U	**1,600**	270 U	**330**	290 U	**2,800 J**	**2,700**	**1,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/kg	NS	NS	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**74 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	DB-C12	DB-C13	DB-C14	DB-C15	DB-C16	DRMA-COMP-	DRMA-COMP-	DRMB-COMP	G1-DRMB	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA
			Depth Interval (ft)	5.9 - 5.9	1.9 - 4.9	1.3 - 1.7	1.9 - 4.9	5.3 - 5.3	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
			Sample Date	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96
			Sample ID	97598-DB-C12	97598-DB-C13	97598-DB-C14	97598-DB-C15	97598-DB-C16	DRMA (COMP A)	DRMA (COMP B)	DRMB (COMP)	G1-DRMB	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Phenol	ug/kg	1,900,000	25,000,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**2,400**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/kg	180,000	2,300,000	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**120 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs																							
4,4'-DDD	ug/kg	190	2,500	19 U	17 U	17 U	19 U	19 U	**3.4 J**	**1.7 J**	**17 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	2,000	9,300	19 U	17 U	17 U	19 U	19 U	3.7 U	**1.9 J**	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	1,900	8,500	19 U	17 U	17 U	19 U	19 U	**3.1 J**	**6.4**	**30**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	39	180	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	**0.46 J**	**1.2 J**	9.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	86	**360**	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	**5**	**1.6 J**	9.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	300	1,300	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	1.9 U	2 U	9.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	**3.6**	**4.5**	**52**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	19 U	17 U	17 U	19 U	19 U	3.7 U	**6.9**	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	NS	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	**5.6**	**4.7**	**99**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	1,900	25,000	19 U	17 U	17 U	19 U	19 U	3.7 U	3.8 U	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	19 U	17 U	17 U	19 U	19 U	3.7 U	3.8 U	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	19 U	17 U	17 U	19 U	19 U	**4.8**	3.8 U	19 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	9.3 U	**120**	**20**	**130**	9.3 U	**4.7**	**3.4**	**170**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	130	630	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	1.9 U	**0.87 J**	9.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	70	330	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	1.9 U	**2.8**	9.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	1.9 U	**8.8**	9.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																							
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																							
Aluminum	mg/kg	7,700	110,000	NA	NA	NA	NA	NA	**5,560**	**12,900**	**4,070**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/kg	3.1	47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.68	**3**	NA	NA	NA	NA	NA	**9.7**	**30.9**	**3.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/kg	1,500	22,000	NA	NA	NA	NA	NA	**22.3 B**	**43.2**	**13.9 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	16	230	NA	NA	NA	NA	NA	**0.32 B**	**0.61 B**	0.21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	7.1	98	0.71 U	0.63 U	0.68 U	0.71 U	0.71 U	0.21 U	0.19 U	0.21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/kg	NS	NS	NA	NA	NA	NA	NA	**2,060**	**1,850**	**2,580**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	12,000	180,000	**7.1**	**39**	**21**	**79**	**9.8**	**24.1 *N**	**40.2 *N**	**52.6 *N**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium-Hexavalent	mg/kg	0.3	**6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	2.3	35	NA	NA	NA	NA	NA	**3.9 B**	**11.3**	**1.9 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	310	4,700	NA	NA	NA	NA	NA	**9.7**	**21.7**	**6.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	5,500	82,000	NA	NA	NA	NA	NA	**7,580**	**17,200**	**3,720**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	400	800	**2.1 J**	**4.2**	**4**	**5.5**	**3.6**	**9.4**	**17**	**19.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	mg/kg	NS	NS	NA	NA	NA	NA	NA	**1,920**	**4,880**	**668 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	180	2,600	NA	NA	NA	NA	NA	**109**	**351**	**44.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	DB-C12	DB-C13	DB-C14	DB-C15	DB-C16	DRMA-COMP-	DRMA-COMP-	DRMB-COMP	G1-DRMB	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA
			Depth Interval (ft)	5.9 - 5.9	1.9 - 4.9	1.3 - 1.7	1.9 - 4.9	5.3 - 5.3	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
			Sample Date	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96
			Sample ID	97598-DB-C12	97598-DB-C13	97598-DB-C14	97598-DB-C15	97598-DB-C16	DRMA (COMP A)	DRMA (COMP B)	DRMB (COMP)	G1-DRMB	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Mercury	mg/kg	1.1	4.6	NA	NA	NA	NA	NA	**0.11**	0.09 U	**0.38**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	150	2,200	NA	NA	NA	NA	NA	**10.2**	**30.1**	**3.5 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NA	NA	NA	NA	NA	**652 B**	**1,840**	**190 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NA	NA	NA	NA	NA	**131 B**	**174 B**	**79 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.078	**1.2**	NA	NA	NA	NA	NA	**1.8 B**	**1.8 B**	1.7 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	4,700	70,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	39	580	NA	NA	NA	NA	NA	**11.3**	**24.9**	**7.2 B**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	2,300	35,000	NA	NA	NA	NA	NA	**37.2 E**	**63 E**	**41.4 E**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																							
Ammonia	mg/kg	NS	NS	NA	NA	NA	NA	NA	**47.4**	**93**	**263**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	NA	NA	NA	NA	**2,310**	**260**	**5,110**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																							
Dimethylformamide	ug/kg	260,000	1,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	11,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	OSFILL-450	RSO-14		RSO-15		SD-C24	SD-C24B	TP-21	WD-C1	WD-C1B	WD-C2	WD-C2B	WD-C3	WD-C3B	WD-C4	WD-C4B	WD-C5	WD-C5B	WD-C6	WD-C6B
			Depth Interval (ft)	0.5 - 0.5	0.87 - 2.13		1.52 - 4.52		3 - 3	2 - 2		8.3 - 8.3	7.3 - 7.3	8 - 8	7 - 7	7.7 - 7.7	6.7 - 6.7	7.6 - 7.6	6.6 - 6.6	7.4 - 7.4	6.5 - 6.5	7.1 - 7.1	6.2 - 6.2
			Sample Date	10/13/00	01/24/00		01/24/00		10/18/00	10/18/00	10/08/91	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00
			Sample ID	1130-OSFILL-450	RSO-14-S1 (0-3 FT)	RSO-14-S1 (0-3)	RSO-15-S1 (0-3 FT)	RSO-15-S1 (0-3)	1140-SD-C24	1140-SD-C24B-RISK	TP-21-SN8	1140-WD-C1	1140-WD-C1B	1140-WD-C2	1140-WD-C2B	1140-WD-C3	1140-WD-C3B	1140-WD-C4	1140-WD-C4B	1140-WD-C5	1140-WD-C5B	1140-WD-C6	1140-WD-C6B
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 Direct-Contact RSL		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/Comm.																				
Volatiles																							
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	130 U	NA	5 U	NA	9 U	NA	NA	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	23,000	100,000	130 U	NA	5 U	NA	9 U	NA	NA	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	460	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	130 U	NA	5 U	NA	9 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	130 U	NA	5 U	NA	9 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
2-Butanone	ug/kg	2,700,000	19,000,000	2,600 U	NA	10 U	NA	17 U	NA	NA	2.7 U	NA	NA	NA	NA	NA	NA	3,000 U	3,000 U	NA	NA	NA	NA
2-Hexanone	ug/kg	20,000	130,000	510 U	NA	10 UJ	NA	17 UJ	NA	NA	2.7 U	NA	NA	NA	NA	NA	NA	610 U	600 U	NA	NA	NA	NA
4-Isopropyltoluene	ug/kg	NS	NS	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
Acetone	ug/kg	6,100,000	67,000,000	2,600 U	NA	10 U	NA	17 U	NA	NA	4.6 U	NA	NA	NA	NA	NA	NA	3,000 U	3,000 U	NA	NA	NA	NA
Benzene	ug/kg	1,200	5,100	130 U	NA	5 U	NA	9 U	NA	NA	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
Bromochloromethane	ug/kg	15,000	63,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	290	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	77,000	350,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	28,000	130,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	320	1,400	130 U	NA	5 U	NA	9 U	NA	NA	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
Dibromomethane	ug/kg	2,400	9,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	5,800	25,000	130 U	NA	5 U	NA	9 U	NA	NA	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
Isopropylbenzene	ug/kg	190,000	990,000	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
m,p-Xylene	ug/kg	58,000	250,000	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	35,000	320,000	130 U	NA	5 U	NA	9 U	NA	NA	1.8 U	NA	NA	NA	NA	NA	NA	**220 B**	150 UB	NA	NA	NA	NA
Naphthalene	ug/kg	3,800	17,000	1,300 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,500 U	1,500 U	NA	NA	NA	NA
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	380,000	2,400,000	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
o-Xylene	ug/kg	65,000	280,000	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
sec-Butylbenzene	ug/kg	780,000	12,000,000	130 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
Styrene	ug/kg	600,000	3,500,000	130 U	NA	5 U	NA	9 U	NA	NA	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
Tetrachloroethene	ug/kg	8,100	39,000	130 U	NA	5 U	NA	9 U	NA	NA	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
Toluene	ug/kg	490,000	4,700,000	130 U	NA	5 U	NA	9 U	NA	NA	**0.3 J**	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
Trichloroethene	ug/kg	410	1,900	130 U	NA	5 U	NA	9 U	NA	NA	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA
Xylene (total)	ug/kg	58,000	250,000	130 U	NA	5 U	NA	9 U	NA	NA	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	OSFILL-450	RSO-14		RSO-15		SD-C24	SD-C24B	TP-21	WD-C1	WD-C1B	WD-C2	WD-C2B	WD-C3	WD-C3B	WD-C4	WD-C4B	WD-C5	WD-C5B	WD-C6	WD-C6B
			Depth Interval (ft)	0.5 - 0.5	0.87 - 2.13		1.52 - 4.52		3 - 3	2 - 2		8.3 - 8.3	7.3 - 7.3	8 - 8	7 - 7	7.7 - 7.7	6.7 - 6.7	7.6 - 7.6	6.6 - 6.6	7.4 - 7.4	6.5 - 6.5	7.1 - 7.1	6.2 - 6.2
			Sample Date	10/13/00	01/24/00		01/24/00		10/18/00	10/18/00	10/08/91	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00
			Sample ID	1130-OSFILL-450	RSO-14-S1 (0-3 FT)	RSO-14-S1 (0-3)	RSO-15-S1 (0-3 FT)	RSO-15-S1 (0-3)	1140-SD-C24	1140-SD-C24B-RISK	TP-21-SN8	1140-WD-C1	1140-WD-C1B	1140-WD-C2	1140-WD-C2B	1140-WD-C3	1140-WD-C3B	1140-WD-C4	1140-WD-C4B	1140-WD-C5	1140-WD-C5B	1140-WD-C6	1140-WD-C6B
Normal (N) or Field Duplicate (FD) Sample		**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Semivolatiles																							
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	24,000	300,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
2-Methylphenol	ug/kg	320,000	4,100,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	630,000	8,200,000	NA	NA	1,400 U	NA	2,000 U	NA	NA	990 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	NS	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Acetophenone	ug/kg	780,000	12,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	44,000	400,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	1,800,000	23,000,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Azobenzene	ug/kg	5,600	26,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	170,000	820,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	1,100	21,000	350 U	NA	1,400 U	NA	2,000 U	NA	NA	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	NA	390 U	370 U	2,000 U	19,000 UC
Benzo(a)pyrene	ug/kg	110	2,100	350 U	NA	1,400 U	NA	2,000 U	NA	NA	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	NA	390 U	370 U	2,000 U	NA
Benzo(b)fluoranthene	ug/kg	1,100	21,000	350 U	NA	1,400 U	NA	2,000 U	NA	NA	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	NA	390 U	370 U	2,000 U	19,000 UC
Benzo(g,h,i)perylene	ug/kg	NS	NS	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Benzo(k)fluoranthene	ug/kg	11,000	210,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Benzoic Acid	ug/kg	25,000,000	330,000,000	1,700 U	NA	6,800 U	NA	9,500 U	450,000 UC	530,000 UC	4,800 UJ	9,500 U	2,000 U	4,100 U	2,000 U	2,000 U	2,000 U	2,000 U	110,000 UC	2,000 U	1,800 U	10,000 U	96,000 UC
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	350 U	NA	1,400 U	NA	**9,500**	**753,000 C**	**243,500 C**	**1,100,000 J**	**29,000**	**1,400**	**15,000**	**5,000**	**5,600**	**1,200**	**2,900**	**166,000 C**	**3,900**	**600**	**33,000**	**210,000 C**
Butylbenzylphthalate	ug/kg	290,000	1,200,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Carbazole	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	110,000	2,100,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Dibenz(a,h)anthracene	ug/kg	110	2,100	350 U	NA	1,400 U	NA	2,000 U	NA	NA	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	NA	390 U	370 U	2,000 U	NA
Dibenzofuran	ug/kg	7,300	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	5,100,000	66,000,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Dimethylphthalate	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	**70,000 JC**	1,300 U	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	**880 J**	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Fluorene	ug/kg	240,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	350 U	NA	1,400 U	NA	2,000 U	NA	NA	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	NA	390 U	370 U	2,000 U	19,000 UC
Naphthalene	ug/kg	3,800	17,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	**1,400 J**	390 U	**1,300**	400 U	**310 J**	390 U	**240 J**	22,000 UC	**210 J**	370 U	2,000 U	19,000 UC
Phenanthrene	ug/kg	NS	NS	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	**OSFILL-450**	**RSO-14**		**RSO-15**		**SD-C24**	**SD-C24B**	**TP-21**	**WD-C1**	**WD-C1B**	**WD-C2**	**WD-C2B**	**WD-C3**	**WD-C3B**	**WD-C4**	**WD-C4B**	**WD-C5**	**WD-C5B**	**WD-C6**	**WD-C6B**
			Depth Interval (ft)	**0.5 - 0.5**	**0.87 - 2.13**		**1.52 - 4.52**		**3 - 3**	**2 - 2**		**8.3 - 8.3**	**7.3 - 7.3**	**8 - 8**	**7 - 7**	**7.7 - 7.7**	**6.7 - 6.7**	**7.6 - 7.6**	**6.6 - 6.6**	**7.4 - 7.4**	**6.5 - 6.5**	**7.1 - 7.1**	**6.2 - 6.2**
			Sample Date	**10/13/00**	**01/24/00**		**01/24/00**		**10/18/00**	**10/18/00**	**10/08/91**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**
			Sample ID	**1130-OSFILL-450**	**RSO-14-S1 (0-3 FT)**	**RSO-14-S1 (0-3)**	**RSO-15-S1 (0-3 FT)**	**RSO-15-S1 (0-3)**	**1140-SD-C24**	**1140-SD-C24B-RISK**	**TP-21-SN8**	**1140-WD-C1**	**1140-WD-C1B**	**1140-WD-C2**	**1140-WD-C2B**	**1140-WD-C3**	**1140-WD-C3B**	**1140-WD-C4**	**1140-WD-C4B**	**1140-WD-C5**	**1140-WD-C5B**	**1140-WD-C6**	**1140-WD-C6B**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Phenol	ug/kg	1,900,000	25,000,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Pyrene	ug/kg	180,000	2,300,000	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC
Pesticides/PCBs																							
4,4'-DDD	ug/kg	190	2,500	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
4,4'-DDE	ug/kg	2,000	9,300	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
4,4'-DDT	ug/kg	1,900	8,500	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
Aldrin	ug/kg	39	180	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
alpha-BHC	ug/kg	86	**360**	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
beta-BHC	ug/kg	300	1,300	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	**36 J**	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
Endrin	ug/kg	1,900	25,000	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
Heptachlor	ug/kg	130	630	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	70	330	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																							
C11-C22 Aromatics	ug/kg	NS	NS	**29,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	**29,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	**9,900**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	**39,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																							
Aluminum	mg/kg	7,700	110,000	NA	**13,000**	NA	**5,500**	NA	NA	NA	**3,100 J**	NA	NA	NA	NA	NA	**3,600**	**7,400**	**4,600**	NA	NA	NA	NA
Antimony	mg/kg	3.1	47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.68	**3**	**10**	NA	NA	NA	NA	NA	NA	**4 J**	NA	NA	NA	NA	NA	2 U	**6.8**	2 U	NA	NA	NA	NA
Barium	mg/kg	1,500	22,000	**9.8**	**83**	NA	**13**	NA	NA	NA	**11**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	16	230	NA	0.1 U	NA	**0.21**	NA	NA	NA	1.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	7.1	98	0.2 U	0.2 U	NA	0.2 U	NA	NA	NA	1 U	NA	NA	NA	NA	NA	0.4 U	0.3 U	0.4 U	NA	NA	NA	NA
Calcium	mg/kg	NS	NS	NA	**7,900**	NA	**17,000**	NA	NA	NA	**160,000 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	12,000	180,000	**9.4**	**65**	NA	**28**	NA	**1,600**	**390**	**110**	**520**	**68**	**350**	**36**	**110**	**210**	**160**	**51**	**160**	**240**	**58**	**500**
Chromium-Hexavalent	mg/kg	0.3	**6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	2.3	35	NA	**15**	NA	**2.8**	NA	NA	NA	1.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	310	4,700	NA	18 U	NA	18 U	NA	NA	NA	**5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	5,500	82,000	NA	**17,000**	NA	**8,200**	NA	NA	NA	**2,600**	NA	NA	NA	NA	NA	NA	**11,000**	**3,300**	NA	NA	NA	NA
Lead	mg/kg	400	800	**3.3**	**11**	NA	**10**	NA	NA	NA	10 U	NA	NA	NA	NA	NA	NA	**4.7**	**5.4**	NA	NA	NA	NA
Magnesium	mg/kg	NS	NS	NA	**8,100**	NA	**1,400**	NA	NA	NA	**440**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	180	2,600	NA	**200**	NA	**88**	NA	NA	NA	**49**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	OSFILL-450	RSO-14		RSO-15		SD-C24	SD-C24B	TP-21	WD-C1	WD-C1B	WD-C2	WD-C2B	WD-C3	WD-C3B	WD-C4	WD-C4B	WD-C5	WD-C5B	WD-C6	WD-C6B
			Depth Interval (ft)	0.5 - 0.5	0.87 - 2.13		1.52 - 4.52		3 - 3	2 - 2		8.3 - 8.3	7.3 - 7.3	8 - 8	7 - 7	7.7 - 7.7	6.7 - 6.7	7.6 - 7.6	6.6 - 6.6	7.4 - 7.4	6.5 - 6.5	7.1 - 7.1	6.2 - 6.2
			Sample Date	10/13/00	01/24/00		01/24/00		10/18/00	10/18/00	10/08/91	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00
			Sample ID	1130-OSFILL-450	RSO-14-S1 (0-3 FT)	RSO-14-S1 (0-3)	RSO-15-S1 (0-3 FT)	RSO-15-S1 (0-3)	1140-SD-C24	1140-SD-C24B-RISK	TP-21-SN8	1140-WD-C1	1140-WD-C1B	1140-WD-C2	1140-WD-C2B	1140-WD-C3	1140-WD-C3B	1140-WD-C4	1140-WD-C4B	1140-WD-C5	1140-WD-C5B	1140-WD-C6	1140-WD-C6B
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Mercury	mg/kg	1.1	4.6	0.04 U	**0.051**	NA	0.05 U	NA	NA	NA	**0.91**	NA	NA	NA	NA	NA	NA	0.05 U	0.06 U	NA	NA	NA	NA
Nickel	mg/kg	150	2,200	NA	**35**	NA	**6**	NA	NA	NA	4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NA	**3,900**	NA	**360**	NA	NA	NA	**280**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NA	**110**	NA	**80**	NA	NA	NA	**110**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.078	**1.2**	NA	1 U	NA	1 U	NA	NA	NA	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	4,700	70,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	39	580	NA	**36**	NA	**14**	NA	NA	NA	**12**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	2,300	35,000	NA	**36**	NA	**19**	NA	NA	NA	**38**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																							
Ammonia	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	**47**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	40 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	**29,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																							
Dimethylformamide	ug/kg	260,000	1,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	11,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	WD-C7	WD-C7B	WD-C8	WD-C8B	WD-C9	WD-C9B	WD-C10	WD-C10B	WD-C11		WD-C11B		WD-C12	WD-C12B	WD-C13	WD-C13B	WD-C14	WD-C14B	WD-C15	WD-C15B	WD-C16
			Depth Interval (ft)	6.6 - 6.6	5.6 - 5.6	6.8 - 6.8	5.8 - 5.8	7 - 7	6 - 6	6.6 - 6.6	5.6 - 5.6	5.6 - 5.6		5.6 - 5.6		6.1 - 6.1	5.2 - 5.2	6.1 - 6.1	5.2 - 5.2	7.6 - 7.6	6.9 - 6.9	10 - 10	9.3 - 9.3	10.1 - 10.1
			Sample Date	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/19/00	09/19/00		09/19/00	09/21/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/13/00
			Sample ID	1140-WD-C7	1140-WD-C7B	1140-WD-C8	1140-WD-C8B	1140-WD-C9	1140-WD-C9B	1140-WD-C10	1140-WD-C10B	1140-WD-C11	1140-WD-C11 (156878)	1140-WD-C11B	1140-WD-C11B (157182)	1140-WD-C12	1140-WD-C12B	1140-WD-C13	1140-WD-C13B	1140-WD-C14	1140-WD-C14B	1140-WD-C15	1140-WD-C15B	1140-WD-C16
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Volatiles																								
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	23,000	100,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	460	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
2-Butanone	ug/kg	2,700,000	19,000,000	NA	NA	3,200 U	2,500 U	NA	NA	NA	NA	2,800 U	NA	2,900 U	NA	NA	NA	NA	NA	NA	NA	NA	3,100 U	3,100 U
2-Hexanone	ug/kg	20,000	130,000	NA	NA	640 U	500 U	NA	NA	NA	NA	570 U	NA	580 U	NA	NA	NA	NA	NA	NA	NA	NA	630 U	610 U
4-Isopropyltoluene	ug/kg	NS	NS	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
Acetone	ug/kg	6,100,000	67,000,000	NA	NA	3,200 U	2,500 U	NA	NA	NA	NA	2,800 U	NA	2,900 U	NA	NA	NA	NA	NA	NA	NA	NA	3,100 U	3,100 U
Benzene	ug/kg	1,200	5,100	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
Bromochloromethane	ug/kg	15,000	63,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	290	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	77,000	350,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	28,000	130,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	320	1,400	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
Dibromomethane	ug/kg	2,400	9,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	5,800	25,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
Isopropylbenzene	ug/kg	190,000	990,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
m,p-Xylene	ug/kg	58,000	250,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	35,000	320,000	NA	NA	**220 B**	120 UB	NA	NA	NA	NA	**180 B**	NA	140 UB	NA	NA	NA	NA	NA	NA	NA	NA	**590 B**	150 U
Naphthalene	ug/kg	3,800	17,000	NA	NA	1,600 U	1,200 U	NA	NA	NA	NA	1,400 U	NA	1,400 U	NA	NA	NA	NA	NA	NA	NA	NA	1,600 U	1,500 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	380,000	2,400,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
o-Xylene	ug/kg	65,000	280,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
Styrene	ug/kg	600,000	3,500,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
Tetrachloroethene	ug/kg	8,100	39,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
Toluene	ug/kg	490,000	4,700,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
Trichloroethene	ug/kg	410	1,900	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U
Xylene (total)	ug/kg	58,000	250,000	NA	NA	160 U	120 U	NA	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	WD-C7	WD-C7B	WD-C8	WD-C8B	WD-C9	WD-C9B	WD-C10	WD-C10B	WD-C11		WD-C11B		WD-C12	WD-C12B	WD-C13	WD-C13B	WD-C14	WD-C14B	WD-C15	WD-C15B	WD-C16
			Depth Interval (ft)	6.6 - 6.6	5.6 - 5.6	6.8 - 6.8	5.8 - 5.8	7 - 7	6 - 6	6.6 - 6.6	5.6 - 5.6	5.6 - 5.6		5.6 - 5.6		6.1 - 6.1	5.2 - 5.2	6.1 - 6.1	5.2 - 5.2	7.6 - 7.6	6.9 - 6.9	10 - 10	9.3 - 9.3	10.1 - 10.1
			Sample Date	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/19/00	09/19/00		09/19/00	09/21/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/13/00
			Sample ID	1140-WD-C7	1140-WD-C7B	1140-WD-C8	1140-WD-C8B	1140-WD-C9	1140-WD-C9B	1140-WD-C10	1140-WD-C10B	1140-WD-C11	1140-WD-C11 (156878)	1140-WD-C11B	1140-WD-C11B (157182)	1140-WD-C12	1140-WD-C12B	1140-WD-C13	1140-WD-C13B	1140-WD-C14	1140-WD-C14B	1140-WD-C15	1140-WD-C15B	1140-WD-C16
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Semivolatiles																								
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	24,000	300,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
2-Methylphenol	ug/kg	320,000	4,100,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	NS	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Acetophenone	ug/kg	780,000	12,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	44,000	400,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	1,800,000	23,000,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Azobenzene	ug/kg	5,600	26,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	170,000	820,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	1,100	21,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Benzo(a)pyrene	ug/kg	110	2,100	NA	NA	NA	NA	850 U	390 U	410 U	NA	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	22,000 U	94,000 UC	22,000 U	92,000 UC	4,300 U	1,900 U	2,100 U	92,000 UC	2,100 U	NA	2,000 U	NA	4,100 U	1,800 U	2,000 U	1,900 U	2,100 U	2,000 U	2,100 U	2,200 U	2,100 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	**71,000**	**79,000 C**	**54,000**	**426,000 C**	**16,000**	**580**	**1,100**	**366,000 C**	430 U	NA	**1,200**	NA	**12,000**	370 U	410 U	**730**	**1,600**	**3,300**	420 U	**790**	**640**
Butylbenzylphthalate	ug/kg	290,000	1,200,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Carbazole	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	110,000	2,100,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	NA	NA	NA	NA	850 U	390 U	410 U	NA	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Dibenzofuran	ug/kg	7,300	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	5,100,000	66,000,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Dimethylphthalate	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Fluorene	ug/kg	240,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Naphthalene	ug/kg	3,800	17,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	**4,900**	19,000 UC	4,300 U	18,000 UC	**1,200**	**810**	410 U	**19,000 C**	430 U	NA	**520**	NA	**760 J**	370 U	**970**	390 U	**1,900**	410 U	420 U	440 U	**600**
Phenanthrene	ug/kg	NS	NS	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	WD-C7	WD-C7B	WD-C8	WD-C8B	WD-C9	WD-C9B	WD-C10	WD-C10B	WD-C11		WD-C11B		WD-C12	WD-C12B	WD-C13	WD-C13B	WD-C14	WD-C14B	WD-C15	WD-C15B	WD-C16
			Depth Interval (ft)	6.6 - 6.6	5.6 - 5.6	6.8 - 6.8	5.8 - 5.8	7 - 7	6 - 6	6.6 - 6.6	5.6 - 5.6	5.6 - 5.6		5.6 - 5.6		6.1 - 6.1	5.2 - 5.2	6.1 - 6.1	5.2 - 5.2	7.6 - 7.6	6.9 - 6.9	10 - 10	9.3 - 9.3	10.1 - 10.1
			Sample Date	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/19/00	09/19/00		09/19/00	09/21/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/13/00
			Sample ID	1140-WD-C7	1140-WD-C7B	1140-WD-C8	1140-WD-C8B	1140-WD-C9	1140-WD-C9B	1140-WD-C10	1140-WD-C10B	1140-WD-C11	1140-WD-C11 (156878)	1140-WD-C11B	1140-WD-C11B (157182)	1140-WD-C12	1140-WD-C12B	1140-WD-C13	1140-WD-C13B	1140-WD-C14	1140-WD-C14B	1140-WD-C15	1140-WD-C15B	1140-WD-C16
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Phenol	ug/kg	1,900,000	25,000,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Pyrene	ug/kg	180,000	2,300,000	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U
Pesticides/PCBs																								
4,4'-DDD	ug/kg	190	2,500	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
4,4'-DDE	ug/kg	2,000	9,300	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
4,4'-DDT	ug/kg	1,900	8,500	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
Aldrin	ug/kg	39	180	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
alpha-BHC	ug/kg	86	**360**	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
beta-BHC	ug/kg	300	1,300	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
cis-Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
Endosulfan I	ug/kg	NS	NS	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
Endrin	ug/kg	1,900	25,000	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
Endrin Aldehyde	ug/kg	NS	NS	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
Endrin Ketone	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
Heptachlor	ug/kg	130	630	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
Heptachlor Epoxide	ug/kg	70	330	NA	NA	13 U	11 U	NA	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA
Technical Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																								
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																								
Aluminum	mg/kg	7,700	110,000	NA	NA	**3,400**	**2,300**	NA	NA	NA	NA	**2,700 F**	NA	**4,200**	NA	NA	NA	NA	NA	NA	NA	**3,300**	**3,300**	NA
Antimony	mg/kg	3.1	47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.68	**3**	NA	NA	**2.2**	2 U	NA	NA	NA	NA	2 U	NA	**1.9**	NA	NA	NA	NA	NA	NA	NA	2 U	2 U	NA
Barium	mg/kg	1,500	22,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	16	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	7.1	98	NA	NA	0.3 U	0.3 U	NA	NA	NA	NA	0.4 U	NA	0.3 U	NA	NA	NA	NA	NA	NA	NA	0.3 U	0.3 U	NA
Calcium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	12,000	180,000	**810**	**580**	**160**	**340**	**110**	**20**	**50**	**77**	**660**	NA	**170**	NA	**10**	**6.3**	**11**	**6.7**	**18**	**6.4**	**19**	**15**	**6**
Chromium-Hexavalent	mg/kg	0.3	**6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	2.3	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	310	4,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	5,500	82,000	NA	NA	**3,400**	**2,600**	NA	NA	NA	NA	**3,100 F**	NA	**3,000**	NA	NA	NA	NA	NA	NA	NA	NA	**1,100**	**2,900**
Lead	mg/kg	400	800	NA	NA	**2.2**	**2**	NA	NA	NA	NA	2 U	NA	**2.9**	NA	NA	NA	NA	NA	NA	NA	NA	**1.7**	**2.1**
Magnesium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	180	2,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	WD-C7	WD-C7B	WD-C8	WD-C8B	WD-C9	WD-C9B	WD-C10	WD-C10B	WD-C11		WD-C11B		WD-C12	WD-C12B	WD-C13	WD-C13B	WD-C14	WD-C14B	WD-C15	WD-C15B	WD-C16
			Depth Interval (ft)	6.6 - 6.6	5.6 - 5.6	6.8 - 6.8	5.8 - 5.8	7 - 7	6 - 6	6.6 - 6.6	5.6 - 5.6	5.6 - 5.6		5.6 - 5.6		6.1 - 6.1	5.2 - 5.2	6.1 - 6.1	5.2 - 5.2	7.6 - 7.6	6.9 - 6.9	10 - 10	9.3 - 9.3	10.1 - 10.1
			Sample Date	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/19/00	09/19/00		09/19/00	09/21/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/13/00
			Sample ID	1140-WD-C7	1140-WD-C7B	1140-WD-C8	1140-WD-C8B	1140-WD-C9	1140-WD-C9B	1140-WD-C10	1140-WD-C10B	1140-WD-C11	1140-WD-C11 (156878)	1140-WD-C11B	1140-WD-C11B (157182)	1140-WD-C12	1140-WD-C12B	1140-WD-C13	1140-WD-C13B	1140-WD-C14	1140-WD-C14B	1140-WD-C15	1140-WD-C15B	1140-WD-C16
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																					
Mercury	mg/kg	1.1	4.6	NA	NA	0.06 U	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U
Nickel	mg/kg	150	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.078	**1.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	4,700	70,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	39	580	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	2,300	35,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																								
Ammonia	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																								
Dimethylformamide	ug/kg	260,000	1,500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	11,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SS-420	SS-421	SS-422	SS-423	SS-424	SS-425	SS-426	SS-429	SS-430	SS-431	SB-701							
			Depth Interval (ft)	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 10	0 - 2		2 - 4	4 - 6	6 - 8	8 - 10	20 - 21
			Sample Date	09/15/09	09/15/09	09/15/09	09/15/09	09/15/09	09/15/09	09/16/09	09/16/09	09/16/09	09/16/09	11/11/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
			Sample ID	OC-SS-420-0.0/1.0-XXX	OC-SS-421-0.0/1.0-XXX	OC-SS-422-0.0/1.0-XXX	OC-SS-423-0.0/1.0-XXX	OC-SS-424-0.0/1.0-XXX	OC-SS-425-0.0/1.0-XXX	OC-SS-426-0.0/1.0-XXX	OC-SS-429-0.0/1.0-XXX	OC-SS-430-0.0/1.0-XXX	OC-SS-431-0.0/1.0-XXX	OC-SB-701-0.0/10-XXX-20191111	OC-SB-701-0.0/2.0-XXX-20191111	OC-SB-701-0.0/2.0-DUP-20191111	OC-SB-701-2.0/4.0-XXX-20191111	OC-SB-701-4.0/6.0-XXX-20191111	OC-SB-701-6.0/8.0-XXX-20191111	OC-SB-701-8.0/10-XXX-20191111	OC-SB-701-20/21-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 Direct-Contact RSL		N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Chemical	Units	Res.	Ind/Comm.																		
Volatiles																					
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
1,1-Dichloroethane	ug/kg	3,600	16,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	**0.7 J**	4.3 U	5.2 U	5.2 U
1,1-Dichloroethene	ug/kg	23,000	100,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	**1.9 J**	**0.54 J**	4.3 U	5.2 U	5.2 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**3.8 J**	**16**	4.3 U	5.2 U	5.2 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
1,2-Dichloroethane	ug/kg	460	2,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**0.82 J**	**0.79 J**	4.3 U	5.2 U	5.2 U
1,3-Dichlorobenzene	ug/kg	NS	NS	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**0.32 J**	5.2 U	4.3 U	5.2 U	5.2 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	4.6 U	6 U	5.8 U	4.8 U	4.9 U	4.8 U	4.8 U	6.5 U	6 U	4.5 U	NA	4.3 UJ	5.8 UJ	**59**	**67**	**0.76 J**	5.2 U	**0.58 J**
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	4.6 U	6 U	5.8 U	4.8 U	4.9 U	4.8 U	4.8 U	6.5 U	6 U	4.5 U	NA	4.3 UJ	5.8 UJ	**24**	**34**	4.3 U	5.2 U	5.2 U
2-Butanone	ug/kg	2,700,000	19,000,000	23 U	30 U	29 U	24 U	25 U	24 U	24 U	33 U	30 U	23 U	NA	22 U	29 U	**21 J+**	**23 J+**	21 U	26 U	26 U
2-Hexanone	ug/kg	20,000	130,000	23 U	30 U	29 U	24 U	25 U	24 U	24 U	33 U	30 U	23 U	NA	22 UJ	29 UJ	23 U	26 U	21 U	26 U	26 U
4-Isopropyltoluene	ug/kg	NS	NS	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	**0.41 J**	**0.48 J**	4.3 U	5.2 U	5.2 U
Acetone	ug/kg	6,100,000	67,000,000	230 UJ	300 UJ	290 UJ	240 UJ	250 UJ	240 UJ	240 UJ	330 UJ	300 UJ	230 UJ	NA	**14 J-**	**7.4 J-**	**82 J**	**99 J**	**16 J**	**12 J**	**16 J**
Benzene	ug/kg	1,200	5,100	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	**0.82 J**	4.3 U	5.2 U	5.2 U
Bromochloromethane	ug/kg	15,000	63,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
Bromodichloromethane	ug/kg	290	1,300	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
Carbon disulfide	ug/kg	77,000	350,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**4.2 J**	**6.6**	4.3 U	5.2 U	5.2 U
Chlorobenzene	ug/kg	28,000	130,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
Chloroform	ug/kg	320	1,400	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
Dibromomethane	ug/kg	2,400	9,900	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
Diethyl ether	ug/kg	1,600,000	23,000,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
Ethylbenzene	ug/kg	5,800	25,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**0.49 J**	**1.4 J**	4.3 U	5.2 U	5.2 U
Isopropylbenzene	ug/kg	190,000	990,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**1.2 J**	**3.7 J**	4.3 U	5.2 U	5.2 U
m,p-Xylene	ug/kg	58,000	250,000	4.6 U	6 U	5.8 U	4.8 U	4.9 U	4.8 U	4.8 U	6.5 U	6 U	4.5 U	NA	4.3 U	5.8 U	4.6 U	**0.98 J**	4.3 U	5.2 U	5.2 U
Methyl acetate	ug/kg	7,800,000	120,000,000	46 U	60 U	58 U	48 U	49 U	48 U	48 U	65 U	60 U	45 U	NA	43 UJ	58 UJ	46 U	52 U	43 U	52 U	52 U
Methylene chloride	ug/kg	35,000	320,000	9.1 U	12 U	12 U	9.6 U	9.9 U	9.5 U	9.5 U	13 U	12 U	9.1 U	NA	19 U	18 U	26 U	17 U	25 U	26 U	26 U
Naphthalene	ug/kg	3,800	17,000	23 U	30 U	29 U	24 U	25 U	24 U	24 U	33 U	30 U	23 U	NA	22 UJ	29 UJ	**3 J**	**180**	**15 J**	26 U	26 U
n-Butylbenzene	ug/kg	390,000	5,800,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
n-Propylbenzene	ug/kg	380,000	2,400,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**1.2 J**	**7**	4.3 U	5.2 U	5.2 U
o-Xylene	ug/kg	65,000	280,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**0.75 J**	**1.6 J**	4.3 U	5.2 U	5.2 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
Styrene	ug/kg	600,000	3,500,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
Tetrachloroethene	ug/kg	8,100	39,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
Toluene	ug/kg	490,000	4,700,000	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**0.43 J**	5.2 U	4.3 U	5.2 U	5.2 U
Trichloroethene	ug/kg	410	1,900	2.3 U	3 U	2.9 U	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U
Xylene (total)	ug/kg	58,000	250,000	4.6 U	6 U	5.8 U	4.8 U	4.9 U	4.8 U	4.8 U	6.5 U	6 U	4.5 U	NA	4.3 U	5.8 U	4.6 U	**2.6 J**	4.3 U	5.2 U	5.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SS-420	SS-421	SS-422	SS-423	SS-424	SS-425	SS-426	SS-429	SS-430	SS-431	SB-701							
			Depth Interval (ft)	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 10	0 - 2		2 - 4	4 - 6	6 - 8	8 - 10	20 - 21
			Sample Date	09/15/09	09/15/09	09/15/09	09/15/09	09/15/09	09/15/09	09/16/09	09/16/09	09/16/09	09/16/09	11/11/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
			Sample ID	OC-SS-420-0.0/1.0-XXX	OC-SS-421-0.0/1.0-XXX	OC-SS-422-0.0/1.0-XXX	OC-SS-423-0.0/1.0-XXX	OC-SS-424-0.0/1.0-XXX	OC-SS-425-0.0/1.0-XXX	OC-SS-426-0.0/1.0-XXX	OC-SS-429-0.0/1.0-XXX	OC-SS-430-0.0/1.0-XXX	OC-SS-431-0.0/1.0-XXX	OC-SB-701-0.0/10-XXX-20191111	OC-SB-701-0.0/2.0-XXX-20191111	OC-SB-701-0.0/2.0-DUP-20191111	OC-SB-701-2.0/4.0-XXX-20191111	OC-SB-701-4.0/6.0-XXX-20191111	OC-SB-701-6.0/8.0-XXX-20191111	OC-SB-701-8.0/10-XXX-20191111	OC-SB-701-20/21-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																		
Semivolatiles																					
1,1'-Biphenyl	ug/kg	4,700	20,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	**7.4 J**	**1.9 J**	38 U	40 U	37 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
2-Methylnaphthalene	ug/kg	24,000	300,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U
2-Methylphenol	ug/kg	320,000	4,100,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
4-Methylphenol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U
Acenaphthylene	ug/kg	NS	NS	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U
Acetophenone	ug/kg	780,000	12,000,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	82 U	**2.2 J**	77 U	79 U	78 U	81 U	75 U
Aniline	ug/kg	44,000	400,000	37 UJ	42 UJ	39 UJ	39 UJ	38 UJ	40 UJ	36 UJ	39 UJ	44 UJ	38 UJ	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
Anthracene	ug/kg	1,800,000	23,000,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	8.2 U	8.3 U	7.7 U	**2.1 J**	7.8 U	8.1 U	7.5 U
Azobenzene	ug/kg	5,600	26,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	400 U	400 U	1,900 U	400 U	380 U	390 U	**62 J**
Benzaldehyde	ug/kg	170,000	820,000	**15 J**	42 U	39 U	**17 J**	38 U	40 U	36 U	39 U	**60**	38 U	NA	82 UJ	83 UJ	77 U	79 U	78 U	81 U	75 U
Benzo(a)anthracene	ug/kg	1,100	21,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	**19 J**	**17 J**	38 U	NA	8.2 U	**5.4 J**	7.7 U	**4.2 J**	7.8 U	8.1 U	7.5 U
Benzo(a)pyrene	ug/kg	110	2,100	**11 J**	42 U	39 U	39 U	38 U	40 U	36 U	**14 J**	**17 J**	38 U	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	**23 J**	**27 J**	**14 J**	NA	8.2 U	**5.7 J**	7.7 U	**3.2 J**	7.8 U	8.1 U	7.5 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	180 U	210 U	190 U	200 U	190 U	200 U	180 U	200 U	220 U	190 U	NA	210 UJ	210 UJ	200 U	200 U	200 U	200 U	190 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	74 U	84 U	78 U	78 U	76 U	79 U	72 U	79 U	88 U	76 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	**520 EB**	**1,600 EB**	**410 EB**	**450 EB**	**380 EB**	**660 EB**	**620 EB**	**330 EB**	**400 EB**	**1,500 EB**	NA	**640**	**800**	**3,900**	**150 J**	380 U	400 U	370 U
Butylbenzylphthalate	ug/kg	290,000	1,200,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
Carbazole	ug/kg	NS	NS	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U
Chrysene	ug/kg	110,000	2,100,000	37 U	42 U	**12 J**	39 U	38 U	40 U	36 U	**21 J**	**21 J**	38 U	NA	8.2 U	**6 J**	7.7 U	**4.6 J**	7.8 U	8.1 U	7.5 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U
Dibenzofuran	ug/kg	7,300	100,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
Dimethylphthalate	ug/kg	NS	NS	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	38 U	39 U	38 U	40 U	37 U
Diphenyl ether	ug/kg	3,400	14,000	37 U	**15 J**	39 U	39 U	38 U	**15 J**	36 U	39 U	44 U	38 U	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	**14 J**	NA	39 U	NA	38 U	NA	NA	39 U	NA	**20 J**	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	**12 J**	**20 J**	**16 J**	39 U	38 U	40 U	**12 J**	**42**	**41 J**	**12 J**	NA	**3.5 J**	**7.9 J**	**8.2**	**6.3 J**	7.8 U	8.1 U	7.5 U
Fluorene	ug/kg	240,000	3,000,000	37 U	42 U	39 U	39 U	38 U	40 U	**20 J**	39 U	44 U	**22 J**	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U
Naphthalene	ug/kg	3,800	17,000	89 U	100 U	93 U	94 U	91 U	95 U	86 U	95 U	110 U	91 U	NA	**2.5 J**	**5.6 J**	**34**	**540**	7.8 U	8.1 U	7.5 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	8.2 U	8.3 U	7.7 U	7.9 U	7.8 U	8.1 U	7.5 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	**13 JEB**	**33 JEB**	39 U	**21 JEB**	38 U	**36 JEB**	**14 JEB**	**12 JEB**	**55 EB**	**36 JEB**	NA	**93**	**120**	**430**	**1,500**	38 U	40 U	37 U
Phenanthrene	ug/kg	NS	NS	44 U	50 U	47 U	47 U	46 U	48 U	43 U	47 U	**15 J**	46 U	NA	**2.4 J**	**4.6 J**	**6.5 J**	**5.6 J**	**2.8 J**	8.1 U	7.5 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SS-420	SS-421	SS-422	SS-423	SS-424	SS-425	SS-426	SS-429	SS-430	SS-431	SB-701							
			Depth Interval (ft)	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 10	0 - 2		2 - 4	4 - 6	6 - 8	8 - 10	20 - 21
			Sample Date	09/15/09	09/15/09	09/15/09	09/15/09	09/15/09	09/15/09	09/16/09	09/16/09	09/16/09	09/16/09	11/11/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
			Sample ID	OC-SS-420-0.0/1.0-XXX	OC-SS-421-0.0/1.0-XXX	OC-SS-422-0.0/1.0-XXX	OC-SS-423-0.0/1.0-XXX	OC-SS-424-0.0/1.0-XXX	OC-SS-425-0.0/1.0-XXX	OC-SS-426-0.0/1.0-XXX	OC-SS-429-0.0/1.0-XXX	OC-SS-430-0.0/1.0-XXX	OC-SS-431-0.0/1.0-XXX	OC-SB-701-0.0/10-XXX-20191111	OC-SB-701-0.0/2.0-XXX-20191111	OC-SB-701-0.0/2.0-DUP-20191111	OC-SB-701-2.0/4.0-XXX-20191111	OC-SB-701-4.0/6.0-XXX-20191111	OC-SB-701-6.0/8.0-XXX-20191111	OC-SB-701-8.0/10-XXX-20191111	OC-SB-701-20/21-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																		
Phenol	ug/kg	1,900,000	25,000,000	37 U	42 U	39 U	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	**23 J**	39 U	38 U	40 U	37 U
Pyrene	ug/kg	180,000	2,300,000	**13 J**	**16 J**	**14 J**	39 U	38 U	40 U	36 U	**47**	**32 J**	38 U	NA	8.2 U	8.3 U	**8.6**	**7.6 J**	7.8 U	8.1 U	7.5 U
Pesticides/PCBs																					
4,4'-DDD	ug/kg	190	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	2,000	9,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	1,900	8,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	39	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	86	**360**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	300	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	1,900	25,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	130	630	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	70	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																					
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																					
Aluminum	mg/kg	7,700	110,000	**6,600**	**6,800**	**7,400**	**7,800**	**6,200**	**7,500**	**7,100**	**8,000**	**8,000**	**7,800**	NA	**9,900**	**8,200**	**7,400**	**4,700**	**4,000**	**3,400**	**5,200**
Antimony	mg/kg	3.1	47	0.57 UJ	0.69 UJ	0.77 UJ	0.74 UJ	0.65 UJ	0.71 UJ	0.59 UJ	0.77 UJ	0.86 UJ	0.65 UJ	NA	**0.63 J-**	**0.53 J-**	17 U	18 U	17 U	19 U	**1.1 J**
Arsenic	mg/kg	0.68	**3**	**9.5**	**8.4**	**5.6**	**12**	**7.5**	**8.4**	**3.8**	**8.5**	**23**	**8.4**	NA	**8.6**	**10**	**7.3**	**0.76 J**	**1.9 J**	**3.5**	**11**
Barium	mg/kg	1,500	22,000	**43**	**52**	**81**	**42**	**34**	**51**	**29**	**80**	**56**	**42**	NA	**71 J+**	**49 J+**	**46**	**7**	**7.5**	**9.9**	**16**
Beryllium	mg/kg	16	230	**0.24**	**0.25 J**	**0.27 J**	**0.29 J**	**0.33**	**0.29**	**0.29**	**0.28 J**	**0.31 J**	**0.29**	NA	**0.46 J**	**0.34**	**0.33**	**0.16 J**	**0.18 J**	**0.16 J**	**0.31**
Cadmium	mg/kg	7.1	98	**0.33**	**0.34**	**0.26 J**	**0.51**	**0.26**	**0.42**	**0.41**	**0.41**	**0.92**	**0.79**	NA	**0.37**	**0.35**	**0.17 J**	0.24 U	0.22 U	0.25 U	0.23 U
Calcium	mg/kg	NS	NS	**12,000**	**29,000**	**33,000**	**12,000**	**14,000**	**35,000**	**12,000**	**33,000**	**15,000**	**13,000**	NA	**28,000**	**24,000**	**44,000**	**2,100**	**1,100**	**1,100**	**1,300**
Chromium	mg/kg	12,000	180,000	**48**	**52**	**36**	**60**	**55**	**75**	**28**	**87**	**66**	**59**	NA	**72 J+**	**120 J+**	**200**	**8.1**	**14**	**12**	**580**
Chromium-Hexavalent	mg/kg	0.3	**6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.8**	**2.5**	**3.7**	**0.66**	**0.73**	**0.98**	**8.9**
Cobalt	mg/kg	2.3	35	**3.5**	**3.5**	**3.5**	**4.6**	**3.8**	**4.1**	**5.3**	**4.1**	**5.6**	**4.2**	NA	**3.9**	**5.2**	**3.5**	**1.1**	**1.4**	**3**	**2.1**
Copper	mg/kg	310	4,700	**7.7**	**7.7**	**7.8**	**8.2**	**7.9**	**8.3**	**7.4**	**8.4**	**8.4**	**9.3**	NA	**10**	**9.9**	**8.2**	**0.75 J**	**1.6**	**2.9**	**7.7**
Iron	mg/kg	5,500	82,000	**9,300**	**9,000**	**8,800**	**13,000**	**9,100**	**10,000**	**13,000**	**10,000**	**20,000**	**10,000**	NA	**10,000**	**11,000**	**8,800**	**3,200**	**3,700**	**4,700**	**15,000**
Lead	mg/kg	400	800	**5.8**	**5.3**	**6**	**5.7**	**6.3**	**6.3**	**4.5**	**5.4**	**8.2**	**7.1**	NA	**11**	**12**	**7.8**	**2.5**	**1.9**	**1.9**	**3.8**
Magnesium	mg/kg	NS	NS	**2,200**	**2,400**	**2,600**	**2,700**	**1,900**	**2,500**	**3,900**	**2,700**	**2,100**	**2,700**	NA	**3,700 J+**	**2,900 J+**	**2,400**	**1,000**	**1,200**	**1,200**	**1,600**
Manganese	mg/kg	180	2,600	**110**	**110**	**120**	**160**	**100**	**140**	**250**	**130**	**370**	**140**	NA	**180 J**	**150 J**	**120**	**50**	**41**	**45**	**100**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SS-420	SS-421	SS-422	SS-423	SS-424	SS-425	SS-426	SS-429	SS-430	SS-431	SB-701							
			Depth Interval (ft)	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 10	0 - 2		2 - 4	4 - 6	6 - 8	8 - 10	20 - 21
			Sample Date	09/15/09	09/15/09	09/15/09	09/15/09	09/15/09	09/15/09	09/16/09	09/16/09	09/16/09	09/16/09	11/11/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
			Sample ID	OC-SS-420-0.0/1.0-XXX	OC-SS-421-0.0/1.0-XXX	OC-SS-422-0.0/1.0-XXX	OC-SS-423-0.0/1.0-XXX	OC-SS-424-0.0/1.0-XXX	OC-SS-425-0.0/1.0-XXX	OC-SS-426-0.0/1.0-XXX	OC-SS-429-0.0/1.0-XXX	OC-SS-430-0.0/1.0-XXX	OC-SS-431-0.0/1.0-XXX	OC-SB-701-0.0/10-XXX-20191111	OC-SB-701-0.0/2.0-XXX-20191111	OC-SB-701-0.0/2.0-DUP-20191111	OC-SB-701-2.0/4.0-XXX-20191111	OC-SB-701-4.0/6.0-XXX-20191111	OC-SB-701-6.0/8.0-XXX-20191111	OC-SB-701-8.0/10-XXX-20191111	OC-SB-701-20/21-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																		
Mercury	mg/kg	1.1	4.6	0.14 U	0.2 U	0.16 U	0.21 U	0.21 U	0.15 U	0.18 U	0.21 U	0.21 U	**0.031 J**	NA	**0.031 J**	**0.036**	**0.069**	0.024 U	0.023 U	0.024 U	0.022 U
Nickel	mg/kg	150	2,200	**7.9**	**8**	**7.9**	**9.6**	**10**	**8.7**	**7.5**	**8.8**	**9.8**	**10**	NA	**11**	**11**	**11**	**4.1 J**	**5.2 J**	**6.3**	**7.3**
Potassium	mg/kg	NS	NS	**1,900**	**1,400**	**1,500**	**1,100**	**1,100**	**1,400**	**1,600**	**1,500**	**1,000**	**1,100**	NA	**1,200 J+**	**1,100 J+**	**920**	**340**	**400**	**530**	**550**
Selenium	mg/kg	39	580	0.57 U	0.69 U	0.77 U	0.74 U	0.65 U	0.71 U	0.59 U	0.77 U	0.86 U	0.65 U	NA	4.8 U	4.9 U	4.4 U	4.9 U	4.4 U	5 U	4.6 U
Silver	mg/kg	39	580	**0.42 J**	**0.61 J**	**0.35 J**	**0.63 J**	**0.76**	**1**	**0.13 J**	**1.2**	**0.67 J**	**0.7**	NA	0.72 U	0.73 U	0.66 U	0.73 U	0.67 U	0.75 U	0.69 U
Sodium	mg/kg	NS	NS	**79 J**	**200**	**440**	**46 J**	**62 J**	**96 J**	**74 J**	**250**	**77 J**	**63 J**	NA	**150 J**	**130 J**	**160**	**97 J**	**75 J**	**73 J**	**240**
Thallium	mg/kg	0.078	**1.2**	1.1 U	1.4 U	1.5 U	1.5 U	1.3 U	1.4 U	1.2 U	1.5 U	1.7 U	1.3 U	NA	7.2 U	7.3 U	6.6 U	7.3 U	6.7 U	7.5 U	6.9 U
Tin	mg/kg	4,700	70,000	**18 J**	**20 J**	**14 J**	**24 J**	**22 J**	**30 J**	**10 J**	**36 J**	**26 J**	**24 J**	NA	**0.72 J**	**1.1 J**	**1.1 J**	2.4 U	2.2 U	2.5 U	**0.61 J**
Vanadium	mg/kg	39	580	**12**	**13**	**12**	**15**	**12**	**15**	**18**	**14**	**17**	**14**	NA	**19 J+**	**18 J+**	**16**	**6.1**	**6**	**6.6**	**21**
Zinc	mg/kg	2,300	35,000	**18**	**18**	**17**	**19**	**20**	**20**	**23**	**18**	**19**	**21**	NA	**26 J+**	**28 J+**	**27**	**7**	**8.4**	**10**	**12**
General Chemistry																					
Ammonia	mg/kg	NS	NS	7.5 U	7.4 U	7.3 U	8.4 U	**24**	**18**	6.5 U	8.2 U	**39**	**20**	NA	**4.7**	**6.5**	**28**	**35**	**21**	**27**	**25**
Chloride	mg/kg	NS	NS	22 U	25 U	**44**	18 U	22 U	21 U	17 U	19 U	20 U	15 U	NA	12 UJ	12 UJ	11 UJ	12 UJ	11 UJ	12 UJ	11 UJ
pH	S.U.	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**8.4 J**	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	**1,100**	**2,300**	**620**	**57**	**8,100**	**13,000**	**1,000**	**920**	**2,400**	**5,100**	NA	**12,000 J**	**13,000 J**	**15,000 J**	**230 J**	**130 J**	**250 J**	**190 J**
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	**9,400**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																					
Dimethylformamide	ug/kg	260,000	1,500,000	500 U	NA	840 U	NA	560 U	NA	NA	760 U	NA	690 U	NA	180 U	180 U	200 U	220 U	150 U	160 U	170 U
Formaldehyde	ug/kg	11,000	50,000	110 U	NA	**96 J**	NA	110 U	NA	NA	**170**	NA	**100 J**	NA	2,500 UJ	2,500 UJ	**1,600 J**	**1,500 J**	2,300 UJ	2,400 UJ	2,200 UJ
Hydrazine	ug/kg	32	140	2.3 U	NA	**4.1**	NA	**2 J**	NA	NA	**0.62 J**	NA	**1.6 J**	NA	**5.3 J**	**5.7 J**	**11**	**2.8 J**	**1.7 J**	**2.2 J**	**1.8 J**

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-701	SB-702								SB-703								
			Depth Interval (ft)	31 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35	0 - 10	0 - 2	2 - 4		4 - 6	6 - 8	8 - 10	17 - 18	30 - 32
			Sample Date	11/11/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/05/19	11/05/19	11/05/19		11/05/19	11/05/19	11/05/19	11/05/19	11/05/19
			Sample ID	OC-SB-701-31/32-XXX-20191111	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108	OC-SB-703-0.0/10-XXX-20191105	OC-SB-703-0.0/2.0-XXX-20191105	OC-SB-703-2.0/4.0-XXX-20191105	OC-SB-703-2.0/4.0-DUP-20191105	OC-SB-703-4.0/6.0-XXX-20191105	OC-SB-703-6.0/8.0-XXX-20191105	OC-SB-703-8.0/10-XXX-20191105	OC-SB-703-17/18-XXX-20191105	OC-SB-703-30/32-XXX-20191105
Normal (N) or Field Duplicate (FD) Sample		**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																		
Volatiles																					
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,1-Dichloroethane	ug/kg	3,600	16,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,1-Dichloroethene	ug/kg	23,000	100,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,2-Dichloroethane	ug/kg	460	2,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**1.1 J**
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	**0.37 J-**	**0.27 J-**	4.6 U	5 U	5 U	4.5 U	3 U
1,3-Dichlorobenzene	ug/kg	NS	NS	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	4.1 U	NA	4.7 U	**2.4 J**	**1.2 J**	**13**	**16**	4.2 U	11 U	NA	**0.9 J**	**1.7 J-**	**1.4 J-**	4.6 U	5 U	5 U	4.5 U	3 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	4.1 U	NA	4.7 U	**0.84 J**	4.9 U	**4.4**	**3.1 J**	4.2 U	11 U	NA	4.7 U	**0.67 J-**	**0.46 J-**	4.6 U	5 U	5 U	4.5 U	3 U
2-Butanone	ug/kg	2,700,000	19,000,000	20 U	NA	23 U	**14 J+**	**29 J+**	**4.4 J+**	23 U	21 U	54 U	NA	**6.6 J**	**10 J**	**9.5 J-**	23 U	25 U	25 U	22 U	15 U
2-Hexanone	ug/kg	20,000	130,000	20 U	NA	23 U	21 U	25 U	21 U	23 U	21 U	54 U	NA	24 U	22 UJ	20 UJ	23 U	25 U	25 U	22 U	15 U
4-Isopropyltoluene	ug/kg	NS	NS	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Acetone	ug/kg	6,100,000	67,000,000	**14 J**	NA	**23 J**	**54 J**	**54 J**	**20 J**	**5.6 J**	**5.1 J**	**12 J**	NA	**30 J**	**37 J-**	**43 J-**	**6.5 J**	**23 J**	**4.2 J**	220 U	**7.6 J**
Benzene	ug/kg	1,200	5,100	4.1 U	NA	4.7 U	4.1 U	4.9 U	**0.37 J**	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Bromochloromethane	ug/kg	15,000	63,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**0.78 J**
Bromodichloromethane	ug/kg	290	1,300	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Carbon disulfide	ug/kg	77,000	350,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	**4.4 J-**	**6.5 J-**	4.6 U	5 U	5 U	4.5 U	3 U
Chlorobenzene	ug/kg	28,000	130,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Chloroform	ug/kg	320	1,400	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Dibromomethane	ug/kg	2,400	9,900	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**4.6**
Diethyl ether	ug/kg	1,600,000	23,000,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Ethylbenzene	ug/kg	5,800	25,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Isopropylbenzene	ug/kg	190,000	990,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
m,p-Xylene	ug/kg	58,000	250,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	**0.77 J-**	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Methyl acetate	ug/kg	7,800,000	120,000,000	41 U	NA	47 U	41 U	**8.1 J**	42 U	**6.3 J**	42 U	**7.5 J**	NA	47 U	44 UJ	40 UJ	46 U	50 U	50 U	45 U	30 U
Methylene chloride	ug/kg	35,000	320,000	15 U	NA	6.5 U	5.6 U	8.4 U	4.5 U	20 U	21 U	57 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Naphthalene	ug/kg	3,800	17,000	20 U	NA	23 U	21 U	25 U	21 U	23 U	21 U	54 U	NA	24 U	22 UJ	20 UJ	23 U	25 U	25 U	22 U	15 U
n-Butylbenzene	ug/kg	390,000	5,800,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
n-Propylbenzene	ug/kg	380,000	2,400,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
o-Xylene	ug/kg	65,000	280,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Styrene	ug/kg	600,000	3,500,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Tetrachloroethene	ug/kg	8,100	39,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Toluene	ug/kg	490,000	4,700,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**0.62 J**
Trichloroethene	ug/kg	410	1,900	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Xylene (total)	ug/kg	58,000	250,000	4.1 U	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	**0.77 J-**	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-701	SB-702								SB-703								
			Depth Interval (ft)	31 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35	0 - 10	0 - 2	2 - 4		4 - 6	6 - 8	8 - 10	17 - 18	30 - 32
			Sample Date	11/11/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/05/19	11/05/19	11/05/19		11/05/19	11/05/19	11/05/19	11/05/19	11/05/19
			Sample ID	OC-SB-701-31/32-XXX-20191111	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108	OC-SB-703-0.0/10-XXX-20191105	OC-SB-703-0.0/2.0-XXX-20191105	OC-SB-703-2.0/4.0-XXX-20191105	OC-SB-703-2.0/4.0-DUP-20191105	OC-SB-703-4.0/6.0-XXX-20191105	OC-SB-703-6.0/8.0-XXX-20191105	OC-SB-703-8.0/10-XXX-20191105	OC-SB-703-17/18-XXX-20191105	OC-SB-703-30/32-XXX-20191105
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 Direct-Contact RSL		N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Chemical	Units	Res.	Ind/Comm.																		
Semivolatiles																					
1,1'-Biphenyl	ug/kg	4,700	20,000	34 U	NA	38 U	**2 J**	37 U	75 U	35 U	38 U	35 U	NA	**2.6 J**	**3.2 J**	**4.3 J**	40 U	41 U	36 U	37 U	36 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	**2.2 J**	40 U	41 U	36 UJ	37 U	36 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
2-Methylnaphthalene	ug/kg	24,000	300,000	7 U	NA	7.7 U	7.1 U	7.5 U	15 U	7.1 U	7.7 U	7.2 U	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
2-Methylphenol	ug/kg	320,000	4,100,000	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
4-Methylphenol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	7 U	NA	7.7 U	7.1 U	7.5 U	**5.5 J**	7.1 U	7.7 U	7.2 U	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Acenaphthylene	ug/kg	NS	NS	7 U	NA	7.7 U	**1.7 J**	7.5 U	**3.3 J**	7.1 U	7.7 U	7.2 U	NA	**3 J**	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Acetophenone	ug/kg	780,000	12,000,000	70 U	NA	77 U	71 U	75 U	150 U	71 U	77 U	72 U	NA	87 U	79 U	**2.4 J**	82 U	84 U	73 UJ	74 U	72 U
Aniline	ug/kg	44,000	400,000	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 UJ	37 U	36 U
Anthracene	ug/kg	1,800,000	23,000,000	7 U	NA	7.7 U	**2.2 J**	7.5 U	**15**	7.1 U	7.7 U	7.2 U	NA	**3.1 J**	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Azobenzene	ug/kg	5,600	26,000	350 U	NA	380 U	350 U	370 U	360 U	350 U	370 U	350 U	NA	430 U	400 U	370 U	410 U	410 U	360 U	360 U	360 U
Benzaldehyde	ug/kg	170,000	820,000	70 U	NA	R	R	R	R	71 U	77 U	72 U	NA	**10 J**	R	**5.8 J-**	82 U	84 U	R	74 U	72 U
Benzo(a)anthracene	ug/kg	1,100	21,000	7 U	NA	**8.8**	**11**	**3.9 J**	**49**	7.1 U	7.7 U	7.2 U	NA	**6.9 J**	**3.5 J**	**4.3 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Benzo(a)pyrene	ug/kg	110	2,100	7 U	NA	**9.7**	**10**	**3.7 J**	**45**	7.1 U	7.7 U	7.2 U	NA	**7.3 J**	**3.4 J**	**4.3 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	7 U	NA	**11**	**17**	**5.3 J**	**43**	7.1 U	7.7 U	7.2 U	NA	**10**	**4.1 J**	**6.8 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	7 U	NA	**8.5**	**10**	**3.2 J**	**29**	7.1 U	7.7 U	7.2 U	NA	**7.6 J**	**3.7 J**	**4.9 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	7 U	NA	**5.3 J**	**5.9 J**	7.5 U	**20**	7.1 U	7.7 U	7.2 U	NA	**3.1 J**	**3 J**	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	180 U	NA	200 U	180 U	190 U	390 U	180 U	190 U	180 U	NA	220 U	R	**50 J-**	210 U	210 U	R	190 U	180 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	340 U	NA	**230 J**	**270 J**	**3,500**	**800**	**630**	380 U	350 U	NA	**1,600**	**650 J**	**1,400 J**	400 U	410 U	**60 J**	370 U	360 U
Butylbenzylphthalate	ug/kg	290,000	1,200,000	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Carbazole	ug/kg	NS	NS	7 U	NA	7.7 U	**1.8 J**	7.5 U	**3.7 J**	7.1 U	7.7 U	7.2 U	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Chrysene	ug/kg	110,000	2,100,000	7 U	NA	**10**	**14**	**4.5 J**	**46**	7.1 U	7.7 U	7.2 U	NA	**9.3**	**4.6 J**	**6.5 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	7 U	NA	**3.4 J**	**2.7 J**	7.5 U	**9.6 J**	7.1 U	7.7 U	7.2 U	NA	**2.4 J**	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Dibenzofuran	ug/kg	7,300	100,000	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Dimethylphthalate	ug/kg	NS	NS	34 U	NA	38 U	35 U	**2 J**	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	7 U	NA	**14**	**15**	**5.9 J**	**81**	**3 J**	7.7 U	7.2 U	NA	**14**	**6.3 J**	**9**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Fluorene	ug/kg	240,000	3,000,000	7 U	NA	7.7 U	7.1 U	7.5 U	**5.3 J**	7.1 U	7.7 U	7.2 U	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	7 U	NA	**7.3 J**	**8.7**	**2.8 J**	**25**	7.1 U	7.7 U	7.2 U	NA	**6 J**	**3 J**	**3.5 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Naphthalene	ug/kg	3,800	17,000	7 U	NA	7.7 U	**1.4 J**	7.5 U	15 U	**2.2 J**	7.7 U	7.2 U	NA	**2.7 J**	**4.5 J**	**5.7 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	7 U	NA	7.7 U	7.1 U	7.5 U	15 U	7.1 U	7.7 U	7.2 U	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	34 U	NA	**13 J**	35 U	**12 J**	75 U	35 U	38 U	35 U	NA	**37 J**	**130 J**	**350 J**	40 U	41 U	36 U	37 U	36 U
Phenanthrene	ug/kg	NS	NS	7 U	NA	**6.4 J**	**9.4**	**4.5 J**	**48**	7.1 U	7.7 U	7.2 U	NA	**8.1 J**	**3.9 J**	**5.4 J**	8.2 U	8.4 U	7.3 U	7.4 U	**2 J**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-701	SB-702								SB-703								
			Depth Interval (ft)	31 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35	0 - 10	0 - 2	2 - 4		4 - 6	6 - 8	8 - 10	17 - 18	30 - 32
			Sample Date	11/11/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/05/19	11/05/19	11/05/19		11/05/19	11/05/19	11/05/19	11/05/19	11/05/19
			Sample ID	OC-SB-701-31/32-XXX-20191111	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108	OC-SB-703-0.0/10-XXX-20191105	OC-SB-703-0.0/2.0-XXX-20191105	OC-SB-703-2.0/4.0-XXX-20191105	OC-SB-703-2.0/4.0-DUP-20191105	OC-SB-703-4.0/6.0-XXX-20191105	OC-SB-703-6.0/8.0-XXX-20191105	OC-SB-703-8.0/10-XXX-20191105	OC-SB-703-17/18-XXX-20191105	OC-SB-703-30/32-XXX-20191105
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																		
Phenol	ug/kg	1,900,000	25,000,000	34 U	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	**25 J**	40 U	41 U	36 U	37 U	36 U
Pyrene	ug/kg	180,000	2,300,000	7 U	NA	**13**	**14**	**6.4 J**	**87**	**3 J**	7.7 U	7.2 U	NA	**12**	**5.6 J**	**7.5 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Pesticides/PCBs																					
4,4'-DDD	ug/kg	190	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	2,000	9,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	1,900	8,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	39	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	86	**360**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	300	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	1,900	25,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	130	630	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	70	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																					
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																					
Aluminum	mg/kg	7,700	110,000	**13,000**	NA	**9,200**	**9,000**	**11,000**	**10,000**	**6,300**	**3,700**	**11,000**	NA	**9,000**	**6,500 J+**	**6,700 J+**	**4,700**	**4,600**	**6,100**	**1,100**	**4,800**
Antimony	mg/kg	3.1	47	**0.85 J**	NA	17 U	16 U	17 U	16 U	**0.55 J**	18 U	**0.74 J**	NA	20 U	18 U	18 U	19 U	18 U	16 U	17 U	17 U
Arsenic	mg/kg	0.68	**3**	**2.4**	NA	**5.1**	**7.6**	**9.7**	**11**	**26**	**6.5**	**3.8**	NA	**13**	**4.1**	**4.7**	**3.4**	**7.5**	**4.2**	**0.91 J**	**3.3**
Barium	mg/kg	1,500	22,000	**58**	NA	**46**	**33**	**41**	**41**	**29**	**24**	**41**	NA	**89 J**	**12 J-**	**15 J-**	**11 J**	**10 J**	**15 J**	**20 J**	**14 J**
Beryllium	mg/kg	16	230	**0.58 J**	NA	**0.5**	**0.44**	**0.65**	**0.55**	**0.28**	**0.15 J**	**5.9**	NA	**0.39**	**0.21 J**	**0.24**	**0.19 J**	**0.22 J**	**0.3**	**0.059 J**	**0.14 J**
Cadmium	mg/kg	7.1	98	0.22 U	NA	**0.036 J**	0.21 U	0.22 U	0.22 U	0.23 U	0.23 U	0.22 U	NA	**0.3 J**	**0.06 J**	**0.11 J**	0.26 U	0.25 U	0.22 U	**0.044 J**	0.23 U
Calcium	mg/kg	NS	NS	**7,500**	NA	**14,000**	**3,800**	**2,800**	**2,300**	**1,400**	**2,200**	**5,000**	NA	**92,000**	**5,900 J+**	**6,300 J+**	**3,800**	**2,000**	**1,200**	**4,800**	**5,400**
Chromium	mg/kg	12,000	180,000	**460**	NA	**32**	**20**	**34**	**42**	**22**	**64**	**580**	NA	**180**	**14 J+**	**20 J+**	**6.8**	**9.9**	**52**	**10**	**190**
Chromium-Hexavalent	mg/kg	0.3	**6**	**22.6**	NA	**1.6**	**0.98**	**0.71**	**0.55**	0.44 U	**1**	**7.5**	NA	**5.8**	**0.7 J**	**2.3 J**	**0.29 J**	**0.37 J**	**3.2**	**0.41 J**	**9.8**
Cobalt	mg/kg	2.3	35	**11**	NA	**5.6**	**4.1**	**6.5**	**6**	**7**	**3.2**	**13**	NA	**3.5**	**2.2**	**2.6**	**2.4**	**2.4**	**2.8**	**0.62**	**4.3**
Copper	mg/kg	310	4,700	**27**	NA	**8.2**	**9.3**	**9.4**	**12**	**9.5**	**7**	**29**	NA	**9.2**	**2.9 J**	**5.3 J**	**2.1**	**2.9**	**7.3**	**0.5 J**	**19**
Iron	mg/kg	5,500	82,000	**22,000**	NA	**13,000**	**9,800**	**13,000**	**13,000**	**15,000**	**8,000**	**20,000**	NA	**9,200**	**5,000 J+**	**6,400 J+**	**5,200**	**7,900**	**7,600**	**1,400**	**11,000**
Lead	mg/kg	400	800	**3.7**	NA	**12**	**22**	**7.4**	**14**	**9.3**	**10**	**5**	NA	**9.7**	**3.6**	**6.4**	**2.3**	**2.6**	**3.6**	**1.6**	**3**
Magnesium	mg/kg	NS	NS	**8,700**	NA	**4,000**	**2,600**	**3,900**	**4,500**	**3,600**	**1,700**	**6,300**	NA	**2,500**	**1,100 J+**	**1,300 J+**	**1,100**	**1,800**	**1,800**	**250**	**3,100**
Manganese	mg/kg	180	2,600	**340**	NA	**270**	**130**	**200**	**200**	**250**	**72**	**220**	NA	**110**	**63 J+**	**76 J+**	**61**	**89**	**73**	**32**	**110**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-701	SB-702								SB-703								
			Depth Interval (ft)	31 - 32	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35	0 - 10	0 - 2	2 - 4		4 - 6	6 - 8	8 - 10	17 - 18	30 - 32
			Sample Date	11/11/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/05/19	11/05/19	11/05/19		11/05/19	11/05/19	11/05/19	11/05/19	11/05/19
			Sample ID	OC-SB-701-31/32-XXX-20191111	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108	OC-SB-703-0.0/10-XXX-20191105	OC-SB-703-0.0/2.0-XXX-20191105	OC-SB-703-2.0/4.0-XXX-20191105	OC-SB-703-2.0/4.0-DUP-20191105	OC-SB-703-4.0/6.0-XXX-20191105	OC-SB-703-6.0/8.0-XXX-20191105	OC-SB-703-8.0/10-XXX-20191105	OC-SB-703-17/18-XXX-20191105	OC-SB-703-30/32-XXX-20191105
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																		
Mercury	mg/kg	1.1	4.6	0.02 U	NA	**0.041**	**0.11**	**0.011 J**	**0.02 J**	0.022 U	0.022 U	0.021 U	NA	**0.037**	**0.032**	**0.025**	0.024 U	0.025 U	0.022 U	0.021 U	**0.008 J**
Nickel	mg/kg	150	2,200	**15**	NA	**8.2**	**10**	**23**	**23**	**31**	**3.8 J**	**15**	NA	**8.9**	**7**	**8**	**4.6 J**	**7.3**	**7.5**	**0.9 J**	**5.4 J**
Potassium	mg/kg	NS	NS	**4,100**	NA	**1,300**	**1,400**	**1,800**	**1,800**	**1,500**	**1,100**	**2,100**	NA	**980**	**550**	**660**	**430**	**580**	**670**	**330**	**820**
Selenium	mg/kg	39	580	4.4 U	NA	4.6 U	4.3 U	**0.61 J**	4.4 U	4.6 U	**0.54 J**	4.4 U	NA	5.3 U	4.9 U	4.7 U	5.2 U	4.9 U	4.3 U	4.6 U	4.5 U
Silver	mg/kg	39	580	0.66 U	NA	0.69 U	0.64 U	0.66 U	0.65 U	0.68 U	0.7 U	0.66 U	NA	0.8 U	0.73 U	0.71 U	0.77 U	0.74 U	0.65 U	0.68 U	0.68 U
Sodium	mg/kg	NS	NS	**1,100**	NA	**220**	**130 J**	**160**	**130 J**	**110 J**	**200**	**340**	NA	**160 J**	170 U	170 U	180 U	170 U	150 U	160 U	**260**
Thallium	mg/kg	0.078	**1.2**	6.6 U	NA	6.9 U	6.4 U	6.6 U	6.5 U	6.8 U	7 U	6.6 U	NA	8 U	7.3 U	7.1 U	7.7 U	7.4 U	6.5 U	6.8 U	6.8 U
Tin	mg/kg	4,700	70,000	**0.69 J**	NA	**0.91 J**	**0.69 J**	**0.82 J**	**1.2 J**	**0.62 J**	2.3 U	**0.61 J**	NA	**1.1 J**	2.4 U	**0.73 J**	2.6 U	2.5 U	2.2 U	2.3 U	2.3 U
Vanadium	mg/kg	39	580	**58**	NA	**25**	**18**	**23**	**22**	**16**	**17**	**58**	NA	**16**	**8.4**	**9.7**	**7.8**	**8.9**	**12**	**3.6**	**27**
Zinc	mg/kg	2,300	35,000	**36**	NA	**30**	**28**	**28**	**33**	**26**	**11**	**32**	NA	**22**	**24**	**29**	**10**	**11**	**17**	**2.9**	**15**
General Chemistry																					
Ammonia	mg/kg	NS	NS	**210**	NA	**4 J**	**6**	**6**	**7.8**	**13**	**11**	**41**	NA	**7**	**12**	**10**	**7.9**	**10**	**10**	**5.1**	**130**
Chloride	mg/kg	NS	NS	**390 J**	NA	**9.3 J**	10 UJ	11 UJ	11 UJ	10 U	**5.3 J**	**5.8 J**	NA	**5.4 J**	12 U	11 U	12 U	**5.8 J**	**9.2 J**	11 U	**210**
pH	S.U.	NS	NS	NA	**7.4 J**	NA	NA	NA	NA	NA	NA	NA	**5.4 J**	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	**3,900 J**	NA	**610 J**	**3,000 J**	**6,100 J**	**730 J**	**180**	**140**	**1,000**	NA	**18,000**	**10,000**	**16,000**	**430**	**180**	**160**	**16,000**	**1,300**
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																					
Dimethylformamide	ug/kg	260,000	1,500,000	170 U	NA	160 U	160 U	170 U	150 U	140 U	170 U	140 U	NA	180 U	200 U	190 U	200 U	200 U	200 U	180 U	190 U
Formaldehyde	ug/kg	11,000	50,000	**5,300 J**	NA	2,300 U	**1,500 J**	2,200 UJ	2,200 UJ	2,200 UJ	2,300 UJ	2,200 UJ	NA	**1,800 J**	**2,900 J**	**4,900 J**	2,500 U	2,500 U	2,200 U	2,200 U	**1,300 J**
Hydrazine	ug/kg	32	140	5.3 U	NA	5.8 U	**1.5 J**	5.4 U	5.5 U	**2.1 J**	**5.5**	5.5 U	NA	6.7 U	**7.4 J**	**4.2 J**	6.6 U	5.8 U	5.8 U	5.8 U	**9.4**

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-704									SB-705								SB-706	
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18	0 - 10	0 - 2
			Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19	11/06/19	11/06/19
			Sample ID	OC-SB-704-0.0/10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108	OC-SB-706-0.0/10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 Direct-Contact RSL		N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Chemical	Units	Res.	Ind/Comm.																			
Volatiles																						
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
1,1-Dichloroethane	ug/kg	3,600	16,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
1,1-Dichloroethene	ug/kg	23,000	100,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	7.3 U	**0.58 J**	**0.36 J**	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	NA	**3 J**	**2.7 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U
1,2-Dichloroethane	ug/kg	460	2,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	NA	**1.4 J**	**1.1 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
1,3-Dichlorobenzene	ug/kg	NS	NS	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NA	**5.1 J**	**6.2**	**1.3 J**	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	**5.5**	**7.4 J-**	**11 J-**	4.3 U	3.7 U	4.2 U	NA	4.5 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NA	7.3 U	**3 J**	**0.56 J**	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	**2.1 J**	**2.3 J-**	**3.8 J-**	4.3 U	3.7 U	4.2 U	NA	4.5 U
2-Butanone	ug/kg	2,700,000	19,000,000	NA	**17 J+**	**23 J+**	**64 J+**	**9.6 J+**	**29 J+**	24 U	21 U	22 U	NA	21 U	**14 J+**	**20 J+**	**32 J+**	**560 J+**	19 U	21 U	NA	23 U
2-Hexanone	ug/kg	20,000	130,000	NA	37 U	27 U	20 U	19 U	23 U	24 U	21 U	22 U	NA	21 U	22 U	24 UJ	23 UJ	21 U	19 U	21 U	NA	23 U
4-Isopropyltoluene	ug/kg	NS	NS	NA	**1.9 J**	**1.2 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	**0.52 J-**	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U
Acetone	ug/kg	6,100,000	67,000,000	NA	**93 J**	**68 J**	**64 J**	**38 J**	**54 J**	**18 J**	210 U	**22 J**	NA	**14 J**	**46 J**	**74 J-**	**69 J-**	**18 J**	190 U	**19 J**	NA	230 U
Benzene	ug/kg	1,200	5,100	NA	7.3 U	**0.41 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	**0.28 J**	4.3 U	3.7 U	4.2 U	NA	4.5 U
Bromochloromethane	ug/kg	15,000	63,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
Bromodichloromethane	ug/kg	290	1,300	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
Carbon disulfide	ug/kg	77,000	350,000	NA	7.3 U	**6**	**2.5 J**	3.7 U	**2.4 J**	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
Chlorobenzene	ug/kg	28,000	130,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
Chloroform	ug/kg	320	1,400	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
Dibromomethane	ug/kg	2,400	9,900	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
Diethyl ether	ug/kg	1,600,000	23,000,000	NA	**3.4 J**	**2.8 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
Ethylbenzene	ug/kg	5,800	25,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
Isopropylbenzene	ug/kg	190,000	990,000	NA	7.3 U	**1.3 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
m,p-Xylene	ug/kg	58,000	250,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
Methyl acetate	ug/kg	7,800,000	120,000,000	NA	73 U	54 U	41 U	37 U	45 U	48 U	43 U	43 U	NA	42 U	43 U	48 UJ	**150 J+**	**41 J**	37 U	42 U	NA	45 U
Methylene chloride	ug/kg	35,000	320,000	NA	14 U	11 U	6.1 U	4.7 U	8.8 U	7.8 U	6.7 U	7.2 U	NA	9.7 U	6.2 U	7.3 U	6.9 U	29 U	26 U	9.1 U	NA	4.5 U
Naphthalene	ug/kg	3,800	17,000	NA	**2.5 J**	**1.4 J**	20 U	19 U	23 U	24 U	21 U	22 U	NA	21 U	22 U	24 UJ	23 UJ	21 U	19 U	21 U	NA	23 U
n-Butylbenzene	ug/kg	390,000	5,800,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U
n-Propylbenzene	ug/kg	380,000	2,400,000	NA	7.3 U	**0.49 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U
o-Xylene	ug/kg	65,000	280,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U
Styrene	ug/kg	600,000	3,500,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U	NA	4.5 U
Tetrachloroethene	ug/kg	8,100	39,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
Toluene	ug/kg	490,000	4,700,000	NA	**1.4 J**	**4.2 J**	**0.5 J**	**0.38 J**	4.5 U	4.8 U	4.3 U	**0.53 J**	NA	4.2 U	**0.48 J**	**0.6 J**	**0.72 J**	4.3 U	3.7 U	4.2 U	NA	4.5 U
Trichloroethene	ug/kg	410	1,900	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U
Xylene (total)	ug/kg	58,000	250,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U	NA	4.5 U

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-704									SB-705								SB-706	
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18	0 - 10	0 - 2
			Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19	11/06/19	11/06/19
			Sample ID	OC-SB-704-0.0/0.10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108	OC-SB-706-0.0/0.10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/Comm.**																			
Semivolatiles																						
1,1'-Biphenyl	ug/kg	4,700	20,000	NA	**24 J**	**7.8 J**	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	**33 J**	1,100 U	**45 J**	37 U	35 U	35 U	NA	**5.3 J**
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	**4.9 J**
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 UJ	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
2-Methylnaphthalene	ug/kg	24,000	300,000	NA	**37**	**1.9 J**	7.3 U	**2.3 J**	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	**100 J**	**51 J**	7.6 U	7.2 U	7 U	NA	15 U
2-Methylphenol	ug/kg	320,000	4,100,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 UJ	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NA	**31 J**	**6.4 J**	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
4-Methylphenol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	NA	**16 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U
Acenaphthylene	ug/kg	NS	NS	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U
Acetophenone	ug/kg	780,000	12,000,000	NA	170 U	**5.7 J**	73 U	72 U	74 U	74 U	74 U	74 U	NA	78 U	230 U	2,100 U	2,000 U	76 U	72 U	70 U	NA	**4.4 J**
Aniline	ug/kg	44,000	400,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
Anthracene	ug/kg	1,800,000	23,000,000	NA	**9.1 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U
Azobenzene	ug/kg	5,600	26,000	NA	410 U	370 U	370 U	360 U	340 U	340 U	360 U	350 U	NA	380 U	1,800 U	2,100 U	2,000 U	370 U	360 U	350 U	NA	360 U
Benzaldehyde	ug/kg	170,000	820,000	NA	R	**10 J-**	R	R	R	R	R	R	NA	R	**230 J-**	2,100 U	2,000 U	76 U	72 U	70 U	NA	R
Benzo(a)anthracene	ug/kg	1,100	21,000	NA	**13 J**	**2.8 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**3 J**	**8.9 J**	210 U	200 U	7.6 U	7.2 U	7 U	NA	**5.3 J**
Benzo(a)pyrene	ug/kg	110	2,100	NA	**10 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**2.6 J**	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	**4.7 J**
Benzo(b)fluoranthene	ug/kg	1,100	21,000	NA	**14 J**	**2.6 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**3.1 J**	**8.2 J**	210 U	200 U	7.6 U	7.2 U	7 U	NA	**6.8 J**
Benzo(g,h,i)perylene	ug/kg	NS	NS	NA	**8.4 J**	**1.8 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**1.8 J**	**5.4 J**	210 U	200 U	7.6 U	7.2 U	7 U	NA	**3.8 J**
Benzo(k)fluoranthene	ug/kg	11,000	210,000	NA	**5.2 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	NA	R	190 U	190 U	180 U	190 U	190 U	190 U	190 UJ	NA	200 U	590 U	5,400 U	5,100 U	190 U	180 U	180 U	NA	370 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 UJ	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	NA	**7,600**	**2,400**	360 U	350 U	360 U	360 U	370 U	360 U	NA	**110 J**	**2,400**	**2,100 J**	**2,200 J**	370 U	350 U	350 U	NA	**770**
Butylbenzylphthalate	ug/kg	290,000	1,200,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
Carbazole	ug/kg	NS	NS	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U
Chrysene	ug/kg	110,000	2,100,000	NA	**18**	**3.7 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**2.8 J**	**7.6 J**	210 U	200 U	7.6 U	7.2 U	7 U	NA	**5.6 J**
Dibenz(a,h)anthracene	ug/kg	110	2,100	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**2.6 J**	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U
Dibenzofuran	ug/kg	7,300	100,000	NA	**8.8 J**	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
Dimethylphthalate	ug/kg	NS	NS	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	NA	**47**	**6.9 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**4.7 J**	**11 J**	210 U	200 U	7.6 U	7.2 U	7 U	NA	**6.6 J**
Fluorene	ug/kg	240,000	3,000,000	NA	**21**	**1.9 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	15 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	NA	**8.1 J**	**2 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**1.7 J**	23 U	210 U	200 U	7.6 U	7.2 U	7 U	NA	**3.2 J**
Naphthalene	ug/kg	3,800	17,000	NA	**15 J**	**2.4 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	**4.6 J**	210 U	200 U	7.6 U	7.2 U	7 U	NA	**4.5 J**
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	NA	**23**	**2 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	**60 J**	200 U	7.6 U	7.2 U	7 U	NA	15 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	NA	**390**	**26 J**	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	**400**	**2,700**	**2,500**	37 U	35 U	35 U	NA	**52 J**
Phenanthrene	ug/kg	NS	NS	NA	**84**	**9.7**	**2.8 J**	7.2 U	7.4 U	**2.4 J**	7.4 U	7.4 U	NA	**4.8 J**	**7.8 J**	210 U	200 U	7.6 U	7.2 U	7 U	NA	**4.5 J**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-704									SB-705								SB-706	
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18	0 - 10	0 - 2
			Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19	11/06/19	11/06/19
			Sample ID	OC-SB-704-0.0/10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108	OC-SB-706-0.0/10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																			
Phenol	ug/kg	1,900,000	25,000,000	NA	**330**	**68**	**42**	**14 J**	36 U	36 U	37 U	36 UJ	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U	NA	72 U
Pyrene	ug/kg	180,000	2,300,000	NA	**42**	**6.3 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**4.2 J**	**12 J**	210 U	200 U	7.6 U	7.2 U	7 U	NA	**6.9 J**
Pesticides/PCBs																						
4,4'-DDD	ug/kg	190	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	2,000	9,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	1,900	8,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	39	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	86	**360**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	300	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	1,900	25,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	130	630	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	70	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																						
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																						
Aluminum	mg/kg	7,700	110,000	NA	**7,700**	**5,600**	**4,800**	**15,000**	**9,200**	**5,200**	**6,800**	**3,500**	NA	**5,100**	**5,400**	**5,900 J+**	**5,700 J+**	**3,700**	**5,800**	**9,700**	NA	**5,000**
Antimony	mg/kg	3.1	47	NA	19 U	18 U	16 U	16 U	16 U	17 U	17 U	17 U	NA	17 U	17 U	20 U	19 U	17 U	16 U	17 U	NA	**0.63 J**
Arsenic	mg/kg	0.68	**3**	NA	**17**	**5.4**	**4.8**	**11**	**7.8**	**3.1**	**14**	**4.5**	NA	**14**	**7.1**	**6.6**	**7.1**	**6.5**	**4.4**	**3.6**	NA	**11**
Barium	mg/kg	1,500	22,000	NA	**61**	**11**	**12**	**79**	**37**	**18**	**22**	**10**	NA	**12**	**17**	**16**	**15**	**9.3**	**23**	**52**	NA	**16**
Beryllium	mg/kg	16	230	NA	**0.38**	**0.27**	**0.17 J**	**0.67 J**	**0.5 J**	**0.18 J**	**0.33**	**0.16 J**	NA	**0.28**	**0.22**	**0.23 J**	**0.24 J**	**0.14 J**	**0.34 J**	**0.4 J**	NA	**0.27**
Cadmium	mg/kg	7.1	98	NA	**0.45**	**0.058 J**	0.22 U	0.21 U	0.21 U	0.22 U	0.22 U	**0.039 J**	NA	**0.17 J**	**0.26**	**0.45**	**0.43**	0.23 U	0.21 U	0.22 U	NA	**0.5**
Calcium	mg/kg	NS	NS	NA	**110,000**	**3,700**	**2,200**	**2,100**	**1,800**	**2,100**	**1,700**	**2,400**	NA	**1,200**	**1,600**	**3,600 J+**	**3,500 J+**	**1,200**	**1,800**	**3,300**	NA	**1,600**
Chromium	mg/kg	12,000	180,000	NA	**140**	**8.6**	**13**	**63**	**97**	**58**	**310**	**300**	NA	**13**	**21**	**77 J**	**130 J**	**410**	**250**	**330**	NA	**19**
Chromium-Hexavalent	mg/kg	0.3	**6**	NA	**4.1**	0.49 U	0.46 U	**2.4**	**5.3**	**1.3**	**4.1**	**6.3**	NA	0.46 U	**1.1**	**1.5 J**	**2.7 J**	**7.4**	**9.9**	**4.2**	NA	**0.95**
Cobalt	mg/kg	2.3	35	NA	**3.7**	**2.2**	**2.3**	**6.1**	**4.4**	**2.9**	**7.1**	**3.6**	NA	**1.9**	**2.4**	**2.9**	**2.4**	**2.1**	**3.9**	**7.4**	NA	**2.2**
Copper	mg/kg	310	4,700	NA	**8.5**	**0.84 J**	**3.9**	**14**	**11**	**4.8**	**17**	**12**	NA	**4.5**	**5**	**5.5**	**6.4**	**5**	**11**	**20**	NA	**5.7**
Iron	mg/kg	5,500	82,000	NA	**10,000**	**3,800**	**6,200**	**20,000**	**13,000**	**9,600**	**17,000**	**5,300**	NA	**6,400**	**6,100**	**7,700 J+**	**7,100 J+**	**4,900**	**9,000**	**16,000**	NA	**7,000**
Lead	mg/kg	400	800	NA	**8.3**	**3.1**	**2.7**	**5.9**	**5.2**	**4.1**	**4.2**	**2.1**	NA	**3.9**	**6.3**	**7.9**	**8.9**	**2.2**	**3.2**	**3**	NA	**4.7**
Magnesium	mg/kg	NS	NS	NA	**2,300**	**820**	**1,700**	**5,200**	**3,100**	**2,500**	**2,800**	**1,600**	NA	**1,600**	**1,800**	**1,900**	**1,500**	**920**	**2,500**	**6,900**	NA	**1,700**
Manganese	mg/kg	180	2,600	NA	**93**	**31**	**68**	**210**	**130**	**91**	**120**	**98**	NA	**83**	**60**	**98 J+**	**88 J+**	**55**	**100**	**170**	NA	**87**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-704									SB-705								SB-706	
			Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18	0 - 10	0 - 2
			Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19	11/06/19	11/06/19
			Sample ID	OC-SB-704-0.0/10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108	OC-SB-706-0.0/10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/Comm.**																			
Mercury	mg/kg	1.1	4.6	NA	**0.035**	0.023 U	0.022 U	0.021 U	0.02 U	**0.01 J**	0.022 U	0.022 U	NA	0.022 U	**0.028**	**0.026 J**	**0.031**	0.022 U	0.022 U	0.02 U	NA	**0.011 J**
Nickel	mg/kg	150	2,200	NA	**8.6**	**4.7 J**	**7.8**	**18**	**11**	**7**	**14**	**6.9**	NA	**6.1**	**7.6**	**8.1**	**6.9**	**4.7 J**	**11**	**17**	NA	**6.3**
Potassium	mg/kg	NS	NS	NA	**770**	**410**	**640**	**4,300**	**1,700**	**740**	**1,300**	**460**	NA	**650**	**970**	**700**	**570**	**380**	**950**	**2,600**	NA	**750**
Selenium	mg/kg	39	580	NA	5 U	4.7 U	4.4 U	4.3 U	4.2 U	4.4 U	4.5 U	4.6 U	NA	**0.52 J**	4.5 U	5.5 U	5 U	**0.79 J**	4.3 U	4.5 U	NA	**0.82 J**
Silver	mg/kg	39	580	NA	0.75 U	0.71 U	0.66 U	0.64 U	0.64 U	0.66 U	0.67 U	0.69 U	NA	0.69 U	0.67 U	0.82 U	0.74 U	0.68 U	0.64 U	0.67 U	NA	0.66 U
Sodium	mg/kg	NS	NS	NA	**190**	**80 J**	**130 J**	**280**	**240**	**100 J**	**110 J**	**2,600**	NA	**90 J**	**60 J**	**67 J**	**58 J**	**69 J**	**140 J**	**170**	NA	**82 J**
Thallium	mg/kg	0.078	**1.2**	NA	7.5 U	7.1 U	6.6 U	6.4 U	6.4 U	6.6 U	6.7 U	6.9 U	NA	6.9 U	6.7 U	8.2 U	7.4 U	6.8 U	6.4 U	6.7 U	NA	6.6 U
Tin	mg/kg	4,700	70,000	NA	**0.97 J**	**0.51 J**	2.2 U	**0.92 J**	**0.59 J**	2.2 U	**0.66 J**	2.3 U	NA	**0.52 J**	2.2 U	**0.69 J**	**0.57 J**	2.3 U	2.1 U	**0.53 J**	NA	**0.59 J**
Vanadium	mg/kg	39	580	NA	**18**	**7.5**	**9.4**	**34**	**21**	**14**	**26**	**9.3**	NA	**9.3**	**10**	**12**	**11**	**7**	**16**	**34**	NA	**10**
Zinc	mg/kg	2,300	35,000	NA	**22**	**10**	**13**	**42**	**27**	**15**	**24**	**8.6**	NA	**11**	**25**	**22**	**22**	**7.5**	**18**	**25**	NA	**14**
General Chemistry																						
Ammonia	mg/kg	NS	NS	NA	**15**	**44**	**40**	**46**	**41**	**29**	**40**	**620**	NA	**3.8 J**	**5.8**	**7.5**	**11**	**8.2**	**29**	**39**	NA	**10**
Chloride	mg/kg	NS	NS	NA	**4.7 J**	11 UJ	11 UJ	11 UJ	**4.8 J**	10 UJ	11 UJ	**1,300 J**	NA	11 UJ	11 UJ	13 U	12 U	11 U	11 U	**5.4 J**	NA	11 UJ
pH	S.U.	NS	NS	**7.7 J**	NA	NA	NA	NA	NA	NA	NA	NA	**7.6 J**	NA	NA	NA	NA	NA	NA	NA	**6.1 J**	NA
Sulfate	mg/kg	NS	NS	NA	**18,000 J**	**16,000 J**	**760 J**	**530 J**	**150 J**	**68 J**	**270 J**	**6,100 J**	NA	**77 J**	**1,400 J**	**3,400 J**	**3,400 J**	**160**	**190**	**200 J**	NA	**1,000 J-**
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																						
Dimethylformamide	ug/kg	260,000	1,500,000	NA	260 U	180 U	180 U	150 U	180 U	160 U	160 U	140 U	NA	170 U	170 U	200 U	170 U	150 U	200 U	190 U	NA	200 U
Formaldehyde	ug/kg	11,000	50,000	NA	2,500 U	**2,700**	2,200 U	2,200 U	**1,600 J**	2,100 U	2,200 U	**1,600 J**	NA	**1,400 J**	2,200 U	**5,400 J**	**7,200 J**	**1,500 J**	2,200 UJ	2,200 UJ	NA	2,300 UJ
Hydrazine	ug/kg	32	140	NA	**86**	**19**	**1.3 J**	5.5 U	**1.7 J**	5.3 U	5.7 U	5.6 U	NA	5.6 U	5.6 U	**1.7 J**	5.8 UJ	5.5 U	5.8 U	5.7 U	NA	5.4 U

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-706						SB-707									SB-708				
			Depth Interval (ft)	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8
			Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19
			Sample ID	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107	OC-SB-708-0.0/10-XXX-20191104	OC-SB-708-0.0/2.0-XXX-20191104	OC-SB-708-2.0/4.0-XXX-20191104	OC-SB-708-4.0/6.0-XXX-20191104	OC-SB-708-6.0/8.0-XXX-20191104
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Volatiles																							
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
1,1-Dichloroethane	ug/kg	3,600	16,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	**0.83 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
1,1-Dichloroethene	ug/kg	23,000	100,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	4.2 U	3.9 U	3.7 U	**0.85 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 UJ	4.1 UJ	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	4.2 U	3.9 U	3.7 U	**1.9 J**	5 U	3.1 U	NA	**2.5 J**	**1.4 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	**0.37 J**	4.4 U	**0.43 J**
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	4.2 U	3.9 U	3.7 U	**1.6 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	4.2 U	3.9 U	3.7 U	**0.5 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
1,2-Dichloroethane	ug/kg	460	2,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	4.2 U	3.9 U	3.7 U	**1.5 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**0.63 J**	6 U	4.4 U	3.9 U
1,3-Dichlorobenzene	ug/kg	NS	NS	4.2 U	3.9 U	3.7 U	**1.2 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	4.2 U	3.9 U	3.7 U	**0.68 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	**1.3 J**	**1.9 J**	3.7 U	**75**	**0.54 J**	**1.9 J**	NA	5.2 U	**6.3**	**1 J**	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**2.7 J**	6 U	**5.7**	**9.1**
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	4.2 U	3.9 U	3.7 U	**25**	5 U	3.1 U	NA	5.2 U	**3.5 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**0.88 J**	6 U	**0.76 J**	**2.1 J**
2-Butanone	ug/kg	2,700,000	19,000,000	**15 J+**	**8.2 J**	19 U	**17 J+**	25 U	15 U	NA	**15 J**	**21 J+**	21 U	19 U	**3.9 J**	19 U	25 U	22 U	NA	32 U	**11 J+**	22 U	19 U
2-Hexanone	ug/kg	20,000	130,000	21 U	19 U	19 U	21 U	25 U	15 U	NA	26 U	20 U	21 U	19 UJ	20 UJ	19 U	25 U	22 U	NA	32 U	30 U	22 U	19 U
4-Isopropyltoluene	ug/kg	NS	NS	4.2 U	3.9 U	3.7 U	**2 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**1.3 J**	6 U	4.4 U	3.9 U
Acetone	ug/kg	6,100,000	67,000,000	210 U	190 U	190 U	210 U	250 U	150 U	NA	260 U	200 U	210 U	190 UJ	200 UJ	190 U	250 U	220 U	NA	**20 J**	**41 J**	**12 J**	**11 J**
Benzene	ug/kg	1,200	5,100	4.2 U	3.9 U	3.7 U	**2 J**	5 U	3.1 U	NA	5.2 U	**0.2 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Bromochloromethane	ug/kg	15,000	63,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Bromodichloromethane	ug/kg	290	1,300	4.2 U	3.9 U	3.7 U	**2.6 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Carbon disulfide	ug/kg	77,000	350,000	4.2 U	3.9 U	3.7 U	**2.2 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**3.9 J**	6 U	4.4 U	3.9 U
Chlorobenzene	ug/kg	28,000	130,000	4.2 U	3.9 U	3.7 U	**0.91 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Chloroform	ug/kg	320	1,400	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Dibromomethane	ug/kg	2,400	9,900	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Diethyl ether	ug/kg	1,600,000	23,000,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Ethylbenzene	ug/kg	5,800	25,000	4.2 U	3.9 U	3.7 U	**5.6**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Isopropylbenzene	ug/kg	190,000	990,000	4.2 U	3.9 U	3.7 U	**2.9 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
m,p-Xylene	ug/kg	58,000	250,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Methyl acetate	ug/kg	7,800,000	120,000,000	42 U	39 U	37 U	42 U	50 U	31 U	NA	52 U	39 U	42 U	38 UJ	41 UJ	39 U	50 U	44 U	NA	64 U	60 U	44 U	39 U
Methylene chloride	ug/kg	35,000	320,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Naphthalene	ug/kg	3,800	17,000	21 U	19 U	19 U	21 U	25 U	15 U	NA	26 U	20 U	21 U	19 UJ	20 UJ	19 U	25 U	22 U	NA	**1.1 J**	30 U	22 U	19 U
n-Butylbenzene	ug/kg	390,000	5,800,000	4.2 U	3.9 U	3.7 U	**0.94 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
n-Propylbenzene	ug/kg	380,000	2,400,000	4.2 U	3.9 U	3.7 U	**6.1**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
o-Xylene	ug/kg	65,000	280,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Styrene	ug/kg	600,000	3,500,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Tetrachloroethene	ug/kg	8,100	39,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Toluene	ug/kg	490,000	4,700,000	4.2 U	3.9 U	3.7 U	**0.5 J**	5 U	3.1 U	NA	5.2 U	**0.41 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	**0.61 J**	6 U	4.4 U	3.9 U
Trichloroethene	ug/kg	410	1,900	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U
Xylene (total)	ug/kg	58,000	250,000	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U	NA	6.4 U	6 U	4.4 U	3.9 U

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-706						SB-707									SB-708				
			Depth Interval (ft)	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8
			Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19
			Sample ID	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107	OC-SB-708-0.0/10-XXX-20191104	OC-SB-708-0.0/2.0-XXX-20191104	OC-SB-708-2.0/4.0-XXX-20191104	OC-SB-708-4.0/6.0-XXX-20191104	OC-SB-708-6.0/8.0-XXX-20191104
Normal (N) or Field Duplicate (FD) Sample		**11/2019 Direct-Contact RSL**		N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Semivolatiles																							
1,1'-Biphenyl	ug/kg	4,700	20,000	**5,500**	36 U	72 U	**910**	36 U	35 U	NA	**19 J**	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	**3.5 J**	38 U	36 U	35 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	350 U	36 U	72 U	40 U	36 U	35 U	NA	**68 J**	**1.7 J**	35 U	34 U	35 U	36 U	37 U	35 U	NA	**2.2 J**	38 U	36 U	**7.5 J**
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U
2-Methylnaphthalene	ug/kg	24,000	300,000	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**10 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	7.2 U	7.7 U	7.4 U	7.1 U
2-Methylphenol	ug/kg	320,000	4,100,000	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	**190 J**	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U
4-Methylphenol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	7.2 U	7.7 U	7.4 U	7.1 U
Acenaphthylene	ug/kg	NS	NS	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**1.6 J**	7.7 U	7.4 U	7.1 U
Acetophenone	ug/kg	780,000	12,000,000	720 U	72 U	150 U	81 U	72 U	71 U	NA	330 U	73 U	72 U	69 U	71 U	72 U	75 U	71 U	NA	**3.4 J**	77 U	74 U	71 U
Aniline	ug/kg	44,000	400,000	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	**17 J**
Anthracene	ug/kg	1,800,000	23,000,000	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**2.6 J**	7.7 U	7.4 U	7.1 U
Azobenzene	ug/kg	5,600	26,000	3,600 U	360 U	350 U	2,000 U	360 U	350 U	NA	410 U	360 U	360 U	350 U	350 U	360 U	370 U	350 U	NA	360 U	380 U	360 U	340 U
Benzaldehyde	ug/kg	170,000	820,000	R	R	R	R	R	R	NA	R	R	R	R	R	R	R	R	NA	R	R	R	R
Benzo(a)anthracene	ug/kg	1,100	21,000	72 U	7.2 U	15 U	**3.6 J**	7.2 U	7.1 U	NA	**17 J**	**1.4 J**	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**10**	**1.7 J**	7.4 U	**1.6 J**
Benzo(a)pyrene	ug/kg	110	2,100	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**11 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**8.5**	7.7 U	7.4 U	7.1 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**22 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**17**	7.7 U	7.4 U	**2.1 J**
Benzo(g,h,i)perylene	ug/kg	NS	NS	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**16 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**6.7 J**	7.7 U	7.4 U	7.1 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**4.5 J**	7.7 U	7.4 U	7.1 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	1,800 U	180 U	370 U	200 U	180 U	180 U	NA	820 U	190 U	180 U	R	R	180 U	190 U	180 U	NA	180 U	190 U	190 U	180 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	**370,000**	**170 J**	**210 J**	**120,000**	**240 J**	350 U	NA	**8,100**	**500**	**2,400**	340 U	350 U	360 U	370 U	350 U	NA	**500**	**72 J**	**57 J**	**2,900**
Butylbenzylphthalate	ug/kg	290,000	1,200,000	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U
Carbazole	ug/kg	NS	NS	**55 J**	7.2 U	15 U	**8.9**	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**1.9 J**	7.7 U	7.4 U	**2.2 J**
Chrysene	ug/kg	110,000	2,100,000	72 U	7.2 U	15 U	**4 J**	7.2 U	7.1 U	NA	**19 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**16**	**2.1 J**	7.4 U	**2.7 J**
Dibenz(a,h)anthracene	ug/kg	110	2,100	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**2.7 J**	7.7 U	7.4 U	7.1 U
Dibenzofuran	ug/kg	7,300	100,000	**29 J**	36 U	72 U	**4.6 J**	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	**20 J**	**25 J**	35 U
Dimethylphthalate	ug/kg	NS	NS	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	**2,100**	36 U	72 U	**360**	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	**18 J**	38 U	36 U	35 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	350 U	36 U	72 U	**47**	36 U	35 U	NA	160 U	36 U	**23 J**	34 U	35 U	36 U	37 U	35 U	NA	36 U	38 U	36 U	35 U
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	**46 J**	7.2 U	15 U	**12**	7.2 U	7.1 U	NA	**21 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**9.8**	**2.8 J**	7.4 U	**3.1 J**
Fluorene	ug/kg	240,000	3,000,000	72 U	7.2 U	15 U	**3.6 J**	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	7.2 U	7.7 U	7.4 U	7.1 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**17 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**5.9 J**	7.7 U	7.4 U	7.1 U
Naphthalene	ug/kg	3,800	17,000	72 U	7.2 U	15 U	**2.5 J**	7.2 U	7.1 U	NA	**7.3 J**	7.3 U	7.2 U	6.9 U	**1.6 J**	7.2 U	7.5 U	7.1 U	NA	**5 J**	**1.9 J**	7.4 U	7.1 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**8.4 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	7.2 U	7.7 U	7.4 U	7.1 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	**28,000 J**	36 U	**25 J**	**6,200 J**	36 U	35 U	NA	**510**	**18 J**	35 U	34 U	35 U	36 U	37 U	35 U	NA	**100**	38 U	36 U	**280**
Phenanthrene	ug/kg	NS	NS	**150**	**4.5 J**	**4.5 J**	**28**	**2 J**	7.1 U	NA	**16 J**	**3.3 J**	**2.6 J**	**2.5 J**	**2.1 J**	7.2 U	7.5 U	7.1 U	NA	**7.3**	**2.9 J**	**2.3 J**	**2.3 J**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-706						SB-707									SB-708				
			Depth Interval (ft)	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8
			Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19
			Sample ID	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107	OC-SB-708-0.0/10-XXX-20191104	OC-SB-708-0.0/2.0-XXX-20191104	OC-SB-708-2.0/4.0-XXX-20191104	OC-SB-708-4.0/6.0-XXX-20191104	OC-SB-708-6.0/8.0-XXX-20191104
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Phenol	ug/kg	1,900,000	25,000,000	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U	NA	**13 J**	38 U	36 U	35 U
Pyrene	ug/kg	180,000	2,300,000	**68 J**	7.2 U	15 U	**15**	7.2 U	7.1 U	NA	**31 J**	**1.7 J**	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U	NA	**10**	**2.9 J**	7.4 U	**4.1 J**
Pesticides/PCBs																							
4,4'-DDD	ug/kg	190	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	2,000	9,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	1,900	8,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	39	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	86	**360**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	300	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	1,900	25,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	130	630	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	70	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																							
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																							
Aluminum	mg/kg	7,700	110,000	**13,000**	**9,000**	**11,000**	**3,800**	**5,400**	**8,100**	NA	**8,300**	**14,000**	**6,400**	**7,400 J+**	**8,200 J+**	**7,700**	**14,000**	**2,700**	NA	**8,600**	**5,200**	**11,000**	**7,300**
Antimony	mg/kg	3.1	47	**1.1 J**	**0.95 J**	83 U	18 U	**0.6 J**	**1.3 J**	NA	**1 J**	**1.2 J**	15 U	**0.65 J-**	**0.62 J-**	**0.5 J**	**1 J**	17 U	NA	**0.72 J**	18 U	**1.1 J**	16 U
Arsenic	mg/kg	0.68	**3**	**7.6**	**6.2**	**17**	**3.2**	**3.3**	**3.1**	NA	**33**	**29**	**5**	**3.6**	**3.5**	**2.4**	**3.7**	**1.4 J**	NA	**17**	**6.3**	**16**	**2.9**
Barium	mg/kg	1,500	22,000	**43**	**34**	**41**	**10**	**25**	**42**	NA	**28**	**55**	**16**	**26**	**26**	**25**	**60**	**15**	NA	**54**	**16**	**47**	**23**
Beryllium	mg/kg	16	230	**0.39**	**0.35**	**0.48**	**0.14 J**	**0.24**	**0.23**	NA	**0.38**	**0.62**	**0.32**	**0.4**	**0.38**	**0.38**	**0.48**	**0.14 J**	NA	**0.43**	**0.24**	**0.34**	**0.34**
Cadmium	mg/kg	7.1	98	0.22 U	0.23 U	0.22 U	0.24 U	0.22 U	0.22 U	NA	**0.18 J**	0.22 U	**0.051 J**	0.22 U	0.21 U	0.23 U	0.23 U	0.22 U	NA	**0.035 J**	**0.16 J**	**0.036 J**	**0.2 J**
Calcium	mg/kg	NS	NS	**3,500**	**1,700**	**3,800**	**1,500**	**770**	**3,200**	NA	**12,000**	**3,700**	**7,000**	**2,400**	**2,700**	**3,300**	**4,400**	**950**	NA	**7,900**	**2,400**	**2,300**	**3,700**
Chromium	mg/kg	12,000	180,000	**200**	**890**	**1,300**	**310**	**460**	**460**	NA	**79**	**44**	**120**	**83 J-**	**84 J-**	**72**	**170**	**100**	NA	**26**	**40**	**40**	**18**
Chromium-Hexavalent	mg/kg	0.3	**6**	**2.9**	**6.6**	**20.8**	**3.6**	**4.7**	**5.6**	NA	**2.7**	**1**	**7.6**	**3.4**	**2.9**	**4.2**	**5.5**	**5.5**	NA	**4.9**	**0.7**	**0.76**	**0.72**
Cobalt	mg/kg	2.3	35	**9.1**	**4.4**	**6.8**	**1.6**	**3.3**	**6.2**	NA	**5.7**	**13**	**3.2**	**3.2**	**3.7**	**3.8**	**6.2**	**1.2**	NA	**5.8**	**2.8**	**7.4**	**2.9**
Copper	mg/kg	310	4,700	**27**	**11**	**25**	**3.5**	**9.9**	**39**	NA	**11**	**22**	**12**	**11**	**11**	**9.6**	**13**	**3.9**	NA	**11**	**5.2**	**15**	**10**
Iron	mg/kg	5,500	82,000	**16,000**	**12,000**	**23,000**	**4,500**	**11,000**	**14,000**	NA	**16,000**	**19,000**	**7,700**	**9,500**	**10,000**	**7,800**	**16,000**	**4,500**	NA	**11,000**	**5,700**	**16,000**	**6,900**
Lead	mg/kg	400	800	**8.2**	**5.6**	**21**	**3.4**	**3**	**3.8**	NA	**11**	**14**	**4.8**	**5.5**	**5.4**	**4.3**	**9.2**	**1.7**	NA	**7.5**	**4.4**	**7.2**	**4.5**
Magnesium	mg/kg	NS	NS	**6,200**	**2,700**	**4,200**	**1,100**	**1,700**	**3,900**	NA	**3,000**	**6,400**	**3,200**	**2,500**	**2,900**	**2,500**	**4,900**	**960**	NA	**3,200**	**1,700**	**7,300**	**2,100**
Manganese	mg/kg	180	2,600	**210**	**130**	**180**	**53**	**89**	**140**	NA	**110**	**310**	**150**	**160 J+**	**180 J+**	**120**	**170**	**36**	NA	**170**	**77**	**190**	**110**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-706						SB-707									SB-708				
			Depth Interval (ft)	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8
			Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19
			Sample ID	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107	OC-SB-708-0.0/10-XXX-20191104	OC-SB-708-0.0/2.0-XXX-20191104	OC-SB-708-2.0/4.0-XXX-20191104	OC-SB-708-4.0/6.0-XXX-20191104	OC-SB-708-6.0/8.0-XXX-20191104
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																				
Mercury	mg/kg	1.1	4.6	**0.09**	0.022 U	0.022 U	**0.065**	**0.01 J**	**0.0089 J**	NA	**0.042**	0.022 U	**0.0086 J**	0.022 U	0.021 U	0.021 U	**0.02 J**	**0.011 J**	NA	**0.016 J**	**0.012 J**	0.022 U	0.019 U
Nickel	mg/kg	150	2,200	**23**	**12**	**17**	**4 J**	**7**	**12**	NA	**15**	**40**	**13**	**8.9**	**10**	**9.8**	**19**	**3.2 J**	NA	**18**	**9.5**	**33**	**9**
Potassium	mg/kg	NS	NS	**2,000**	**1,500**	**2,000**	**460**	**730**	**1,500**	NA	**890**	**2,700**	**750**	**1,400**	**1,700**	**1,300**	**2,600**	**710**	NA	**1,700**	**780**	**2,800**	**1,100**
Selenium	mg/kg	39	580	4.4 U	4.6 U	4.4 U	4.8 U	4.4 U	4.3 U	NA	5 U	4.4 U	4.1 U	4.4 U	4.2 U	4.5 U	4.5 U	4.5 U	NA	4.2 U	4.7 U	4.6 U	4.4 U
Silver	mg/kg	39	580	0.66 U	0.68 U	0.66 U	0.71 U	0.66 U	0.65 U	NA	0.75 U	0.66 U	0.62 U	0.66 U	0.63 U	0.68 U	0.68 U	0.67 U	NA	0.63 U	0.71 U	0.7 U	0.66 U
Sodium	mg/kg	NS	NS	**220**	**210**	**330**	**58 J**	**97 J**	**290**	NA	**86 J**	**170**	**130 J**	**240**	**310**	**370**	**470**	**110 J**	NA	**200**	**63 J**	**160**	**86 J**
Thallium	mg/kg	0.078	**1.2**	6.6 U	6.8 U	6.6 U	7.1 U	6.6 U	6.5 U	NA	7.5 U	6.6 U	6.2 U	6.6 U	6.3 U	6.8 U	6.8 U	6.7 U	NA	6.3 U	7.1 U	7 U	6.6 U
Tin	mg/kg	4,700	70,000	**0.78 J**	2.3 U	**0.81 J**	2.4 U	2.2 U	2.2 U	NA	**0.61 J**	**0.84 J**	2.1 U	**0.57 J**	**0.57 J**	**0.5 J**	**0.85 J**	2.2 U	NA	**0.65 J**	2.4 U	**0.59 J**	**0.52 J**
Vanadium	mg/kg	39	580	**40**	**19**	**35**	**8.3**	**18**	**35**	NA	**19**	**33**	**15**	**17 J**	**19 J**	**15**	**32**	**8.6**	NA	**18**	**9.9**	**28**	**17**
Zinc	mg/kg	2,300	35,000	**27**	**23**	**46**	**9.5**	**19**	**26**	NA	**28**	**43**	**16**	**21**	**23**	**15**	**40**	**7.8**	NA	**22**	**17**	**35**	**23**
General Chemistry																							
Ammonia	mg/kg	NS	NS	**14**	**9.6**	**12**	**11**	**11**	**12**	NA	**6**	**13**	**6.5**	**5.6 J-**	**5.5 J-**	**7.5**	**17**	**18**	NA	7.3 U	**18**	6.6 U	**15**
Chloride	mg/kg	NS	NS	11 UJ	**7 J**	**4.8 J**	12 UJ	11 UJ	**15 J**	NA	**5.2 J**	11 UJ	11 UJ	**4.1 J**	**5.6 J**	**9.9 J**	11 U	11 U	NA	11 UJ	12 UJ	11 UJ	10 UJ
pH	S.U.	NS	NS	NA	NA	NA	NA	NA	NA	**7.4 J**	NA	NA	NA	NA	NA	NA	NA	NA	**5.8 J**	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	**410 J**	**120 J**	**160 J**	**290 J**	**66 J**	**140 J**	NA	**170 J**	**2,100 J**	**7,100 J**	**130 J**	**150**	**190**	**53**	**46**	NA	**430 J**	**590 J**	**190 J**	**1,800 J**
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																							
Dimethylformamide	ug/kg	260,000	1,500,000	180 U	160 U	170 U	230 U	160 U	170 U	NA	170 U	220 U	160 U	150 U	160 U	140 U	190 U	180 U	NA	200 U	210 U	180 U	210 U
Formaldehyde	ug/kg	11,000	50,000	2,200 UJ	2,200 UJ	2,200 UJ	**2,400 J**	2,200 UJ	2,200 UJ	NA	**3,200 J**	2,200 UJ	2,200 UJ	**1,300 J**	2,100 UJ	**1,500 J**	2,300 UJ	2,100 UJ	NA	2,200 UJ	2,400 UJ	2,200 UJ	2,100 UJ
Hydrazine	ug/kg	32	140	5.7 U	5.6 U	5.5 U	6.1 U	5.6 U	5.6 U	NA	**5.6 J**	**2 J**	**9.3**	**2.7 J**	**2.6 J**	**1.7 J**	6.3 U	5.4 U	NA	**6.4**	5.9 U	5.5 U	5.5 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-708					SB-709									SB-710				
			Depth Interval (ft)	8 - 10	16 - 18	22 - 24	28 - 30	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10		16 - 17	32 - 33	0 - 10	2 - 4	4 - 6	6 - 8	8 - 10
			Sample Date	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19		11/06/19	11/06/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19
			Sample ID	OC-SB-708-8.0/10-XXX-20191104	OC-SB-708-16/18-XXX-20191104	OC-SB-708-22/24-XXX-20191104	OC-SB-708-28/30-XXX-20191104	OC-SB-708-33/34-XXX-20191104	OC-SB-709-0.0/10-XXX-20191106	OC-SB-709-0.0/2.0-XXX-20191106	OC-SB-709-2.0/4.0-XXX-20191106	OC-SB-709-4.0/6.0-XXX-20191106	OC-SB-709-6.0/8.0-XXX-20191106	OC-SB-709-8.0/10-XXX-20191106	OC-SB-709-8.0/10-DUP-20191106	OC-SB-709-16/17-XXX-20191106	OC-SB-709-32/33-XXX-20191106	OC-SB-710-0.0/10XXX-20191104	OC-SB-710-2.0/4.0-XXX-20191104	OC-SB-710-4.0/6.0-XXX-20191104	OC-SB-710-6.0/8.0-XXX-20191104	OC-SB-710-8.0/10-XXX-20191104
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																			
Volatiles																						
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
1,1-Dichloroethane	ug/kg	3,600	16,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
1,1-Dichloroethene	ug/kg	23,000	100,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	**0.52 J**	**0.89 J**	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
1,2-Dichloroethane	ug/kg	460	2,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	**0.28 J**	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
1,3-Dichlorobenzene	ug/kg	NS	NS	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	**0.35 J**	3.7 U	5.2 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	**2.7 J**	**0.74 J**	**1 J**	**0.44 J**	3.4 U	NA	4.4 U	**3 J**	**2.7 J**	4.5 U	3.7 U	4.9 U	**1.2 J**	4.2 U	NA	**7.1**	**35**	**3.9**	**0.81 J**
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	**1.2 J**	**0.77 J**	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	**1.4 J**	**18**	**1.8 J**	5.2 U
2-Butanone	ug/kg	2,700,000	19,000,000	21 U	**4.1 J+**	18 U	22 U	**5.5 J+**	NA	22 U	**9.5 J**	**16 J+**	23 U	18 U	25 U	22 U	21 U	NA	24 U	**7 J+**	**18 J+**	26 U
2-Hexanone	ug/kg	20,000	130,000	21 U	21 U	18 U	22 U	17 U	NA	22 U	19 U	22 U	23 U	18 UJ	25 UJ	22 U	21 U	NA	24 U	18 U	19 U	26 U
4-Isopropyltoluene	ug/kg	NS	NS	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Acetone	ug/kg	6,100,000	67,000,000	**5.3 J**	**13 J**	**4.4 J**	**15 J**	**24 J**	NA	**5.8 J**	**33 J**	**77 J**	**22 J**	**11 J-**	**10 J-**	**17 J**	**9.7 J**	NA	**15 J**	**30 J**	**30 J**	**8.3 J**
Benzene	ug/kg	1,200	5,100	4.3 U	4.1 U	3.6 U	4.5 U	**1.3 J**	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Bromochloromethane	ug/kg	15,000	63,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Bromodichloromethane	ug/kg	290	1,300	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Carbon disulfide	ug/kg	77,000	350,000	4.3 U	**2.9 J**	3.6 U	4.5 U	**3 J**	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	**5.7**	**2.7 J**	5.2 U
Chlorobenzene	ug/kg	28,000	130,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Chloroform	ug/kg	320	1,400	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Dibromomethane	ug/kg	2,400	9,900	4.3 U	4.1 U	3.6 U	4.5 U	**1 J**	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Diethyl ether	ug/kg	1,600,000	23,000,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Ethylbenzene	ug/kg	5,800	25,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	**0.42 J**	**0.27 J**	**0.33 J**	4.5 U	**0.29 J**	**0.57 J**	**0.54 J**	**0.38 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U
Isopropylbenzene	ug/kg	190,000	990,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
m,p-Xylene	ug/kg	58,000	250,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	**1.4 J**	**0.75 J**	**1.1 J**	**0.76 J**	**0.88 J**	**1.7 J**	**1.9 J**	**1.3 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U
Methyl acetate	ug/kg	7,800,000	120,000,000	43 U	41 U	36 U	45 U	34 U	NA	44 U	39 U	44 U	45 U	37 UJ	49 UJ	44 U	42 U	NA	48 U	37 U	37 U	52 U
Methylene chloride	ug/kg	35,000	320,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Naphthalene	ug/kg	3,800	17,000	21 U	21 U	18 U	22 U	**0.53 J**	NA	22 U	19 U	22 U	23 U	18 UJ	25 UJ	22 U	21 U	NA	24 U	18 U	19 U	26 U
n-Butylbenzene	ug/kg	390,000	5,800,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
n-Propylbenzene	ug/kg	380,000	2,400,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
o-Xylene	ug/kg	65,000	280,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Styrene	ug/kg	600,000	3,500,000	4.3 U	4.1 U	3.6 U	4.5 U	**0.34 J**	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Tetrachloroethene	ug/kg	8,100	39,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Toluene	ug/kg	490,000	4,700,000	4.3 U	4.1 U	3.6 U	4.5 U	**0.99 J**	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	**0.29 J**	3.7 U	5.2 U
Trichloroethene	ug/kg	410	1,900	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U
Xylene (total)	ug/kg	58,000	250,000	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	**1.4 J**	**0.75 J**	**1.1 J**	**0.76 J**	**0.88 J**	**1.7 J**	**1.9 J**	**1.3 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-708					SB-709									SB-710				
			Depth Interval (ft)	8 - 10	16 - 18	22 - 24	28 - 30	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10		16 - 17	32 - 33	0 - 10	2 - 4	4 - 6	6 - 8	8 - 10
			Sample Date	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19		11/06/19	11/06/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19
			Sample ID	OC-SB-708-8.0/10-XXX-20191104	OC-SB-708-16/18-XXX-20191104	OC-SB-708-22/24-XXX-20191104	OC-SB-708-28/30-XXX-20191104	OC-SB-708-33/34-XXX-20191104	OC-SB-709-0.0/10-XXX-20191106	OC-SB-709-0.0/2.0-XXX-20191106	OC-SB-709-2.0/4.0-XXX-20191106	OC-SB-709-4.0/6.0-XXX-20191106	OC-SB-709-6.0/8.0-XXX-20191106	OC-SB-709-8.0/10-XXX-20191106	OC-SB-709-8.0/10-DUP-20191106	OC-SB-709-16/17-XXX-20191106	OC-SB-709-32/33-XXX-20191106	OC-SB-710-0.0/10XXX-20191104	OC-SB-710-2.0/4.0-XXX-20191104	OC-SB-710-4.0/6.0-XXX-20191104	OC-SB-710-6.0/8.0-XXX-20191104	OC-SB-710-8.0/10-XXX-20191104
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																			
Semivolatiles																						
1,1'-Biphenyl	ug/kg	4,700	20,000	34 U	34 U	35 U	38 U	36 U	NA	**4.4 J**	**10 J**	**7 J**	**3.4 J**	39 U	38 U	35 U	36 U	NA	42 U	**4.4 J**	37 U	36 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	34 U	34 U	35 U	38 U	36 U	NA	**3.9 J**	**23 J**	**14 J**	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	**3.9 J**	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
2-Methylnaphthalene	ug/kg	24,000	300,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U
2-Methylphenol	ug/kg	320,000	4,100,000	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
4-Methylphenol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U
Acenaphthylene	ug/kg	NS	NS	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U
Acetophenone	ug/kg	780,000	12,000,000	70 U	69 U	72 U	78 U	72 U	NA	**4.1 J**	230 U	**8.3 J**	77 U	78 U	77 U	72 U	72 U	NA	85 U	75 U	75 U	73 U
Aniline	ug/kg	44,000	400,000	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
Anthracene	ug/kg	1,800,000	23,000,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	**2.3 J**	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U
Azobenzene	ug/kg	5,600	26,000	330 U	350 U	360 U	380 U	350 U	NA	390 U	380 U	380 U	380 U	380 U	380 U	360 U	350 U	NA	420 U	370 U	370 U	350 U
Benzaldehyde	ug/kg	170,000	820,000	R	R	R	R	R	NA	R	R	R	R	R	R	R	R	NA	R	R	R	R
Benzo(a)anthracene	ug/kg	1,100	21,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**9.4**	**26**	**8.5**	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	**3.8 J**	**5.7 J**	7.5 U	7.3 U
Benzo(a)pyrene	ug/kg	110	2,100	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**8.9**	**22 J**	**7.5 J**	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	**4.4 J**	**4.7 J**	7.5 U	7.3 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**12**	**28**	**13**	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	**6.3 J**	**5.8 J**	7.5 U	7.3 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**7.4 J**	**13 J**	**6.5 J**	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	**4.1 J**	**3.2 J**	7.5 U	7.3 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**5.2 J**	**11 J**	**4.3 J**	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	180 U	180 U	180 U	200 U	180 U	NA	200 U	580 U	200 U	190 U	R	R	180 U	180 U	NA	220 U	190 U	190 U	190 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	34 U	34 U	35 U	38 U	**2.9 J**	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	340 U	340 U	350 U	380 U	360 U	NA	**940**	**6,300**	**6,900**	**6,700**	390 U	380 U	**50 J**	360 U	NA	**300 J**	**1,000**	370 U	**120 J**
Butylbenzylphthalate	ug/kg	290,000	1,200,000	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
Carbazole	ug/kg	NS	NS	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	**5.7 J**	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U
Chrysene	ug/kg	110,000	2,100,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**12**	**27**	**12**	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	**5.9 J**	**5.8 J**	7.5 U	7.3 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**2.1 J**	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U
Dibenzofuran	ug/kg	7,300	100,000	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
Dimethylphthalate	ug/kg	NS	NS	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	34 U	34 U	35 U	38 U	36 U	NA	39 U	**72 J**	**29 J**	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	34 U	34 U	35 U	38 U	36 U	NA	**61**	110 U	38 U	38 U	39 U	38 U	35 U	36 U	NA	42 U	37 U	37 U	36 U
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**14**	**35**	**16**	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	**6.7 J**	**10**	7.5 U	7.3 U
Fluorene	ug/kg	240,000	3,000,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**6.3 J**	**13 J**	**6.5 J**	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	**3.8 J**	**2.9 J**	7.5 U	7.3 U
Naphthalene	ug/kg	3,800	17,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**5 J**	**6.7 J**	**3.7 J**	7.7 U	7.8 U	**2.3 J**	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	34 U	34 U	35 U	38 U	36 U	NA	**49**	**1,600**	**450**	**27 J**	39 U	38 U	35 U	36 U	NA	**35 J**	**62**	37 U	36 U
Phenanthrene	ug/kg	NS	NS	7 U	6.9 U	7.2 U	**2.8 J**	7.2 U	NA	**8.3**	**15 J**	**9.3**	**2.5 J**	**3.6 J**	**2.1 J**	7.2 U	7.2 U	NA	**3.9 J**	**7.9**	7.5 U	**2.2 J**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-708					SB-709									SB-710				
			Depth Interval (ft)	8 - 10	16 - 18	22 - 24	28 - 30	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10		16 - 17	32 - 33	0 - 10	2 - 4	4 - 6	6 - 8	8 - 10
			Sample Date	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19		11/06/19	11/06/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19
			Sample ID	OC-SB-708-8.0/10-XXX-20191104	OC-SB-708-16/18-XXX-20191104	OC-SB-708-22/24-XXX-20191104	OC-SB-708-28/30-XXX-20191104	OC-SB-708-33/34-XXX-20191104	OC-SB-709-0.0/10-XXX-20191106	OC-SB-709-0.0/2.0-XXX-20191106	OC-SB-709-2.0/4.0-XXX-20191106	OC-SB-709-4.0/6.0-XXX-20191106	OC-SB-709-6.0/8.0-XXX-20191106	OC-SB-709-8.0/10-XXX-20191106	OC-SB-709-8.0/10-DUP-20191106	OC-SB-709-16/17-XXX-20191106	OC-SB-709-32/33-XXX-20191106	OC-SB-710-0.0/10XXX-20191104	OC-SB-710-2.0/4.0-XXX-20191104	OC-SB-710-4.0/6.0-XXX-20191104	OC-SB-710-6.0/8.0-XXX-20191104	OC-SB-710-8.0/10-XXX-20191104
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																			
Phenol	ug/kg	1,900,000	25,000,000	34 U	34 U	35 U	38 U	36 U	NA	**80**	**53 J**	**340**	38 U	39 U	38 U	35 U	36 U	NA	42 U	**11 J**	37 U	36 U
Pyrene	ug/kg	180,000	2,300,000	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**14**	**34**	**16**	**1.8 J**	7.8 U	7.7 U	7.2 U	7.2 U	NA	**6.6 J**	**8.9**	7.5 U	7.3 U
Pesticides/PCBs																						
4,4'-DDD	ug/kg	190	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	2,000	9,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	1,900	8,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	39	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	86	**360**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	300	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	1,900	25,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	130	630	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	70	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																						
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																						
Aluminum	mg/kg	7,700	110,000	**12,000**	**9,500**	**8,800**	**2,300**	**4,800**	NA	**8,400**	**5,200**	**7,500**	**5,000**	**10,000**	**8,300**	**9,700**	**12,000**	NA	**7,300**	**5,800**	**2,100**	**6,500**
Antimony	mg/kg	3.1	47	**0.57 J**	**0.77 J**	**0.91 J**	17 U	16 U	NA	19 U	18 U	17 U	18 U	18 U	16 U	16 U	17 U	NA	19 U	**0.56 J**	17 U	17 U
Arsenic	mg/kg	0.68	**3**	**3.2**	**3.8**	**2.3**	**0.75 J**	**1.2 J**	NA	**7.6**	**5.6**	**6**	**3.8**	**7**	**4.8**	**4.2**	**0.97 J**	NA	**10**	**9.2**	**2.1 J**	**2 J**
Barium	mg/kg	1,500	22,000	**45**	**15 J+**	**58**	**15**	**23**	NA	**49 J**	**13 J**	**21 J**	**12 J**	**49 J-**	**46 J-**	**81 J**	**53 J**	NA	**43**	**24**	**14**	**14**
Beryllium	mg/kg	16	230	**0.52**	**0.36**	**0.27**	**0.085 J**	**0.16 J**	NA	**0.3**	**0.18 J**	**0.25 J**	**0.22 J**	**0.52**	**0.36 J**	**0.28 J**	2.2 U	NA	**0.32**	**0.21 J**	**0.08 J**	**0.27**
Cadmium	mg/kg	7.1	98	**0.14 J**	0.21 U	0.22 U	0.23 U	0.22 U	NA	**0.13 J**	**0.6 J**	**0.29 J**	0.24 U	0.24 U	0.22 U	0.22 U	0.22 U	NA	**0.1 J**	**0.05 J**	**0.04 J**	**1.9**
Calcium	mg/kg	NS	NS	**2,900**	**1,200 J+**	**2,300**	**910**	**1,500**	NA	**11,000**	**4,600**	**4,200**	**550**	**2,200**	**1,500**	**2,800**	**8,700**	NA	**11,000**	**2,800**	**1,100**	**950**
Chromium	mg/kg	12,000	180,000	**31**	**150 J-**	**270**	**140**	**400**	NA	**63**	**29**	**39**	**420**	**21**	**17**	**44**	**420**	NA	**140**	**41**	**10**	**12**
Chromium-Hexavalent	mg/kg	0.3	**6**	**0.8**	**2.6**	**11.4**	**7.9**	**6**	NA	**2.2**	**1.2**	**1.7**	**8**	**0.74**	**0.7**	**3.9**	**6.7**	NA	**2**	**1.2**	**0.79**	**0.61**
Cobalt	mg/kg	2.3	35	**6.6**	**5.6**	**4**	**0.87**	**2.4**	NA	**3.7**	**2.6**	**4.6**	**2.1**	**6.6**	**6.5**	**6.8**	**13**	NA	**4.6**	**3.7**	**0.79**	**3.2**
Copper	mg/kg	310	4,700	**17**	**15 J-**	**9**	**2**	**9.3**	NA	**7.7**	**4.8**	**11**	**5**	**11**	**9.2**	**9**	**29**	NA	**14**	**7.5**	**3.8**	**8.6**
Iron	mg/kg	5,500	82,000	**12,000**	**14,000**	**15,000**	**9,200**	**7,200**	NA	**10,000**	**5,900**	**8,100**	**5,300**	**13,000**	**9,900**	**15,000**	**21,000**	NA	**9,900**	**8,700**	**3,200**	**5,300**
Lead	mg/kg	400	800	**6.2**	**3**	**5.4**	**2**	**2.3**	NA	**8.2**	**5**	**6.2**	**5.7**	**7.1**	**5.7**	**4.7**	**5.7**	NA	**7.4**	**4.4**	**1.9**	**4.8**
Magnesium	mg/kg	NS	NS	**3,800**	**5,200 J-**	**4,100**	**1,000**	**2,500**	NA	**3,100**	**1,400**	**2,600**	**1,300**	**3,300 J-**	**3,000 J-**	**4,500**	**10,000**	NA	**3,000**	**3,000**	**840**	**1,900**
Manganese	mg/kg	180	2,600	**140**	**100 J-**	**140**	**42**	**90**	NA	**150**	**53**	**100**	**45**	**130 J-**	**120 J-**	**200**	**270**	NA	**170**	**130**	**47**	**69**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-708					SB-709									SB-710				
			Depth Interval (ft)	8 - 10	16 - 18	22 - 24	28 - 30	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10		16 - 17	32 - 33	0 - 10	2 - 4	4 - 6	6 - 8	8 - 10
			Sample Date	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19		11/06/19	11/06/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19
			Sample ID	OC-SB-708-8.0/10-XXX-20191104	OC-SB-708-16/18-XXX-20191104	OC-SB-708-22/24-XXX-20191104	OC-SB-708-28/30-XXX-20191104	OC-SB-708-33/34-XXX-20191104	OC-SB-709-0.0/10-XXX-20191106	OC-SB-709-0.0/2.0-XXX-20191106	OC-SB-709-2.0/4.0-XXX-20191106	OC-SB-709-4.0/6.0-XXX-20191106	OC-SB-709-6.0/8.0-XXX-20191106	OC-SB-709-8.0/10-XXX-20191106	OC-SB-709-8.0/10-DUP-20191106	OC-SB-709-16/17-XXX-20191106	OC-SB-709-32/33-XXX-20191106	OC-SB-710-0.0/10XXX-20191104	OC-SB-710-2.0/4.0-XXX-20191104	OC-SB-710-4.0/6.0-XXX-20191104	OC-SB-710-6.0/8.0-XXX-20191104	OC-SB-710-8.0/10-XXX-20191104
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																			
Mercury	mg/kg	1.1	4.6	0.019 U	0.022 U	0.021 U	0.021 U	**0.012 J**	NA	**0.022 J**	**0.042**	**0.041**	**0.014 J**	0.024 U	0.021 U	0.022 U	0.021 U	NA	**0.021 J**	**0.01 J**	0.022 U	0.02 U
Nickel	mg/kg	150	2,200	**19**	**17**	**12**	**2.8 J**	**8.6**	NA	**10**	**7.4**	**14**	**7.1**	**13**	**14**	**14**	**60**	NA	**14**	**14**	**2.5 J**	**10**
Potassium	mg/kg	NS	NS	**2,400**	**1,000 J+**	**3,000**	**1,700**	**1,400**	NA	**1,000**	**540**	**1,000**	**580**	**1,600**	**1,800**	**3,500**	**2,700**	NA	**1,700**	**1,200**	**650**	**810**
Selenium	mg/kg	39	580	4.1 U	**1.3 J**	**0.61 J**	4.6 U	4.3 U	NA	5 U	4.7 U	4.5 U	4.9 U	4.9 U	4.4 U	4.3 U	4.4 U	NA	5.2 U	4.7 U	4.5 U	**0.57 J**
Silver	mg/kg	39	580	0.61 U	0.63 U	0.65 U	0.69 U	0.65 U	NA	0.75 U	0.7 U	0.67 U	0.73 U	0.73 U	0.66 U	0.65 U	0.67 U	NA	0.78 U	0.7 U	0.67 U	0.67 U
Sodium	mg/kg	NS	NS	**470**	**81 J**	**300**	**230**	**380**	NA	170 U	160 U	160 U	170 U	**150 J**	150 U	**160**	**870**	NA	**250**	**130 J**	**81 J**	**110 J**
Thallium	mg/kg	0.078	**1.2**	6.1 U	6.3 U	6.5 U	6.9 U	6.5 U	NA	7.5 U	7 U	6.7 U	7.3 U	7.3 U	6.6 U	6.5 U	6.7 U	NA	7.8 U	7 U	6.7 U	6.7 U
Tin	mg/kg	4,700	70,000	**0.96 J**	2.1 U	**0.68 J**	2.3 U	2.2 U	NA	2.5 U	**0.5 J**	**0.62 J**	2.4 U	**0.77 J**	**0.5 J**	**0.47 J**	**0.57 J**	NA	**0.74 J**	**0.51 J**	2.2 U	2.2 U
Vanadium	mg/kg	39	580	**36**	**31 J-**	**33**	**9.1**	**16**	NA	**16**	**10**	**16**	**8.2**	**23**	**18**	**28**	**53**	NA	**18**	**13**	**5.2**	**9.9**
Zinc	mg/kg	2,300	35,000	**37**	**23**	**26**	**7.2**	**15**	NA	**21**	**18**	**20**	**17**	**28 J-**	**24 J-**	**35**	**39**	NA	**28**	**19**	**6.4**	**21**
General Chemistry																						
Ammonia	mg/kg	NS	NS	9.9 U	**8.5**	**17**	**62**	**150**	NA	**4.1 J**	**7.6**	**15**	**3.5 J**	**6.7 J**	**14 J**	**8.6**	**150**	NA	**15**	**12**	**18**	**14**
Chloride	mg/kg	NS	NS	10 UJ	11 UJ	**7.2 J**	**70 J**	**210 J**	NA	12 U	11 U	12 U	**17**	12 U	11 U	11 U	11 U	NA	**19 J**	**6.9 J**	11 UJ	11 UJ
pH	S.U.	NS	NS	NA	NA	NA	NA	NA	**6.3 J**	NA	NA	NA	NA	NA	NA	NA	NA	**5.5 J**	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	**57 J**	**35 J**	**100 J**	**460 J**	**1,200 J**	NA	**1,300**	**12,000**	**63**	**150**	**110**	**140**	**890**	**320**	NA	**3,900 J**	**6,400 J**	**170 J**	**71 J**
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																						
Dimethylformamide	ug/kg	260,000	1,500,000	210 U	190 U	220 U	230 U	190 U	NA	200 U	210 U	200 U	190 U	180 U	180 U	180 U	200 U	NA	230 U	210 U	200 U	220 U
Formaldehyde	ug/kg	11,000	50,000	2,100 UJ	2,100 UJ	2,200 UJ	2,300 UJ	**1,900 J**	NA	2,400 U	**2,100 J**	**2,900 J**	2,400 UJ	2,300 UJ	2,300 UJ	**3,300 J**	**2,300 J**	NA	**2,000 J**	**4,000 J**	**11,000 J**	2,200 UJ
Hydrazine	ug/kg	32	140	5.3 UJ	5.6 UJ	**2.4 J**	**1.5 J**	5.9 UJ	NA	6.1 U	5.8 U	6.9 U	5.7 U	5.7 UJ	5.6 UJ	**4.9 J**	5.4 U	NA	5.7 UJ	**1.8 J**	**1.6 J**	**1.8 J**

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-710		SB-711								SB-712								
			Depth Interval (ft)	23 - 24	36 - 37	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	18 - 19	35 - 36	0 - 10		0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	37 - 38
			Sample Date	11/05/19	11/05/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
			Sample ID	OC-SB-710-23/24-XXX-20191105	OC-SB-710-36/37-XXX-20191105	OC-SB-711-0.0/10-XXX-20191112	OC-SB-711-0.0/2.0-XXX-20191112	OC-SB-711-2.0/4.0-XXX-20191112	OC-SB-711-4.0/6.0-XXX-20191112	OC-SB-711-6.0/8.0-XXX-20191112	OC-SB-711-8.0/10-XXX-20191112	OC-SB-711-18/19-XXX-20191112	OC-SB-711-35/36-XXX-20191112	OC-SB-712-0.0/10-XXX-20191111	OC-SB-712-0.0/10-DUP-20191111	OC-SB-712-0.0/2.0-XXX-20191111	OC-SB-712-2.0/4.0-XXX-20191111	OC-SB-712-4.0/6.0-XXX-20191111	OC-SB-712-6.0/8.0-XXX-20191111	OC-SB-712-8.0/10-XXX-20191111	OC-SB-712-23/24-XXX-20191111	OC-SB-712-37/38-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 Direct-Contact RSL		N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Chemical	Units	Res.	Ind/Comm.																			
Volatiles																						
1,1,1-Trichloroethane	ug/kg	810,000	3,600,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,1-Dichloroethane	ug/kg	3,600	16,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,1-Dichloroethene	ug/kg	23,000	100,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2,3-Trichlorobenzene	ug/kg	6,300	93,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2,4-Trimethylbenzene	ug/kg	30,000	180,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2-Dichlorobenzene	ug/kg	180,000	930,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,2-Dichloroethane	ug/kg	460	2,000	4.6 U	**0.47 J**	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,3,5-Trimethylbenzene	ug/kg	27,000	150,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,3-Dichlorobenzene	ug/kg	NS	NS	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
1,4-Dichlorobenzene	ug/kg	2,600	11,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	4.6 U	3.7 U	NA	**1.7 J**	**3,200**	**8,000**	**4 J**	1,200 U	4 U	3.8 U	NA	NA	4.6 U	**2 J**	**4 J**	**8.6**	**2.4 J**	4.2 U	4.3 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	4.6 U	3.7 U	NA	**1.3 J**	**2,600**	**6,300**	**2 J**	1,200 U	4 U	3.8 U	NA	NA	4.6 U	**0.67 J**	**1.5 J**	**3.3 J**	**0.59 J**	4.2 U	4.3 U
2-Butanone	ug/kg	2,700,000	19,000,000	23 U	19 U	NA	30 U	9,300 U	5,200 U	**5.7 J+**	6,100 U	20 U	19 U	NA	NA	23 U	**6.9 J+**	26 U	22 U	21 U	21 U	21 U
2-Hexanone	ug/kg	20,000	130,000	23 U	19 U	NA	30 U	9,300 U	5,200 U	24 U	6,100 U	20 U	19 U	NA	NA	23 U	22 U	26 U	22 U	21 U	21 U	21 U
4-Isopropyltoluene	ug/kg	NS	NS	4.6 U	3.7 U	NA	5.9 U	1,900 U	**420 J**	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	**0.45 J**	4.4 U	4.2 U	4.2 U	4.3 U
Acetone	ug/kg	6,100,000	67,000,000	230 U	**14 J**	NA	300 U	93,000 U	52,000 U	240 UJ	61,000 U	200 U	190 U	NA	NA	230 U	220 U	260 U	220 U	210 U	210 U	210 U
Benzene	ug/kg	1,200	5,100	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	**0.49 J**	4.2 U	4.2 U	4.3 U
Bromochloromethane	ug/kg	15,000	63,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Bromodichloromethane	ug/kg	290	1,300	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Carbon disulfide	ug/kg	77,000	350,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	**3.3 J**	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Chlorobenzene	ug/kg	28,000	130,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Chloroform	ug/kg	320	1,400	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Dibromomethane	ug/kg	2,400	9,900	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Diethyl ether	ug/kg	1,600,000	23,000,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Ethylbenzene	ug/kg	5,800	25,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	**370 J**	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Isopropylbenzene	ug/kg	190,000	990,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	**200 J**	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
m,p-Xylene	ug/kg	58,000	250,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Methyl acetate	ug/kg	7,800,000	120,000,000	46 U	37 U	NA	59 U	19,000 U	**330 J**	47 U	12,000 U	40 U	38 U	NA	NA	46 U	43 U	53 U	44 U	42 U	42 U	43 U
Methylene chloride	ug/kg	35,000	320,000	4.6 U	3.7 U	NA	26 U	1,900 U	1,000 U	10 U	1,200 U	30 U	17 U	NA	NA	27 U	20 U	22 U	21 U	24 U	23 U	20 U
Naphthalene	ug/kg	3,800	17,000	23 U	19 U	NA	30 U	9,300 U	**150 J**	24 U	6,100 U	20 U	19 U	NA	NA	23 U	22 U	**0.9 J**	22 U	21 U	21 U	21 U
n-Butylbenzene	ug/kg	390,000	5,800,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
n-Propylbenzene	ug/kg	380,000	2,400,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
o-Xylene	ug/kg	65,000	280,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
sec-Butylbenzene	ug/kg	780,000	12,000,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Styrene	ug/kg	600,000	3,500,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Tetrachloroethene	ug/kg	8,100	39,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Toluene	ug/kg	490,000	4,700,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Trichloroethene	ug/kg	410	1,900	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U
Xylene (total)	ug/kg	58,000	250,000	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U	NA	NA	4.6 U	4.3 U	5.3 U	4.4 U	4.2 U	4.2 U	4.3 U

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-710		SB-711								SB-712								
			Depth Interval (ft)	23 - 24	36 - 37	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	18 - 19	35 - 36	0 - 10		0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	37 - 38
			Sample Date	11/05/19	11/05/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
			Sample ID	OC-SB-710-23/24-XXX-20191105	OC-SB-710-36/37-XXX-20191105	OC-SB-711-0.0/10-XXX-20191112	OC-SB-711-0.0/2.0-XXX-20191112	OC-SB-711-2.0/4.0-XXX-20191112	OC-SB-711-4.0/6.0-XXX-20191112	OC-SB-711-6.0/8.0-XXX-20191112	OC-SB-711-8.0/10-XXX-20191112	OC-SB-711-18/19-XXX-20191112	OC-SB-711-35/36-XXX-20191112	OC-SB-712-0.0/10-XXX-20191111	OC-SB-712-0.0/10-DUP-20191111	OC-SB-712-0.0/2.0-XXX-20191111	OC-SB-712-2.0/4.0-XXX-20191111	OC-SB-712-4.0/6.0-XXX-20191111	OC-SB-712-6.0/8.0-XXX-20191111	OC-SB-712-8.0/10-XXX-20191111	OC-SB-712-23/24-XXX-20191111	OC-SB-712-37/38-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																			
Semivolatiles																						
1,1'-Biphenyl	ug/kg	4,700	20,000	40 U	35 U	NA	**7.1 J**	**75**	**14,000**	38 U	43 U	35 U	36 U	NA	NA	**9.7 J**	**1.7 J**	**3.4 J**	110 U	36 U	36 U	35 U
1,2,4-Trichlorobenzene	ug/kg	5,800	26,000	40 U	35 U	NA	**2.8 J**	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	**5.2 J**	36 U	36 U	35 U
2,4-Dimethylphenol	ug/kg	130,000	1,600,000	40 U	35 U	NA	40 U	**12 J**	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
2-Methylnaphthalene	ug/kg	24,000	300,000	8.2 U	7.2 U	NA	8 U	15 U	190 U	7.6 U	**2.7 J**	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**2.3 J**	22 U	7.4 U	7.3 U	7.2 U
2-Methylphenol	ug/kg	320,000	4,100,000	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
4-Methylphenol	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	360,000	4,500,000	8.2 U	7.2 U	NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	7.5 U	**17 J**	7.4 U	7.3 U	7.2 U
Acenaphthylene	ug/kg	NS	NS	8.2 U	7.2 U	NA	**1.8 J**	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**4.7 J**	**6.3 J**	7.4 U	7.3 U	7.2 U
Acetophenone	ug/kg	780,000	12,000,000	82 U	72 U	NA	80 U	150 U	1,900 U	76 U	87 U	72 U	73 U	NA	NA	400 U	73 U	**4.4 J**	220 U	74 U	73 U	72 U
Aniline	ug/kg	44,000	400,000	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Anthracene	ug/kg	1,800,000	23,000,000	8.2 U	7.2 U	NA	**6.3 J**	**4.3 J**	**60 J**	7.6 U	8.7 U	**2 J**	**2.3 J**	NA	NA	40 U	**2.6 J**	**4.3 J**	**36**	7.4 U	7.3 U	7.2 U
Azobenzene	ug/kg	5,600	26,000	400 U	360 U	NA	400 U	1,800 U	7,500 U	1,900 U	420 U	350 U	350 U	NA	NA	390 U	360 U	370 U	1,800 U	360 U	360 U	360 U
Benzaldehyde	ug/kg	170,000	820,000	R	R	NA	R	150 U	1,900 U	76 U	87 U	72 U	73 U	NA	NA	400 U	73 U	**6.7 J**	220 U	74 U	73 U	72 U
Benzo(a)anthracene	ug/kg	1,100	21,000	8.2 U	7.2 U	NA	**22**	**9.9 J**	190 U	7.6 U	**2.2 J**	**9.7**	**10**	NA	NA	**11 J**	**7.6**	**20**	**72**	7.4 U	7.3 U	7.2 U
Benzo(a)pyrene	ug/kg	110	2,100	8.2 U	7.2 U	NA	**17**	15 U	190 U	7.6 U	8.7 U	**4.9 J**	**6 J**	NA	NA	40 U	**9.5**	**23**	**67**	7.4 U	7.3 U	7.2 U
Benzo(b)fluoranthene	ug/kg	1,100	21,000	8.2 U	7.2 U	NA	**25**	**19**	190 U	7.6 U	8.7 U	**5.7 J**	**7.9**	NA	NA	**14 J**	**12**	**39**	**68**	7.4 U	7.3 U	7.2 U
Benzo(g,h,i)perylene	ug/kg	NS	NS	8.2 U	7.2 U	NA	**11**	15 U	190 U	7.6 U	8.7 U	**2.1 J**	**3.2 J**	NA	NA	40 U	**8.2**	**24**	**56**	7.4 U	7.3 U	7.2 U
Benzo(k)fluoranthene	ug/kg	11,000	210,000	8.2 U	7.2 U	NA	**8.8**	**8.3 J**	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	**3.7 J**	**13**	**32**	7.4 U	7.3 U	7.2 U
Benzoic Acid	ug/kg	25,000,000	330,000,000	210 U	180 U	NA	R	370 U	4,700 U	190 U	220 U	180 U	180 U	NA	NA	1,000 U	190 U	190 U	570 U	190 U	190 U	180 U
Benzyl Alcohol	ug/kg	630,000	8,200,000	40 U	35 U	NA	40 U	71 U	920 U	**59**	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	39,000	**160,000**	400 U	350 U	NA	**4,900**	**19,000**	**420,000**	**56 J**	**210 J**	**48 J**	360 U	NA	NA	**2,100**	**43 J**	**570**	**1,200**	**140 J**	360 U	350 U
Butylbenzylphthalate	ug/kg	290,000	1,200,000	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Carbazole	ug/kg	NS	NS	8.2 U	7.2 U	NA	**3.5 J**	15 U	190 U	7.6 U	8.7 U	7.2 U	**1.9 J**	NA	NA	40 U	**1.7 J**	**2.4 J**	**8.1 J**	7.4 U	7.3 U	7.2 U
Chrysene	ug/kg	110,000	2,100,000	8.2 U	7.2 U	NA	**27**	**20**	190 U	7.6 U	**2.6 J**	**9.3**	**9.9**	NA	NA	**12 J**	**8.6**	**27**	**75**	7.4 U	7.3 U	7.2 U
Dibenz(a,h)anthracene	ug/kg	110	2,100	8.2 U	7.2 U	NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**6.1 J**	**12 J**	7.4 U	7.3 U	7.2 U
Dibenzofuran	ug/kg	7,300	100,000	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	**9.4 J**	36 U	36 U	35 U
Diethylphthalate	ug/kg	5,100,000	66,000,000	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Dimethylphthalate	ug/kg	NS	NS	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Di-N-Butylphthalate	ug/kg	630,000	8,200,000	40 U	35 U	NA	**21 J**	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Di-N-Octyl Phthalate	ug/kg	63,000	820,000	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U	NA	NA	200 U	36 U	37 U	110 U	36 U	36 U	35 U
Diphenyl ether	ug/kg	3,400	14,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	630,000	8,200,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	240,000	3,000,000	8.2 U	7.2 U	NA	**46**	**23**	**160 J**	7.6 U	**4.8 J**	**8.5**	**13**	NA	NA	**19 J**	**18**	**30**	**120**	7.4 U	7.3 U	7.2 U
Fluorene	ug/kg	240,000	3,000,000	8.2 U	7.2 U	NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**2 J**	**12 J**	7.4 U	7.3 U	7.2 U
Indeno(1,2,3-cd)pyrene	ug/kg	1,100	21,000	8.2 U	7.2 U	NA	**11**	15 U	190 U	7.6 U	8.7 U	**1.7 J**	**2.7 J**	NA	NA	40 U	**6.5 J**	**21**	**38**	7.4 U	7.3 U	7.2 U
Naphthalene	ug/kg	3,800	17,000	8.2 U	7.2 U	NA	**4.4 J**	**22**	**79 J**	7.6 U	**3.2 J**	7.2 U	7.3 U	NA	NA	40 U	**2.1 J**	**5.7 J**	**11 J**	7.4 U	7.3 U	7.2 U
Naphthalene, 1-methyl-	ug/kg	18,000	73,000	8.2 U	7.2 U	NA	8 U	15 U	**53 J**	7.6 U	8.7 U	7.2 U	7.3 U	NA	NA	40 U	7.3 U	**2.1 J**	22 U	7.4 U	7.3 U	7.2 U
N-Nitrosodiphenylamine	ug/kg	110,000	470,000	40 U	35 U	NA	40 U	**1,700**	**54,000**	**31 J**	43 U	35 U	36 U	NA	NA	200 U	36 U	**72**	**130**	36 U	36 U	35 U
Phenanthrene	ug/kg	NS	NS	8.2 U	7.2 U	NA	**21**	**15**	**660**	7.6 U	**8.1 J**	**7.1 J**	**8.5**	NA	NA	40 U	**10**	**17**	**93**	7.4 U	**2.1 J**	7.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-710		SB-711								SB-712								
			Depth Interval (ft)	23 - 24	36 - 37	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	18 - 19	35 - 36	0 - 10		0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	37 - 38
			Sample Date	11/05/19	11/05/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
			Sample ID	OC-SB-710-23/24-XXX-20191105	OC-SB-710-36/37-XXX-20191105	OC-SB-711-0.0/10-XXX-20191112	OC-SB-711-0.0/2.0-XXX-20191112	OC-SB-711-2.0/4.0-XXX-20191112	OC-SB-711-4.0/6.0-XXX-20191112	OC-SB-711-6.0/8.0-XXX-20191112	OC-SB-711-8.0/10-XXX-20191112	OC-SB-711-18/19-XXX-20191112	OC-SB-711-35/36-XXX-20191112	OC-SB-712-0.0/10-XXX-20191111	OC-SB-712-0.0/10-DUP-20191111	OC-SB-712-0.0/2.0-XXX-20191111	OC-SB-712-2.0/4.0-XXX-20191111	OC-SB-712-4.0/6.0-XXX-20191111	OC-SB-712-6.0/8.0-XXX-20191111	OC-SB-712-8.0/10-XXX-20191111	OC-SB-712-23/24-XXX-20191111	OC-SB-712-37/38-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																			
Phenol	ug/kg	1,900,000	25,000,000	40 U	35 U	NA	40 U	**8,800**	920 U	**120**	43 U	35 U	36 U	NA	NA	200 U	36 U	**14 J**	110 U	36 U	36 U	35 U
Pyrene	ug/kg	180,000	2,300,000	8.2 U	7.2 U	NA	**40**	**20**	190 U	7.6 U	**4.8 J**	**9.2**	**12**	NA	NA	**17 J**	**15**	**26**	**150**	7.4 U	7.3 U	7.2 U
Pesticides/PCBs																						
4,4'-DDD	ug/kg	190	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	2,000	9,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	1,900	8,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	39	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	86	**360**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	300	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	34	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	1,900	25,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	570	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	130	630	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	70	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																						
C11-C22 Aromatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																						
Aluminum	mg/kg	7,700	110,000	**3,900**	**12,000**	NA	**8,200**	**8,100 J**	**4,000**	**3,100**	**3,000**	**6,900**	**13,000**	NA	NA	**8,100**	**10,000**	**8,400**	**10,000**	**4,500**	**2,500**	**10,000**
Antimony	mg/kg	3.1	47	19 U	**1.2 J**	NA	**0.64 J**	**0.45 J-**	17 U	17 U	20 U	16 U	**0.52 J**	NA	NA	18 U	16 U	16 U	**0.86 J**	**0.53 J**	16 U	**1.5 J**
Arsenic	mg/kg	0.68	**3**	**8.9**	**8.4**	NA	**8.1**	**12**	**3.9**	**0.91 J**	**1.5 J**	**2.8**	**1.6 J**	NA	NA	**7.7**	**8.9**	**7.5**	**13**	**5.5**	**4.5**	**4.1**
Barium	mg/kg	1,500	22,000	**26**	**46**	NA	**73**	**32**	**18**	**6.6**	**11**	**21**	**110**	NA	NA	**61**	**43**	**34**	**41**	**15**	**18**	**71**
Beryllium	mg/kg	16	230	**0.17 J**	**0.35**	NA	**0.34**	**0.36**	**0.16 J**	**0.11 J**	**0.12 J**	**0.38**	**0.29**	NA	NA	**0.36**	**0.54**	**0.37**	**0.5**	**0.16 J**	**0.097 J**	**0.27**
Cadmium	mg/kg	7.1	98	0.25 U	0.21 U	NA	**0.34**	**2.5**	**9.3**	**0.79**	**0.054 J**	0.21 U	0.21 U	NA	NA	**0.16 J**	**0.062 J**	**0.067 J**	**0.098 J**	0.22 U	0.21 U	0.22 U
Calcium	mg/kg	NS	NS	**1,500**	**6,400**	NA	**30,000**	**4,100 J-**	**1,200**	**1,000**	**1,300**	**1,400**	**3,000**	NA	NA	**22,000**	**4,100**	**15,000**	**3,300**	**1,500**	**850**	**12,000**
Chromium	mg/kg	12,000	180,000	**310**	**740**	NA	**95**	**63 J+**	**28**	**5.9**	**5.3**	**250**	**260**	NA	NA	**78**	**35**	**38**	**38**	**130**	**32**	**250**
Chromium-Hexavalent	mg/kg	0.3	**6**	**8.5**	**7.3**	NA	**5.1**	**0.74**	**0.49**	**0.18 J**	**0.37 J**	**5.7**	**10.1**	NA	NA	**5.5**	**0.71**	**0.56**	**1.4**	**2.8**	**1**	**16.8**
Cobalt	mg/kg	2.3	35	**2.1**	**15**	NA	**3.9**	**5.4**	**1.5**	**0.92**	**1**	**3.3**	**8.4**	NA	NA	**4.2**	**5.8**	**3.7**	**7.1**	**2.5**	**1.4**	**18**
Copper	mg/kg	310	4,700	**7**	**25**	NA	**8.6**	**12**	**4.3**	**2.8**	**3.6**	**14**	**28**	NA	NA	**11**	**11**	**11**	**23**	**4.8**	**2.2**	**64**
Iron	mg/kg	5,500	82,000	**11,000**	**26,000**	NA	**9,300**	**11,000**	**5,300**	**2,800**	**2,700**	**7,900**	**16,000**	NA	NA	**9,800**	**11,000**	**8,900**	**13,000**	**7,700**	**5,000**	**28,000**
Lead	mg/kg	400	800	**4.9**	**5.6**	NA	**8.1**	**13**	**5.7**	**1.7**	**1.7**	**4**	**2.5**	NA	NA	**12**	**6.3**	**20**	**19**	**2.8**	**2**	**2.8**
Magnesium	mg/kg	NS	NS	**1,400**	**11,000**	NA	**3,400**	**2,800**	**940**	**860**	**900**	**2,100**	**11,000**	NA	NA	**3,300**	**3,800**	**2,200**	**4,000**	**2,600**	**1,300**	**5,700**
Manganese	mg/kg	180	2,600	**72**	**290**	NA	**160**	**140 J+**	**45**	**42**	**45**	**110**	**270**	NA	NA	**160**	**190**	**130**	**210**	**120**	**58**	**310**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 3
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

			Sample Location	SB-710		SB-711								SB-712								
			Depth Interval (ft)	23 - 24	36 - 37	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	18 - 19	35 - 36	0 - 10		0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	37 - 38
			Sample Date	11/05/19	11/05/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
			Sample ID	OC-SB-710-23/24-XXX-20191105	OC-SB-710-36/37-XXX-20191105	OC-SB-711-0.0/10-XXX-20191112	OC-SB-711-0.0/2.0-XXX-20191112	OC-SB-711-2.0/4.0-XXX-20191112	OC-SB-711-4.0/6.0-XXX-20191112	OC-SB-711-6.0/8.0-XXX-20191112	OC-SB-711-8.0/10-XXX-20191112	OC-SB-711-18/19-XXX-20191112	OC-SB-711-35/36-XXX-20191112	OC-SB-712-0.0/10-XXX-20191111	OC-SB-712-0.0/10-DUP-20191111	OC-SB-712-0.0/2.0-XXX-20191111	OC-SB-712-2.0/4.0-XXX-20191111	OC-SB-712-4.0/6.0-XXX-20191111	OC-SB-712-6.0/8.0-XXX-20191111	OC-SB-712-8.0/10-XXX-20191111	OC-SB-712-23/24-XXX-20191111	OC-SB-712-37/38-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 Direct-Contact RSL**		**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**Res.**	**Ind/Comm.**																			
Mercury	mg/kg	1.1	4.6	0.025 U	**0.0093 J**	NA	**0.035**	**0.19**	**0.029**	0.024 U	0.025 U	0.021 U	0.022 U	NA	NA	**0.048**	0.021 U	**0.069**	**0.087**	0.021 U	0.021 U	0.02 U
Nickel	mg/kg	150	2,200	**7.1**	**39**	NA	**9.2**	**16**	**6.4**	**4.6 J**	**4.5 J**	**9.8**	**17**	NA	NA	**10**	**24**	**9.3**	**21**	**11**	**4.7 J**	**15**
Potassium	mg/kg	NS	NS	**1,900**	**2,300**	NA	**1,200**	**1,500**	**460**	**440**	**620**	**970**	**7,100**	NA	NA	**1,500**	**2,100**	**1,500**	**1,800**	**1,200**	**940**	**3,300**
Selenium	mg/kg	39	580	5.1 U	**0.58 J**	NA	**1.1 J**	**0.58 J**	**0.5 J**	4.5 U	**0.7 J**	**0.46 J**	4.1 U	NA	NA	4.8 U	**0.55 J**	4.3 U	4.4 U	4.4 U	4.2 U	**0.58 J**
Silver	mg/kg	39	580	0.76 U	0.62 U	NA	0.76 U	0.65 U	0.7 U	0.68 U	0.81 U	0.64 U	0.62 U	NA	NA	0.73 U	0.65 U	0.65 U	0.66 U	0.66 U	0.63 U	0.65 U
Sodium	mg/kg	NS	NS	**380**	**1,300**	NA	**140 J**	**180 J**	**87 J**	**81 J**	**95 J**	**82 J**	**350**	NA	NA	**170**	**200**	**170**	**220**	**110 J**	**92 J**	**1,500**
Thallium	mg/kg	0.078	**1.2**	7.6 U	6.2 U	NA	7.6 U	6.5 U	7 U	6.8 U	8.1 U	6.4 U	6.2 U	NA	NA	7.3 U	6.5 U	6.5 U	6.6 U	6.6 U	6.3 U	6.5 U
Tin	mg/kg	4,700	70,000	**0.55 J**	**0.75 J**	NA	**0.76 J**	**0.86 J**	2.3 U	2.3 U	2.7 U	2.1 U	**0.76 J**	NA	NA	**0.69 J**	**0.84 J**	**0.72 J**	**1.6 J**	2.2 U	2.1 U	**0.87 J**
Vanadium	mg/kg	39	580	**16**	**60**	NA	**16**	**19**	**7.4**	**5.2**	**5.4**	**12**	**38**	NA	NA	**19**	**22**	**17**	**25**	**12**	**7.9**	**110**
Zinc	mg/kg	2,300	35,000	**12**	**46**	NA	**25**	**78 J+**	**63**	**8.8**	**9.2**	**21**	**37**	NA	NA	**25**	**24**	**24**	**41**	**15**	**7.4**	**48**
General Chemistry																						
Ammonia	mg/kg	NS	NS	**52**	**58**	NA	**14**	**8.8**	**42**	**58**	**50**	**9.2**	**42**	NA	NA	**4.4 J**	**3.6 J**	**18**	**11**	**9.9**	**5.9**	**140**
Chloride	mg/kg	NS	NS	**57 J**	**670 J**	NA	12 UJ	11 UJ	11 UJ	12 UJ	**7.2 J**	11 UJ	**42 J**	NA	NA	12 UJ	**6.8 J**	11 UJ	**12 J**	**6.7 J**	11 UJ	**250 J**
pH	S.U.	NS	NS	NA	NA	**8.5 J**	NA	NA	NA	NA	NA	NA	NA	**8.9 J**	**8.9 J**	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	**1,100 J**	**3,700 J**	NA	**1,800 J**	**2,400 J**	**290 J**	**12 J**	**43 J**	**13 J**	**500 J**	NA	NA	**4,000 J**	**520 J**	**12,000 J**	**1,500 J**	**180 J**	**43 J**	**3,700 J**
Total Organic Carbon	mg/kg	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																						
Dimethylformamide	ug/kg	260,000	1,500,000	230 U	200 U	NA	200 U	190 U	170 U	170 U	160 U	160 U	130 U	NA	NA	190 U	190 U	180 U	210 U	220 U	**780**	150 U
Formaldehyde	ug/kg	11,000	50,000	2,500 UJ	**3,700 J**	NA	2,500 UJ	**1,500 J**	**2,900 J**	2,300 UJ	2,600 UJ	2,200 UJ	**4,700 J**	NA	NA	2,400 UJ	**2,100 J**	**2,000 J**	**2,600 J**	2,200 UJ	2,200 UJ	**6,100 J**
Hydrazine	ug/kg	32	140	**1.7 J**	**1.9 J**	NA	**1.9 J**	**5.7**	**13**	5.9 U	6 U	5.3 U	5.5 U	NA	NA	**3.8 J**	**7.7**	5.5 U	5.6 U	5.6 U	5.5 U	5.4 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	STOCKPILE																	
						Depth Interval (ft)																		
						Sample Date	08/08/00		08/11/00			08/26/00			09/05/00		09/14/00				09/22/00		
						Sample ID	97598-BAY1-8/7	97598-BAY4-8/7	97598-DB-SP-1	97598-DB-SP-2E	97598-DB-SP-2W	1120-DA-SP-3A	1120-DA-SP-3B	1120-DA-SP-3C	1120-DA-SP-3E	1120-DA-SP-4	1120-DA-SP-3D	1120-DA-SP-5A	1120-DA-SP-5B	1120-DA-SP-5C	1120-DA-SP-6A	1120-DA-SP-6B	1120-DA-SP-6C
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Volatiles																							
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 U	1,300 U	130 U	130 U	130 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	45 U	34 U	**130**	**90**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	**130**	**45**	**720**	**490**	**79**	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	**170**	**61**	**1,300**	**850**	**110**	45 U	34 U	31 U	130 U	120 U	140 U	**160**	150 UC	1,300 U	130 U	130 U	130 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	**130**	**51**	**910**	**610**	**69**	45 U	34 U	31 U	130 U	120 U	140 U	**160**	150 UC	1,300 U	130 U	130 U	130 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	45 U	34 U	69 U	1,000 U	42 U	45 U	34 U	31 U	**14,000**	**640**	140 U	140 U	**1,200 C**	**43,000**	130 U	130 U	**570**
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	45 U	34 U	69 U	450 U	42 U	45 U	34 U	31 U	**5,700**	120 U	140 U	140 U	**520 C**	**16,000**	130 U	130 U	130 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	450 U	340 U	690 U	430 U	420 U	450 U	340 U	310 U	2,500 U	2,500 U	2,900 U	2,800 U	3,000 UC	26,000 U	2,700 U	2,700 U	2,700 U
2-Hexanone	ug/kg	0.88	NS	NS	--	--	450 U	340 U	690 U	430 U	420 U	450 U	340 U	310 U	500 U	490 U	580 U	560 U	600 UC	5,200 U	530 U	540 U	530 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	45 U	34 U	**51 J**	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	**3,300**	130 U	130 U	130 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	450 U	340 U	690 U	430 U	420 U	450 U	340 U	310 U	2,500 U	2,500 U	2,900 U	2,800 U	3,000 UC	26,000 U	2,700 U	2,700 U	2,700 U
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 U	1,300 U	130 U	130 U	130 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 U	1,300 U	130 U	130 U	130 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	45 U	34 U	**170**	**100**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	45 U	34 U	**100**	**69**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	89 U	67 U	140 U	85 U	84 U	89 UB	68 UB	63 UB	130 U	120 U	140 U	140 U	150 UC	1,300 U	**150 B**	130 UB	**150 B**
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	220 U	170 U	140 U	85 U	84 U	89 U	68 U	63 U	1,300 U	1,200 U	1,400 U	1,400 U	1,500 UC	13,000 U	1,300 U	1,300 U	1,300 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	120	NS	NS	--	--	45 U	34 U	**150**	**99**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	45 U	34 U	**140**	**100**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	45 U	34 U	**130**	**96**	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 U	1,300 U	130 U	130 U	130 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	45 U	34 U	**83**	**28 J**	42 U	45 U	**110**	31 U	130 U	120 U	140 U	**140 J**	**1,100 C**	**14,000**	130 U	130 U	130 U
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	45 U	34 U	69 U	43 U	42 U	45 U	34 U	31 U	130 U	120 U	140 U	140 U	150 UC	1,300 U	130 U	130 U	130 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	STOCKPILE																
						Depth Interval (ft)																	
						Sample Date	08/08/00		08/11/00			08/26/00			09/05/00		09/14/00				09/22/00		
						Sample ID	97598-BAY1-8/7	97598-BAY4-8/7	97598-DB-SP-1	97598-DB-SP-2E	97598-DB-SP-2W	1120-DA-SP-3A	1120-DA-SP-3B	1120-DA-SP-3C	1120-DA-SP-3E	1120-DA-SP-4	1120-DA-SP-3D	1120-DA-SP-5A	1120-DA-SP-5B	1120-DA-SP-5C	1120-DA-SP-6A	1120-DA-SP-6B	1120-DA-SP-6C
Normal (N) or Field Duplicate (FD) Sample							N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	11/2019 MCL-based SSL	MassDEP criteria S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatiles																							
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	**63 J**	**99 J**	**610 F**	**450**	**390**	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	150	NS	NS	--	--	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	4.6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	NA	NA	NA	370 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	NA	2,100 U	NA	NA	NA	NA	370 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	NA	NA	NA	370 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	280 U	280 U	290 UF	**97 J**	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	570 U	**630**	**1,400 F**	**940**	**1,100**	640 U	540 U	500 U	8,800 U	3,700 U	11,000 U	11,000 U	100,000 U	220,000 UC	180,000 UC	180,000 UC	1,800 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	**6,700**	**6,900**	**9,100 BF**	**43,000 F**	**29,000 F**	**1,800**	**3,900**	**2,000**	**23,000**	**5,800**	**17,000**	**31,000**	**287,000**	**856,000 C**	**622,000 C**	**511,000 C**	**1,300**
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	280 U	280 U	290 UF	**96 J**	290 U	320 U	270 U	250 U	1,800 U	740 U	NA	2,100 U	NA	NA	NA	NA	370 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	280 U	280 U	**1,800 F**	**910**	**580**	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	**103,000 C**	36,000 UC	**32,000 JC**	370 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	NA	NA	NA	370 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**STOCKPILE**																									
						Depth Interval (ft)																										
						Sample Date	**08/08/00**		**08/11/00**			**08/26/00**			**09/05/00**		**09/14/00**				**09/22/00**		
						Sample ID	**97598-BAY1-8/7**	**97598-BAY4-8/7**	**97598-DB-SP-1**	**97598-DB-SP-2E**	**97598-DB-SP-2W**	**1120-DA-SP-3A**	**1120-DA-SP-3B**	**1120-DA-SP-3C**	**1120-DA-SP-3E**	**1120-DA-SP-4**	**1120-DA-SP-3D**	**1120-DA-SP-5A**	**1120-DA-SP-5B**	**1120-DA-SP-5C**	**1120-DA-SP-6A**	**1120-DA-SP-6B**	**1120-DA-SP-6C**
Normal (N) or Field Duplicate (FD) Sample							**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**																				
			S-1/ GW-1	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	**3,500 #**	**1,700 #**	**990 #F**	**4,500 #**	**3,400 #**	320 U	270 U	250 U	1,800 U	**1,100**	2,200 U	**3,200**	**19,000 J**	44,000 UC	**37,000 C**	**61,000 C**	370 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	**280 J**
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	280 U	280 U	290 UF	**98 J**	**360**	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	280 U	280 U	290 U	290 U	290 U	320 U	270 U	250 U	1,800 U	740 U	2,200 U	2,100 U	21,000 U	44,000 UC	36,000 UC	36,000 UC	370 U
Pesticides/PCBs																							
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	20 U	17 U	17 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	**6.9**	**4.9**	1.8 U	1.8 U	1.9 U	20 U	17 U	17 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	20 U	17 U	17 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Aldrin	ug/kg	0.15	80	80	3,000	3,000	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	9.9 U	9.9 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
alpha-BHC	ug/kg	0.042	NS	NS	--	--	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	**240**	**430**	**15**	9.9 U	**14 C**	13 U	13 U	**24**	13 U	10 U	11 U	11 U
beta-BHC	ug/kg	0.15	NS	NS	--	--	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	**130**	**150**	**8.3**	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
cis-Chlordane	ug/kg	NS	NS	NS	--	--	0.89 U	**3**	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	1.8 U	**3.1**	**3.3**	**5.3**	**4.5**	20 U	17 U	17 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	20 U	17 U	17 U	9.9 U	11 U	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	**13**	**6.6**	1.8 U	1.8 U	1.9 U	20 U	17 U	17 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Endrin Ketone	ug/kg	NS	NS	NS	--	--	1.8 U	1.8 U	1.8 U	**14**	1.9 U	20 U	17 U	17 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	**180**	**250**	**1,200 F**	**370**	**420**	10 U	**11**	8.3 U	9.9 U	11 UC	13 U	**24**	**21**	13 U	10 U	11 U	11 U
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	9.9 U	11 U	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	9.9 U	11 UC	13 U	13 U	12 U	13 U	10 U	11 U	11 U
Technical Chlordane	ug/kg	NS	NS	NS	--	--	0.89 U	0.89 U	0.9 U	0.91 U	0.96 U	10 U	8.5 U	8.3 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																							
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																							
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/kg	0.035	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	1.9	90	90	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	0.069	70	70	100	100	0.68 U	0.64 U	0.7 U	0.68 U	0.69 U	0.77 U	0.67 U	0.65 U	0.3 U	0.3 U	**0.35**	**0.74**	**3**	**3.2**	**0.79**	**0.46**	0.3 U
Calcium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	**47**	**70**	**54**	**75**	**46**	**37**	**21**	**11**	**24**	**11**	**39**	**38**	**37**	**25**	**68**	**20**	**10**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	35	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	NS	200	200	600	600	**7.2**	**8.2**	**6.8**	**7.9**	**5.6**	**14**	**7.1**	**5.8**	**6**	**3.6**	**6.3**	**6.2**	**5.4**	**3.7**	**5.6**	**4.2**	**6.6**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**STOCKPILE**																
						Depth Interval (ft)																	
						Sample Date	**08/08/00**		**08/11/00**			**08/26/00**			**09/05/00**		**09/14/00**				**09/22/00**		
						Sample ID	**97598-BAY1-8/7**	**97598-BAY4-8/7**	**97598-DB-SP-1**	**97598-DB-SP-2E**	**97598-DB-SP-2W**	**1120-DA-SP-3A**	**1120-DA-SP-3B**	**1120-DA-SP-3C**	**1120-DA-SP-3E**	**1120-DA-SP-4**	**1120-DA-SP-3D**	**1120-DA-SP-5A**	**1120-DA-SP-5B**	**1120-DA-SP-5C**	**1120-DA-SP-6A**	**1120-DA-SP-6B**	**1120-DA-SP-6C**
Normal (N) or Field Duplicate (FD) Sample							**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**																				
			S-1/ GW-1	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
Magnesium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	0.0033	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	2.6	600	600	1000	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	0.052	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	0.08	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.0014	8	8	80	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	300	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	8.6	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																							
Ammonia	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																							
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																			
Arsenic	mg/L	0.01	0.01	0.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	STOCKPILE								AREA-1		AREA 1-1	AREA 1-2	AREA-2	AREA 1-4	AREA 1-5	BD-C1	BD-C4	BD-C7
						Depth Interval (ft)									0 - 1		0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	4.6 - 4.6	7.5 - 7.5	7.96 - 7.9
						Sample Date	09/26/00								07/08/91	12/15/96	12/15/96	12/15/96	07/09/91	12/15/96	12/15/96	10/10/00	10/10/00	10/12/00
						Sample ID	1120-DA-SP-8A	1120-DA-SP-8B	1120-DA-SP-8C	1120-DA-SP-8D	1120-DA-SP-8E	1120-DA-SP-8F	1120-DA-SP-8G	1120-DA-SP-8H	AREA 01	AREA 1 (COMP)	AREA 1-1	AREA 1-2	AREA 02	AREA 1-4	AREA 1-5	1120-BD-C1	1120-BD-C4	1120-BD-C7
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units		S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																		
Volatiles																								
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	**11**	5 U	5.5 UJ	**230**	6 U	120 U	150 U	160 U
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	5.5 UJ	**18**	6 U	120 U	150 U	160 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	130 U	**140,000**	**1,800**	**14,000**	**21,000**	**27,000**	120 U	**650**	16 U	NA	6 U	5 U	11 U	8 U	6 U	120 U	150 U	160 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	130 U	**106,000**	**670**	**5,100**	**8,300**	**12,000**	120 U	**190**	16 U	NA	6 U	5 U	11 U	8 U	6 U	120 U	150 U	160 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	2,500 U	24,000 U	2,700 U	2,700 U	2,600 U	13,000 U	2,400 U	2,500 U	24 UJ	NA	12 U	11 U	16 UJ	16 U	12 U	2,500 U	3,000 U	3,200 U
2-Hexanone	ug/kg	0.88	NS	NS	--	--	510 U	4,900 U	540 U	540 U	520 U	2,600 U	470 U	500 U	24 UJ	NA	12 U	11 U	16 UJ	16 U	12 U	500 U	590 U	630 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	130 U	**27,000**	**1,500**	130 U	**220**	**2,300**	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	2,500 U	24,000 U	2,700 U	2,700 U	2,600 U	13,000 U	2,400 U	2,500 U	24 UJ	NA	**29 B**	**10 J**	16 U	**36**	**5 J**	2,500 U	3,000 U	3,200 U
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	5.5 UJ	8 U	6 U	120 U	150 U	160 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	5.5 UJ	8 U	6 U	120 U	150 U	160 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	130 U	1,200 U	130 U	**390**	**110 J**	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	5.5 UJ	8 U	6 U	120 U	150 U	160 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	130 U	1,200 U	130 U	**1,400**	**120 J**	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	16 U	NA	**7**	5 U	18 UJ	8 U	6 U	120 U	150 U	160 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	1,300 U	12,000 U	1,300 U	1,300 U	1,300 U	6,500 U	1,200 U	1,300 U	NA	NA	NA	NA	NA	NA	NA	1,200 U	1,500 U	1,600 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	120	NS	NS	--	--	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	130 U	1,200 U	130 U	**400**	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	NA	NA	NA	NA	NA	NA	NA	120 U	150 U	160 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	130 U	1,200 U	130 U	130 U	**810**	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	5.5 UJ	8 U	6 U	120 U	150 U	160 U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	5.5 UJ	8 U	6 U	120 U	150 U	160 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	130 U	1,200 U	**290**	**7,100**	**5,300**	650 U	120 U	**680**	8 UJ	NA	6 U	5 U	5.5 UJ	**3 J**	6 U	120 U	150 U	160 U
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	130 U	1,200 U	130 U	130 U	130 U	650 U	120 U	130 U	8 UJ	NA	6 U	5 U	5.5 UJ	**9**	6 U	120 U	150 U	160 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	STOCKPILE								AREA-1		AREA 1-1	AREA 1-2	AREA-2	AREA 1-4	AREA 1-5	BD-C1	BD-C4	BD-C7
						Depth Interval (ft)									0 - 1		0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	4.6 - 4.6	7.5 - 7.5	7.96 - 7.9
						Sample Date	09/26/00								07/08/91	12/15/96	12/15/96	12/15/96	07/09/91	12/15/96	12/15/96	10/10/00	10/10/00	10/12/00
						Sample ID	1120-DA-SP-8A	1120-DA-SP-8B	1120-DA-SP-8C	1120-DA-SP-8D	1120-DA-SP-8E	1120-DA-SP-8F	1120-DA-SP-8G	1120-DA-SP-8H	AREA 01	AREA 1 (COMP)	AREA 1-1	AREA 1-2	AREA 02	AREA 1-4	AREA 1-5	1120-BD-C1	1120-BD-C4	1120-BD-C7
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																		
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	8 UJ	NA	6 U	5 U	5.5 UJ	8 U	6 U	120 U	150 U	160 U
Semivolatiles																								
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	760 U	NA	NA	400 U	410 U	400 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	**67 J**	NA	NA	400 U	410 U	400 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	760 U	NA	NA	400 U	410 U	400 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	1,100 U	390 U	NA	NA	760 U	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	760 U	NA	NA	400 U	410 U	400 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	4.6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	760 U	NA	NA	400 U	410 U	400 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	NA	NA	3,600 U	NA	NA	NA	NA	**99 J**	390 U	NA	NA	**75 J**	NA	NA	400 U	410 U	400 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	NA	NA	NA	NA	NA	NA	NA	**59 J**	390 U	NA	NA	**57 J**	NA	NA	400 U	410 U	400 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	NA	NA	3,600 U	NA	NA	NA	NA	**180 J**	390 U	NA	NA	**130 J**	NA	NA	400 U	410 U	400 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	760 U	NA	NA	400 U	410 U	400 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	**65 J**	390 U	NA	NA	**42 J**	NA	NA	400 U	410 U	400 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	180,000 U	360,000 U	910,000 U	18,000 U	170,000 U	180,000 U	180,000 U	180,000 U	5,300 U	1,900 U	NA	NA	3,700 U	NA	NA	2,000 U	2,000 U	2,000 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	**244,000**	**1,087,000**	**2,356,000**	**26,000**	**365,000**	**501,000**	**679,000**	**676,000**	**2,900**	**130 JB**	NA	NA	**130 J**	NA	NA	400 U	**3,900**	400 U
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	760 U	NA	NA	400 U	410 U	400 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	**170 J**	390 U	NA	NA	**150 J**	NA	NA	400 U	410 U	400 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	NA	NA	NA	NA	NA	NA	NA	1,100 U	390 U	NA	NA	760 U	NA	NA	400 U	410 U	400 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	**44 JB**	NA	NA	760 U	NA	NA	400 U	410 U	400 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	36,000 U	**87,000**	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	**27 JB**	NA	NA	**14 J**	NA	NA	400 U	410 U	400 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	760 U	NA	NA	400 U	410 U	400 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	**250 J**	390 U	NA	NA	**190 J**	NA	NA	400 U	410 U	400 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	NA	NA	3,600 U	NA	NA	NA	NA	**64 J**	390 U	NA	NA	**51 J**	NA	NA	400 U	410 U	400 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	**49 J**	NA	NA	400 U	410 U	400 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**STOCKPILE**								**AREA-1**		**AREA 1-1**	**AREA 1-2**	**AREA-2**	**AREA 1-4**	**AREA 1-5**	**BD-C1**	**BD-C4**	**BD-C7**
						Depth Interval (ft)									**0 - 1**		**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**4.6 - 4.6**	**7.5 - 7.5**	**7.96 - 7.9**
						Sample Date	**09/26/00**								**07/08/91**	**12/15/96**	**12/15/96**	**12/15/96**	**07/09/91**	**12/15/96**	**12/15/96**	**10/10/00**	**10/10/00**	**10/12/00**
						Sample ID	**1120-DA-SP-8A**	**1120-DA-SP-8B**	**1120-DA-SP-8C**	**1120-DA-SP-8D**	**1120-DA-SP-8E**	**1120-DA-SP-8F**	**1120-DA-SP-8G**	**1120-DA-SP-8H**	**AREA 01**	**AREA 1 (COMP)**	**AREA 1-1**	**AREA 1-2**	**AREA 02**	**AREA 1-4**	**AREA 1-5**	**1120-BD-C1**	**1120-BD-C4**	**1120-BD-C7**
Normal (N) or Field Duplicate (FD) Sample							**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**																					
			S-1/ GW-1	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	36,000 U	**86,000**	180,000 U	3,600 U	**24,000 J**	36,000 U	**473,000**	36,000 U	1,100 U	390 U	NA	NA	760 U	NA	NA	400 U	410 U	400 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	**160 J**	390 U	NA	NA	**170 J**	NA	NA	400 U	410 U	400 U
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	1,100 U	390 U	NA	NA	760 U	NA	NA	400 U	410 U	400 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	36,000 U	72,000 U	180,000 U	3,600 U	35,000 U	36,000 U	36,000 U	36,000 U	**160 J**	390 U	NA	NA	**140 J**	NA	NA	400 U	410 U	400 U
Pesticides/PCBs																								
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	53 UJ	3.8 U	NA	NA	37 UJ	NA	NA	12 U	12 U	12 U
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	53 UJ	3.8 U	NA	NA	37 UJ	NA	NA	12 U	12 U	12 U
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	53 UJ	3.8 U	NA	NA	37 UJ	NA	NA	12 U	12 U	12 U
Aldrin	ug/kg	0.15	80	80	3,000	3,000	**14**	11 U	10 U	11 U	11 U	54 U	11 U	**59**	26 UJ	2 U	NA	NA	18 UJ	NA	NA	12 U	12 U	12 U
alpha-BHC	ug/kg	0.042	NS	NS	--	--	**25**	11 U	**48**	11 U	11 U	54 U	11 U	**100**	26 UJ	2 U	NA	NA	18 UJ	NA	NA	12 U	12 U	12 U
beta-BHC	ug/kg	0.15	NS	NS	--	--	11 U	11 U	10 U	11 U	11 U	54 U	11 U	**33**	26 UJ	2 U	NA	NA	18 UJ	NA	NA	12 U	12 U	12 U
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	260 UJ	2 U	NA	NA	180 UJ	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	53 UJ	3.8 U	NA	NA	37 UJ	NA	NA	12 U	12 U	12 U
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	26 UJ	2 U	NA	NA	18 UJ	NA	NA	12 U	12 U	12 U
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	53 UJ	3.8 U	NA	NA	37 UJ	NA	NA	12 U	12 U	12 U
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	26 UJ	3.8 U	NA	NA	18 UJ	NA	NA	12 U	12 U	12 U
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	53 UJ	3.8 U	NA	NA	37 UJ	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	11 U	**180**	**20**	11 U	11 U	**180**	**63**	**31**	26 UJ	2 U	NA	NA	18 UJ	NA	NA	12 U	12 U	12 U
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	26 UJ	2 U	NA	NA	18 UJ	NA	NA	12 U	12 U	12 U
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	11 U	11 U	10 U	11 U	11 U	54 U	11 U	11 U	26 UJ	2 U	NA	NA	18 UJ	NA	NA	12 U	12 U	12 U
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	260 UJ	2 U	NA	NA	180 UJ	NA	NA	NA	NA	NA
EPH																								
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																								
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**8,000**	**2,250 E**	NA	NA	**5,900**	NA	NA	**3,400**	**3,700**	**4,200**
Antimony	mg/kg	0.035	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	NA	NA	NA	NA	NA	NA	NA	**24**	**1.2 B**	NA	NA	**7**	NA	NA	2 U	1 U	**2**
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	**25**	**5.8 B**	NA	NA	**38**	NA	NA	NA	NA	NA
Beryllium	mg/kg	1.9	90	90	200	200	NA	NA	NA	NA	NA	NA	NA	NA	1.5 U	0.18 U	NA	NA	1.5 U	NA	NA	NA	NA	NA
Cadmium	mg/kg	0.069	70	70	100	100	**1**	**0.85**	**54**	**0.34**	**3.3**	**1.8**	**14**	**7.3**	1.1 U	0.18 U	NA	NA	1 U	NA	NA	0.3 U	0.3 U	0.3 U
Calcium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**1,200**	**1,000**	NA	NA	**720**	NA	NA	NA	NA	NA
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	**36**	**20**	**27**	**24**	**84**	**650**	**200**	**41**	**320**	**9.1 E**	NA	NA	**8.8**	NA	NA	**5.3**	**4.9**	**6.2**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**9.9**	**1.3 B**	NA	NA	1.5 U	NA	NA	NA	NA	NA
Copper	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**14**	**2.9 B**	NA	NA	**12**	NA	NA	NA	NA	NA
Iron	mg/kg	35	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**16,000**	**2,090 E**	NA	NA	**6,900**	NA	NA	**2,700**	**2,100**	**2,900**
Lead	mg/kg	NS	200	200	600	600	**4.7**	**4.3**	**4.6**	**6.3**	**3.5**	**4.1**	**3**	**4**	**58**	**2**	NA	NA	**36**	NA	NA	**1.8**	**2.1**	**1.9**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**STOCKPILE**								**AREA-1**		**AREA 1-1**	**AREA 1-2**	**AREA-2**	**AREA 1-4**	**AREA 1-5**	**BD-C1**	**BD-C4**	**BD-C7**
						Depth Interval (ft)									**0 - 1**		**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**4.6 - 4.6**	**7.5 - 7.5**	**7.96 - 7.9**
						Sample Date	**09/26/00**								**07/08/91**	**12/15/96**	**12/15/96**	**12/15/96**	**07/09/91**	**12/15/96**	**12/15/96**	**10/10/00**	**10/10/00**	**10/12/00**
						Sample ID	**1120-DA-SP-8A**	**1120-DA-SP-8B**	**1120-DA-SP-8C**	**1120-DA-SP-8D**	**1120-DA-SP-8E**	**1120-DA-SP-8F**	**1120-DA-SP-8G**	**1120-DA-SP-8H**	**AREA 01**	**AREA 1 (COMP)**	**AREA 1-1**	**AREA 1-2**	**AREA 02**	**AREA 1-4**	**AREA 1-5**	**1120-BD-C1**	**1120-BD-C4**	**1120-BD-C7**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
Magnesium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**1,200**	**706 BE**	NA	NA	**610**	NA	NA	NA	NA	NA
Manganese	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**530**	**27.7 E**	NA	NA	**40**	NA	NA	NA	NA	NA
Mercury	mg/kg	0.0033	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	0.14 U	**0.11 N**	NA	NA	**0.15**	NA	NA	0.05 U	0.05 U	0.06 U
Nickel	mg/kg	2.6	600	600	1000	1000	NA	NA	NA	NA	NA	NA	NA	NA	**5.8**	**4 B**	NA	NA	**4.7**	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**520**	**222 B**	NA	NA	**240**	NA	NA	NA	NA	NA
Selenium	mg/kg	0.052	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	0.08	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**44**	**50.8 B**	NA	NA	**42**	NA	NA	NA	NA	NA
Thallium	mg/kg	0.0014	8	8	80	80	NA	NA	NA	NA	NA	NA	NA	NA	0.52 U	1.4 UN	NA	NA	0.5 U	NA	NA	NA	NA	NA
Tin	mg/kg	300	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	8.6	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	**18**	**4.3 B**	NA	NA	**18**	NA	NA	NA	NA	NA
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	**24**	**13.1**	NA	NA	**31**	NA	NA	NA	NA	NA
General Chemistry																								
Ammonia	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**43** NA	**143**	NA	NA	**25**	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**49 J**	NA	NA	NA	**68 J**	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	**190 J**	NA	NA	NA	**4.2 J**	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																								
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																				
Arsenic	mg/L	0.01	0.01	0.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**BD-C10**	**BD-C13**	**BH1**	**BH2**	**BH3**	**BH4**	**BH6**	**BH7**	**BH8**	**BH9**	**BH10**	**BS017PND**	**CP-C36**	**CP-C38**	**CP-C39**	**CP-C41**	**CP-C42**	**CP-C43**	**CP-C45**
						Depth Interval (ft)	**10.3 - 10.3**	**10.1 - 10.1**	**4.3 - 6.3**	**3.5 - 5.5**	**4.2 - 6.2**	**6.3 - 8.3**	**4.4 - 6.4**	**3 - 5**	**3 - 5**	**2.6 - 4.6**	**3.8 - 5.8**	**0 - 0**	**5.4 - 5.4**	**6.2 - 6.2**	**6.7 - 6.7**	**6.5 - 6.5**	**6.3 - 6.3**	**5 - 5**	**6.6 - 6.6**
						Sample Date	**10/12/00**	**10/12/00**	**06/05/91**	**06/05/91**	**06/05/91**	**06/05/91**	**06/06/91**	**06/06/91**	**06/07/91**	**06/07/91**	**06/07/91**	**01/21/97**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**
						Sample ID	**1120-BD-C10**	**1120-BD-C13**	**BH-01**	**BH-02**	**BH-03**	**BH-04**	**BH-06**	**BH-07**	**BH-08**	**BH-09**	**BH-10**	**BS017PND**	**1140-CP-C36**	**1140-CP-C38**	**1140-CP-C39**	**1140-CP-C41**	**1140-CP-C42**	**1140-CP-C43**	**1140-CP-C45**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Volatiles																									
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	150 U	150 U	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	150 U	150 U	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	150 U	150 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	150 U	150 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	150 U	150 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	150 U	150 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	150 U	150 U	0.0013 U	11 U	**2 J**	11 U	11 U	11 U	**35**	**3,300 J**	**18**	NA	NA	NA	120 U	NA	NA	NA	NA
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	150 U	150 U	0.0013 U	11 U	**1 J**	11 U	11 U	11 U	**16**	**910 J**	**10 J**	NA	NA	NA	120 U	NA	NA	NA	NA
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	3,100 U	3,100 U	**490 J**	82 U	**1 J**	**3 J**	**1 J**	16 U	16 U	16 U	18 U	NA	NA	NA	2,500 U	NA	NA	NA	NA
2-Hexanone	ug/kg	0.88	NS	NS	--	--	610 U	620 U	2,000 U	82 U	16 U	82 U	16 U	16 U	16 U	**61**	18 U	NA	NA	NA	490 U	NA	NA	NA	NA
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	150 U	150 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	3,100 U	3,100 U	**17,000**	**500**	**130**	**460**	16 U	16 U	16 U	19 U	18 U	NA	NA	NA	2,500 U	NA	NA	NA	NA
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	150 U	150 U	**100 J**	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	150 U	150 U	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	**2 J**	6 U	NA	NA	NA	120 U	NA	NA	NA	NA
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	150 U	150 U	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA
Isopropylbenzene	ug/kg	74	NS	NS	--	--	150 U	150 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	150 U	150 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	150 U	150 U	**2,000**	55 U	11 U	55 U	11 U	11 U	11 U	11 U	12 U	NA	NA	NA	**300 B**	NA	NA	NA	NA
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	1,500 U	1,500 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,200 U	NA	NA	NA	NA
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	120	NS	NS	--	--	150 U	150 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	150 U	150 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	150 U	150 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 U	NA	NA	NA	NA
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	150 U	150 U	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	150 U	150 U	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	**1 J**	6 U	NA	NA	NA	120 U	NA	NA	NA	NA
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	150 U	150 U	**150 J**	28 U	5.5 U	28 U	5.5 U	5.5 U	**1 J**	**1 J**	**1 J**	NA	NA	NA	120 U	NA	NA	NA	NA
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	150 U	150 U	**80 J**	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	BD-C10	BD-C13	BH1	BH2	BH3	BH4	BH6	BH7	BH8	BH9	BH10	BS017PND	CP-C36	CP-C38	CP-C39	CP-C41	CP-C42	CP-C43	CP-C45
						Depth Interval (ft)	10.3 - 10.3	10.1 - 10.1	4.3 - 6.3	3.5 - 5.5	4.2 - 6.2	6.3 - 8.3	4.4 - 6.4	3 - 5	3 - 5	2.6 - 4.6	3.8 - 5.8	0 - 0	5.4 - 5.4	6.2 - 6.2	6.7 - 6.7	6.5 - 6.5	6.3 - 6.3	5 - 5	6.6 - 6.6
						Sample Date	10/12/00	10/12/00	06/05/91	06/05/91	06/05/91	06/05/91	06/06/91	06/06/91	06/07/91	06/07/91	06/07/91	01/21/97	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00	10/05/00
						Sample ID	1120-BD-C10	1120-BD-C13	BH-01	BH-02	BH-03	BH-04	BH-06	BH-07	BH-08	BH-09	BH-10	BS017PND	1140-CP-C36	1140-CP-C38	1140-CP-C39	1140-CP-C41	1140-CP-C42	1140-CP-C43	1140-CP-C45
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																			
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	150 U	150 U	700 U	28 U	5.5 U	28 U	5.5 U	5.5 U	5.5 U	5.5 U	6 U	NA	NA	NA	120 U	NA	NA	NA	NA
Semivolatiles																									
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	**86 J**	690 U	**75 J**	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	4.6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**28 J**	790 U	**10 J**	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**80 J**	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**55 J**	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**84 J**	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	2,000 U	2,100 U	3,500 U	3,500 U	3,700 U	3,700 U	3,500 U	3,500 U	3,500 U	3,400 U	3,800 U	8,800 U	4,100 U	2,000 U	2,000 U	2,000 U	2,000 U	2,000 U	2,100 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	410 U	420 U	1,400 U	**3,500**	**1,700**	**27,000 J**	820 U	**2,500**	**3,900**	690 U	**8,200**	**8,600 B**	**6,200**	**2,000**	400 U	**540**	390 U	390 U	410 U
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	**35 J**	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**86 J**	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	**53 JB**	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	**46 JB**	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	410 U	420 U	730 U	730 U	760 U	**73 J**	**60 J**	**14 J**	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**160 J**	790 U	**37 J**	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	790 U	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	690 U	**630 J**	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**BD-C10**	**BD-C13**	**BH1**	**BH2**	**BH3**	**BH4**	**BH6**	**BH7**	**BH8**	**BH9**	**BH10**	**BS017PND**	**CP-C36**	**CP-C38**	**CP-C39**	**CP-C41**	**CP-C42**	**CP-C43**	**CP-C45**
						Depth Interval (ft)	**10.3 - 10.3**	**10.1 - 10.1**	**4.3 - 6.3**	**3.5 - 5.5**	**4.2 - 6.2**	**6.3 - 8.3**	**4.4 - 6.4**	**3 - 5**	**3 - 5**	**2.6 - 4.6**	**3.8 - 5.8**	**0 - 0**	**5.4 - 5.4**	**6.2 - 6.2**	**6.7 - 6.7**	**6.5 - 6.5**	**6.3 - 6.3**	**5 - 5**	**6.6 - 6.6**
						Sample Date	**10/12/00**	**10/12/00**	**06/05/91**	**06/05/91**	**06/05/91**	**06/05/91**	**06/06/91**	**06/06/91**	**06/07/91**	**06/07/91**	**06/07/91**	**01/21/97**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**
						Sample ID	**1120-BD-C10**	**1120-BD-C13**	**BH-01**	**BH-02**	**BH-03**	**BH-04**	**BH-06**	**BH-07**	**BH-08**	**BH-09**	**BH-10**	**BS017PND**	**1140-CP-C36**	**1140-CP-C38**	**1140-CP-C39**	**1140-CP-C41**	**1140-CP-C42**	**1140-CP-C43**	**1140-CP-C45**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	410 U	420 U	730 U	**160 J**	760 U	**290 J**	730 U	**150 J**	**570 J**	690 U	**980**	**260 J**	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**120 J**	790 U	**44 J**	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	**100 J**	690 U	**75 J**	1,800 U	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	410 U	420 U	730 U	730 U	760 U	760 U	730 U	730 U	730 U	**130 J**	790 U	**39 J**	820 U	400 U	400 U	390 U	390 U	390 U	410 U
Pesticides/PCBs																									
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	12 U	12 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	34 U	38 U	**0.19 J**	NA	NA	11 U	NA	NA	NA	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	12 U	12 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	34 U	38 U	**1.6 J**	NA	NA	11 U	NA	NA	NA	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	12 U	12 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	34 U	38 U	**3.2 J**	NA	NA	11 U	NA	NA	NA	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000	12 U	12 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	2.3 U	NA	NA	11 U	NA	NA	NA	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--	12 U	12 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	**0.56 J**	NA	NA	11 U	NA	NA	NA	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--	12 U	12 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	2.3 U	NA	NA	11 U	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	180 U	180 U	180 U	180 U	180 U	180 UJ	180 U	170 U	190 U	2.3 U	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	12 U	12 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	34 U	38 U	**0.4 J**	NA	NA	11 U	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	12 U	12 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	2.3 U	NA	NA	11 U	NA	NA	NA	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	12 U	12 U	35 U	35 U	35 U	35 U	35 U	35 U	35 U	34 U	38 U	4.5 U	NA	NA	11 U	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	12 U	12 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.5 U	NA	NA	11 U	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	35 U	35 U	**45**	35 U	35 U	35 UJ	35 U	34 U	38 U	4.5 U	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	12 U	12 U	18 U	18 U	**48**	18 U	18 U	18 U	18 U	17 U	19 U	**1.4 J**	NA	NA	11 U	NA	NA	NA	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	12 U	12 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	2.3 U	NA	NA	11 U	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	12 U	12 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	17 U	19 U	2.3 U	NA	NA	11 U	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	180 U	180 U	180 U	180 U	180 U	180 UJ	180 U	170 U	190 U	2.3 U	NA	NA	NA	NA	NA	NA	NA
EPH																									
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																									
Aluminum	mg/kg	3,000	NS	NS	--	--	**2,600**	**2,600**	**7,600**	**8,300**	**9,000**	**9,200**	**10,000**	**7,900**	**4,100**	**9,800**	**460**	**4,810**	NA	NA	**5,000**	NA	NA	NA	NA
Antimony	mg/kg	0.035	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	2 U	1 U	**8**	**12**	**21**	**13**	**16**	**4.3**	**4.6**	**13**	**1.1**	**24.5**	NA	NA	**4.8**	NA	NA	NA	NA
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	NA	**16**	**30**	**29**	**36**	**39**	**28**	**14**	**23**	**6.6**	**9.2 B**	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	1.9	90	90	200	200	NA	NA	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	0.24 U	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	0.069	70	70	100	100	0.3 U	0.3 U	1 U	1 U	**1.8**	**1.4**	**1.2**	1 U	**1.4**	**1.2**	1 U	0.24 U	NA	NA	0.3 U	NA	NA	NA	NA
Calcium	mg/kg	NS	NS	NS	--	--	NA	NA	**16,000**	**3,700**	**8,700**	**4,900**	**2,500**	**4,300**	**4,500**	**1,600**	**2,600**	**371 B**	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	**4.8**	**5**	**100**	**21**	**36**	**41**	**25**	**160**	**22**	**27**	**7.3**	**305**	**500**	**490**	**1,600**	**230**	**710**	**490**	**560**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	NA	**2.9**	**3.8**	**5**	**6.2**	**7.2**	**2.3**	**1.8**	**5.2**	1.5 U	**1.9 B**	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	2.8	NS	NS	--	--	NA	NA	**8.2**	**9.8**	**10**	**47**	**14**	**12**	**4**	**10**	2.5 U	**4.3 B**	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	35	NS	NS	--	--	**2,300**	**2,500**	**7,800**	**9,500**	**11,000**	**14,000**	**13,000**	**9,400**	**5,100**	**15,000**	**840**	**20,000 ***	NA	NA	**3,800**	NA	NA	NA	NA
Lead	mg/kg	NS	200	200	600	600	**2**	**1.8**	10 U	**11**	10 U	**52**	10 U	10 U	10 U	10 U	10 U	**14.1**	NA	NA	**4**	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**BD-C10**	**BD-C13**	**BH1**	**BH2**	**BH3**	**BH4**	**BH6**	**BH7**	**BH8**	**BH9**	**BH10**	**BS017PND**	**CP-C36**	**CP-C38**	**CP-C39**	**CP-C41**	**CP-C42**	**CP-C43**	**CP-C45**
						Depth Interval (ft)	**10.3 - 10.3**	**10.1 - 10.1**	**4.3 - 6.3**	**3.5 - 5.5**	**4.2 - 6.2**	**6.3 - 8.3**	**4.4 - 6.4**	**3 - 5**	**3 - 5**	**2.6 - 4.6**	**3.8 - 5.8**	**0 - 0**	**5.4 - 5.4**	**6.2 - 6.2**	**6.7 - 6.7**	**6.5 - 6.5**	**6.3 - 6.3**	**5 - 5**	**6.6 - 6.6**
						Sample Date	**10/12/00**	**10/12/00**	**06/05/91**	**06/05/91**	**06/05/91**	**06/05/91**	**06/06/91**	**06/06/91**	**06/07/91**	**06/07/91**	**06/07/91**	**01/21/97**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**
						Sample ID	**1120-BD-C10**	**1120-BD-C13**	**BH-01**	**BH-02**	**BH-03**	**BH-04**	**BH-06**	**BH-07**	**BH-08**	**BH-09**	**BH-10**	**BS017PND**	**1140-CP-C36**	**1140-CP-C38**	**1140-CP-C39**	**1140-CP-C41**	**1140-CP-C42**	**1140-CP-C43**	**1140-CP-C45**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Magnesium	mg/kg	NS	NS	NS	--	--	NA	NA	**1,900**	**2,600**	**4,000**	**3,800**	**4,000**	**2,300**	**1,800**	**4,700**	**150**	**325 B**	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	2.8	NS	NS	--	--	NA	NA	**72**	**140**	**130**	**230**	**250**	**140**	**76**	**320**	**7.6**	**99.9**	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	0.0033	20	20	30	30	0.05 U	0.05 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.12 U	NA	NA	0.05 U	NA	NA	NA	NA
Nickel	mg/kg	2.6	600	600	1000	1000	NA	NA	**6.7**	**11**	**18**	**14**	**18**	**8.9**	**4.8**	**12**	4 U	**1.8 B**	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NS	--	--	NA	NA	**670**	**1,100**	**1,800**	**1,400**	**2,100**	**1,100**	**1,000**	**1,300**	**160**	**119 BE**	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	0.052	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	0.08	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NS	--	--	NA	NA	**67**	**79**	**100**	**240**	**160**	**140**	**95**	**140**	**70**	**85.4 BE**	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.0014	8	8	80	80	NA	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.64 U	0.5 U	0.5 U	0.5 U	0.5 U	1.7 U	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	300	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	8.6	400	400	700	700	NA	NA	**12**	**12**	**17**	**21**	**18**	**16**	**5.9**	**18**	1.5 U	**18.4**	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	NA	**21**	**24**	**30**	**84**	**31**	**17**	**14**	**27**	2.5 U	**7 E**	NA	NA	NA	NA	NA	NA	NA
General Chemistry																									
Ammonia	mg/kg	NS	NS	NS	--	--	NA	NA	**210 J**	**91 J**	**28 J**	**100 J**	**30 J**	**48 J**	**33 J**	**8.4 J**	**72 J**	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NS	--	--	NA	NA	**100 J**	**57 J**	40 UJ	40 UJ	**88 J**	**71 J**	40 UJ	40 UJ	**62 J**	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NS	--	--	NA	NA	**16,000 J**	**7,700 J**	**6,600 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	**33,000 J**	**1,300 J**	**680 J**	**2,000 J**	**210 J**	**6,100 J**	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	**28,000 J**	NA	**8,700**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																									
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																					
Arsenic	mg/L	0.01	0.01	0.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**CP-C46**	**CP-C47**	**CP-C49**	**CP-C50**	**CP-C52**	**CP-C53**	**CP-C54**	**CP-C55**	**CP-C56**	**CP-C57**	**CP-C58**	**CP-C59**	**CP-C60**	**CP-C61**	**CP-C62**	**CP-C64**	**CP-C65**	**CP-C66**	**CP-C67**
						Depth Interval (ft)	**6.1 - 6.1**	**5.4 - 5.4**	**6.8 - 6.8**	**4.8 - 4.8**	**8.7 - 8.7**	**8.5 - 8.5**	**3.3 - 3.3**	**4.1 - 4.1**	**4.1 - 4.1**	**4.4 - 4.4**	**4.5 - 4.5**	**4.9 - 4.9**	**5.5 - 5.5**	**5.4 - 5.4**	**3.7 - 3.7**	**5.2 - 5.2**	**5.3 - 5.3**	**5.1 - 5.1**	**4.7 - 4.7**
						Sample Date	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/09/00**	**10/09/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**
						Sample ID	**1140-CP-C46**	**1140-CP-C47**	**1140-CP-C49**	**1140-CP-C50**	**1140-CP-C52**	**1140-CP-C53**	**1140-CP-C54**	**1140-CP-C55**	**1140-CP-C56**	**1140-CP-C57**	**1140-CP-C58**	**1140-CP-C59**	**1140-CP-C60**	**1140-CP-C61**	**1140-CP-C62**	**1140-CP-C64**	**1140-CP-C65**	**1140-CP-C66**	**1140-CP-C67**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Volatiles																									
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	**410**	NA	NA
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	3,000 U	2,900 U	NA	NA	NA	NA	NA	3,000 U	NA	NA	NA	3,900 U	NA	NA	NA	2,900 U	NA	NA
2-Hexanone	ug/kg	0.88	NS	NS	--	--	NA	600 U	580 U	NA	NA	NA	NA	NA	590 U	NA	NA	NA	790 U	NA	NA	NA	570 U	NA	NA
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	3,000 U	2,900 U	NA	NA	NA	NA	NA	3,000 U	NA	NA	NA	3,900 U	NA	NA	NA	2,900 U	NA	NA
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	NA	**210 B**	**440 B**	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	1,500 U	1,400 U	NA	NA	NA	NA	NA	1,500 U	NA	NA	NA	2,000 U	NA	NA	NA	1,400 U	NA	NA
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	**230**	NA	NA
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**CP-C46**	**CP-C47**	**CP-C49**	**CP-C50**	**CP-C52**	**CP-C53**	**CP-C54**	**CP-C55**	**CP-C56**	**CP-C57**	**CP-C58**	**CP-C59**	**CP-C60**	**CP-C61**	**CP-C62**	**CP-C64**	**CP-C65**	**CP-C66**	**CP-C67**
						Depth Interval (ft)	**6.1 - 6.1**	**5.4 - 5.4**	**6.8 - 6.8**	**4.8 - 4.8**	**8.7 - 8.7**	**8.5 - 8.5**	**3.3 - 3.3**	**4.1 - 4.1**	**4.1 - 4.1**	**4.4 - 4.4**	**4.5 - 4.5**	**4.9 - 4.9**	**5.5 - 5.5**	**5.4 - 5.4**	**3.7 - 3.7**	**5.2 - 5.2**	**5.3 - 5.3**	**5.1 - 5.1**	**4.7 - 4.7**
						Sample Date	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/09/00**	**10/09/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**
						Sample ID	**1140-CP-C46**	**1140-CP-C47**	**1140-CP-C49**	**1140-CP-C50**	**1140-CP-C52**	**1140-CP-C53**	**1140-CP-C54**	**1140-CP-C55**	**1140-CP-C56**	**1140-CP-C57**	**1140-CP-C58**	**1140-CP-C59**	**1140-CP-C60**	**1140-CP-C61**	**1140-CP-C62**	**1140-CP-C64**	**1140-CP-C65**	**1140-CP-C66**	**1140-CP-C67**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	150 U	140 U	NA	NA	NA	NA	NA	150 U	NA	NA	NA	200 U	NA	NA	NA	140 U	NA	NA
Semivolatiles																									
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	4.6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	NA	NA	1,600 U	NA	NA	NA	400 U	400 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	1,900 U	2,000 U	2,100 U	1,800 U	1,900 U	2,000 U	2,100 U	1,900 U	2,000 U	1,900 U	1,900 U	18,000 UC	27,000 U	8,000 U	11,000 U	19,000 UC	38,000 UC	2,000 U	2,000 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	380 U	**250 J**	420 U	370 U	390 U	400 U	**460**	370 U	**1,100**	**1,000**	**670**	**26,000 C**	**5,000 J**	**5,500**	**7,900**	**22,000 C**	**46,000 C**	**220 J**	**540**
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 U	7,600 UC	400 U	400 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	NA	NA	1,600 U	NA	NA	NA	400 U	400 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**CP-C46**	**CP-C47**	**CP-C49**	**CP-C50**	**CP-C52**	**CP-C53**	**CP-C54**	**CP-C55**	**CP-C56**	**CP-C57**	**CP-C58**	**CP-C59**	**CP-C60**	**CP-C61**	**CP-C62**	**CP-C64**	**CP-C65**	**CP-C66**	**CP-C67**
						Depth Interval (ft)	**6.1 - 6.1**	**5.4 - 5.4**	**6.8 - 6.8**	**4.8 - 4.8**	**8.7 - 8.7**	**8.5 - 8.5**	**3.3 - 3.3**	**4.1 - 4.1**	**4.1 - 4.1**	**4.4 - 4.4**	**4.5 - 4.5**	**4.9 - 4.9**	**5.5 - 5.5**	**5.4 - 5.4**	**3.7 - 3.7**	**5.2 - 5.2**	**5.3 - 5.3**	**5.1 - 5.1**	**4.7 - 4.7**
						Sample Date	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/09/00**	**10/09/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**
						Sample ID	**1140-CP-C46**	**1140-CP-C47**	**1140-CP-C49**	**1140-CP-C50**	**1140-CP-C52**	**1140-CP-C53**	**1140-CP-C54**	**1140-CP-C55**	**1140-CP-C56**	**1140-CP-C57**	**1140-CP-C58**	**1140-CP-C59**	**1140-CP-C60**	**1140-CP-C61**	**1140-CP-C62**	**1140-CP-C64**	**1140-CP-C65**	**1140-CP-C66**	**1140-CP-C67**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	**11,000 C**	**3,100 J**	1,600 U	**9,900**	**54,000 C**	**15,000 C**	400 U	400 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UC	5,500 U	1,600 U	2,300 U	3,800 UC	7,600 UC	400 U	400 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	380 U	400 U	420 U	370 U	390 U	400 U	420 U	370 U	400 U	370 U	390 U	3,700 UCK	5,500 UK	1,600 UK	2,300 UK	3,800 UC	7,600 UCK	400 UK	400 UK
Pesticides/PCBs																									
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	NA	12 U	13 U	NA	NA	NA	NA	NA	12 U	NA	NA	NA	160 U	NA	NA	NA	110 U	NA	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																									
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																									
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	**4,400**	**3,700**	NA	NA	NA	NA	NA	**5,700**	NA	NA	NA	**6,600**	NA	NA	NA	**5,500**	NA	NA
Antimony	mg/kg	0.035	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	**2.8**	**3.2**	NA	NA	NA	NA	NA	**4.9**	NA	NA	NA	**8.8**	NA	NA	NA	**6**	NA	NA
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	1.9	90	90	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	0.069	70	70	100	100	NA	0.3 U	0.3 U	NA	NA	NA	NA	NA	0.3 U	NA	NA	NA	0.4 U	NA	NA	NA	**0.36**	NA	NA
Calcium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	**420**	**260**	**660**	**630**	**970**	**29**	**510**	**410**	**680**	**240**	**530**	**27**	**100**	**350**	**88**	**20**	**52**	**470**	**250**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	35	NS	NS	--	--	NA	**5,400**	**4,000**	NA	NA	NA	NA	NA	**5,000**	NA	NA	NA	**9,000**	NA	NA	NA	**6,900**	NA	NA
Lead	mg/kg	NS	200	200	600	600	NA	**2.6**	**2.2**	NA	NA	NA	NA	NA	**3.1**	NA	NA	NA	**17**	NA	NA	NA	**6.6**	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**CP-C46**	**CP-C47**	**CP-C49**	**CP-C50**	**CP-C52**	**CP-C53**	**CP-C54**	**CP-C55**	**CP-C56**	**CP-C57**	**CP-C58**	**CP-C59**	**CP-C60**	**CP-C61**	**CP-C62**	**CP-C64**	**CP-C65**	**CP-C66**	**CP-C67**
						Depth Interval (ft)	**6.1 - 6.1**	**5.4 - 5.4**	**6.8 - 6.8**	**4.8 - 4.8**	**8.7 - 8.7**	**8.5 - 8.5**	**3.3 - 3.3**	**4.1 - 4.1**	**4.1 - 4.1**	**4.4 - 4.4**	**4.5 - 4.5**	**4.9 - 4.9**	**5.5 - 5.5**	**5.4 - 5.4**	**3.7 - 3.7**	**5.2 - 5.2**	**5.3 - 5.3**	**5.1 - 5.1**	**4.7 - 4.7**
						Sample Date	**10/05/00**	**10/05/00**	**10/05/00**	**10/05/00**	**10/09/00**	**10/09/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/10/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**	**10/20/00**
						Sample ID	**1140-CP-C46**	**1140-CP-C47**	**1140-CP-C49**	**1140-CP-C50**	**1140-CP-C52**	**1140-CP-C53**	**1140-CP-C54**	**1140-CP-C55**	**1140-CP-C56**	**1140-CP-C57**	**1140-CP-C58**	**1140-CP-C59**	**1140-CP-C60**	**1140-CP-C61**	**1140-CP-C62**	**1140-CP-C64**	**1140-CP-C65**	**1140-CP-C66**	**1140-CP-C67**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Magnesium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	0.0033	20	20	30	30	NA	0.05 U	0.05 U	NA	NA	NA	NA	NA	0.05 U	NA	NA	NA	**0.12**	NA	NA	NA	0.05 U	NA	NA
Nickel	mg/kg	2.6	600	600	1000	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	0.052	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	0.08	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.0014	8	8	80	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	300	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	8.6	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																									
Ammonia	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																									
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																					
Arsenic	mg/L	0.01	0.01	0.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

						Sample Location	**CP-C68**	**CP-C69**	**CP-C70**	**CPDA-1**	**CPDA-1-A**	**CPDA-2**	**CPDA-3**	**CPDA-4**	**DA-C2**	**DA-C3**	**DA-C4**	**DA-C5**	**DA-C6**	**DA-C7**	**DA-C8**	**DA-C9**	**DA-C10**	**DA-C11**	**DA-C12**
						Depth Interval (ft)	**4.1 - 4.1**	**4.3 - 4.3**	**4.2 - 4.2**	**0 - 1**	**2.9 - 5.09**	**0 - 1**	**0 - 1**	**0 - 1**	**1.4 - 4.4**	**1.6 - 4.6**	**1.7 - 4.7**	**0.3 - 2.3**	**0.5 - 3.5**	**7.2 - 7.2**	**6.9 - 6.9**	**0.3 - 0.3**	**0.2 - 1.8**	**0 - 3**	**7 - 7**
						Sample Date	**10/20/00**	**10/20/00**	**10/20/00**	**12/16/96**	**01/24/00**	**12/16/96**	**12/16/96**	**12/16/96**	**09/18/00**	**09/29/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**
						Sample ID	**1140-CP-C68**	**1140-CP-C69**	**1140-CP-C70**	**CPDA-1**	**CPD-1-A (0-3 FT)**	**CPDA-2**	**CPDA-3**	**CPDA-4**	**1120-DA-C2**	**1120-DA-C3**	**1120-DA-C4**	**1120-DA-C5**	**1120-DA-C6**	**1120-DA-C7**	**1120-DA-C8**	**1120-DA-C9**	**1120-DA-C10**	**1120-DA-C11**	**1120-DA-C12**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical		**SSL**	**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Volatiles																									
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	NA	140 U	NA	7 U	NA	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	NA	140 U	NA	7 U	NA	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	140 U	NA	NA	NA	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	140 U	NA	NA	NA	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	140 U	NA	NA	NA	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	140 U	NA	NA	NA	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	140 U	NA	7 U	NA	11 U	7 UJ	**14 J**	130 U	130 U	140 U	120 U	120 U	140 U	**670**	120 U	130 U	120 U	150 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	140 U	NA	7 U	NA	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	**180**	120 U	130 U	120 U	150 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	2,700 U	NA	14 U	NA	22 U	13 U	28 U	2,700 U	2,600 U	2,800 U	2,500 U	2,300 U	2,800 U	2,800 U	2,400 U	2,600 U	2,400 U	3,000 U
2-Hexanone	ug/kg	0.88	NS	NS	--	--	NA	540 U	NA	14 U	NA	22 U	13 UJ	28 UJ	540 U	520 U	560 U	500 U	460 U	560 U	570 U	470 U	530 U	490 U	590 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	140 U	NA	NA	NA	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	2,700 U	NA	**13 J**	NA	**56**	31 U	60 U	2,700 U	2,600 U	2,800 U	2,500 U	2,300 U	2,800 U	2,800 U	2,400 U	2,600 U	2,400 U	3,000 U
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	140 U	NA	7 U	NA	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	NA	140 U	NA	7 U	NA	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	140 U	NA	7 U	NA	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	140 U	NA	NA	NA	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	140 U	NA	NA	NA	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	NA	**150**	NA	7 U	NA	**4 J**	7 U	14 U	**160 B**	**160 B**	**170 B**	**200 B**	**170 B**	**180 B**	**240 B**	**170 B**	**210 B**	**170 B**	**150 JB**
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	1,400 U	NA	NA	NA	NA	NA	NA	1,300 U	1,300 U	1,400 U	1,200 U	1,200 U	1,400 U	1,400 U	1,200 U	1,300 U	1,200 U	1,500 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	140 U	NA	NA	NA	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	140 U	NA	NA	NA	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	NA	140 U	NA	NA	NA	NA	NA	NA	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	140 U	NA	7 U	NA	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	NA	140 U	NA	7 U	NA	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	140 U	NA	7 U	NA	11 U	7 U	**5 J**	130 U	130 U	140 U	120 U	120 U	140 U	**1,500**	120 U	130 U	120 U	**140 J**
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	NA	140 U	NA	7 U	NA	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	CP-C68	CP-C69	CP-C70	CPDA-1	CPDA-1-A	CPDA-2	CPDA-3	CPDA-4	DA-C2	DA-C3	DA-C4	DA-C5	DA-C6	DA-C7	DA-C8	DA-C9	DA-C10	DA-C11	DA-C12
						Depth Interval (ft)	4.1 - 4.1	4.3 - 4.3	4.2 - 4.2	0 - 1	2.9 - 5.09	0 - 1	0 - 1	0 - 1	1.4 - 4.4	1.6 - 4.6	1.7 - 4.7	0.3 - 2.3	0.5 - 3.5	7.2 - 7.2	6.9 - 6.9	0.3 - 0.3	0.2 - 1.8	0 - 3	7 - 7
						Sample Date	10/20/00	10/20/00	10/20/00	12/16/96	01/24/00	12/16/96	12/16/96	12/16/96	09/18/00	09/29/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00	09/18/00
						Sample ID	1140-CP-C68	1140-CP-C69	1140-CP-C70	CPDA-1	CPD-1-A (0-3 FT)	CPDA-2	CPDA-3	CPDA-4	1120-DA-C2	1120-DA-C3	1120-DA-C4	1120-DA-C5	1120-DA-C6	1120-DA-C7	1120-DA-C8	1120-DA-C9	1120-DA-C10	1120-DA-C11	1120-DA-C12
Normal (N) or Field Duplicate (FD) Sample			MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	11/2019 MCL-based SSL	S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																			
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	140 U	NA	7 U	NA	11 U	7 U	14 U	130 U	130 U	140 U	120 U	120 U	140 U	140 U	120 U	130 U	120 U	150 U
Semivolatiles																									
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	390 U	400 U	400 U	660 U	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	390 U	400 U	400 U	660 U	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	390 U	400 U	400 U	660 U	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	NA	660 U	NA	630 U	960 U	660 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	390 U	400 U	400 U	660 U	NA	630 U	960 U	**66 J**	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	4.6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	390 U	400 U	400 U	660 U	NA	630 U	960 U	**57 J**	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	390 U	400 U	400 U	**35 J**	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	390 U	400 U	400 U	**42 J**	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	NA	430 U	840 U	350 U	350 U	350 U	420 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	390 U	400 U	400 U	**51 J**	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	390 U	400 U	400 U	660 U	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	390 U	400 U	400 U	**55 J**	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	2,000 U	2,000 U	2,000 U	3,200 U	NA	**200 J**	4,600 U	**260 J**	3,600 U	3,800 U	1,900 U	1,800 U	18,000 U	2,200 U	4,200 U	1,800 U	1,800 U	1,800 U	2,100 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	**540**	400 U	400 U	**850 B**	NA	**540 JB**	**5,300**	**1,100**	**8,500**	**9,600**	**3,900**	**1,700**	**19,000**	**7,600**	**980**	**2,300**	**3,800**	**5,800**	**8,200**
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	390 U	400 U	400 U	660 U	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	390 U	400 U	400 U	**52 J**	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	390 U	400 U	400 U	660 U	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	NA	430 U	840 U	350 U	350 U	350 U	420 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	390 U	400 U	400 U	**36 J**	NA	**24 J**	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	390 U	400 U	400 U	**67 JB**	NA	**23 JB**	960 U	660 U	**390 J**	770 U	**1,600**	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	390 U	400 U	400 U	660 U	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	390 U	400 U	400 U	**100 J**	NA	630 U	960 U	**98 J**	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	390 U	400 U	400 U	660 U	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	390 U	400 U	400 U	660 U	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**CP-C68**	**CP-C69**	**CP-C70**	**CPDA-1**	**CPDA-1-A**	**CPDA-2**	**CPDA-3**	**CPDA-4**	**DA-C2**	**DA-C3**	**DA-C4**	**DA-C5**	**DA-C6**	**DA-C7**	**DA-C8**	**DA-C9**	**DA-C10**	**DA-C11**	**DA-C12**
						Depth Interval (ft)	**4.1 - 4.1**	**4.3 - 4.3**	**4.2 - 4.2**	**0 - 1**	**2.9 - 5.09**	**0 - 1**	**0 - 1**	**0 - 1**	**1.4 - 4.4**	**1.6 - 4.6**	**1.7 - 4.7**	**0.3 - 2.3**	**0.5 - 3.5**	**7.2 - 7.2**	**6.9 - 6.9**	**0.3 - 0.3**	**0.2 - 1.8**	**0 - 3**	**7 - 7**
						Sample Date	**10/20/00**	**10/20/00**	**10/20/00**	**12/16/96**	**01/24/00**	**12/16/96**	**12/16/96**	**12/16/96**	**09/18/00**	**09/29/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**
						Sample ID	**1140-CP-C68**	**1140-CP-C69**	**1140-CP-C70**	**CPDA-1**	**CPD-1-A (0-3 FT)**	**CPDA-2**	**CPDA-3**	**CPDA-4**	**1120-DA-C2**	**1120-DA-C3**	**1120-DA-C4**	**1120-DA-C5**	**1120-DA-C6**	**1120-DA-C7**	**1120-DA-C8**	**1120-DA-C9**	**1120-DA-C10**	**1120-DA-C11**	**1120-DA-C12**
Normal (N) or Field Duplicate (FD) Sample							**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**																						
			S-1/ GW-1	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	390 U	400 U	400 U	660 U	NA	630 U	960 U	660 U	**1,200**	**480 J**	380 U	360 U	3,500 U	430 U	840 U	350 U	**240 J**	**320 J**	**6,000**
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	390 U	400 U	400 U	**52 J**	NA	630 U	960 U	**120 J**	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	390 U	400 U	400 U	660 U	NA	630 U	960 U	660 U	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	390 U	400 U	400 UK	**76 J**	NA	630 U	960 U	**68 J**	730 U	770 U	380 U	360 U	3,500 U	430 U	840 U	350 U	350 U	350 U	420 U
Pesticides/PCBs																									
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	NA	12 U	NA	**1.6 J**	NA	6.3 U	**1.3 J**	6.6 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	NA	12 U	NA	**2 J**	NA	6.3 U	**2.6 J**	6.6 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	NA	12 U	NA	6 U	NA	6.3 U	**12 J**	6.6 UJ	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
Aldrin	ug/kg	0.15	80	80	3,000	3,000	NA	12 U	NA	3.1 U	NA	**0.96 J**	3.5 U	**0.11 J**	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
alpha-BHC	ug/kg	0.042	NS	NS	--	--	NA	12 U	NA	3.1 U	NA	3.3 U	3.5 U	3.4 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
beta-BHC	ug/kg	0.15	NS	NS	--	--	NA	12 U	NA	3.1 U	NA	3.3 U	3.5 U	3.4 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	**4.9**	NA	3.3 U	3.5 U	3.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	NA	12 U	NA	6 U	NA	6.3 U	6.9 U	6.6 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	NA	12 U	NA	**1.9 J**	NA	3.3 U	3.5 U	3.4 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	NA	12 U	NA	6 U	NA	6.3 U	6.9 U	6.6 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	NA	12 U	NA	6 U	NA	6.3 U	6.9 U	6.6 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA	6 U	NA	6.3 U	**3.1 J**	6.6 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	NA	12 U	NA	**0.73 J**	NA	3.3 U	**6.1**	3.4 U	**690 F**	**27**	11 U	11 U	**74**	**20**	13 U	11 U	11 U	11 U	12 U
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	NA	12 U	NA	3.1 U	NA	3.3 U	3.5 U	**0.4 J**	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	NA	12 U	NA	3.1 U	NA	3.3 U	3.5 U	3.4 U	110 U	11 U	11 U	11 U	10 U	13 U	13 U	11 U	11 U	11 U	12 U
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	3.1 U	NA	3.3 U	3.5 UJ	3.4 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																									
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																									
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	**5,500**	NA	NA	**4,800**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/kg	0.035	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	**89**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	NA	NA	NA	**9.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	1.9	90	90	200	200	NA	NA	NA	NA	**0.12**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	0.069	70	70	100	100	NA	**0.37**	NA	NA	0.2 U	NA	NA	NA	**1.4**	**7.3**	**0.32**	0.3 U	0.3 U	**0.35**	0.3 U	**0.71**	0.3 U	0.3 U	0.3 U
Calcium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	**560**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	**280**	**540**	**37**	**3,010 *N**	**24**	**3.6 *N**	**270**	**17**	**94**	**42**	**43**	**52**	**60**	**73**	**5.1**	**4.5**	**27**	**10**	**30**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	NA	NA	NA	**1.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	23 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	35	NS	NS	--	--	NA	**25,000**	NA	NA	**3,500**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	NS	200	200	600	600	NA	**4.2**	NA	NA	**3.4**	NA	NA	NA	**3.9**	**4.3**	**10**	**7.1**	**4.4**	**2.5**	**2.1**	**1.5**	**2**	**3**	**4.2**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**CP-C68**	**CP-C69**	**CP-C70**	**CPDA-1**	**CPDA-1-A**	**CPDA-2**	**CPDA-3**	**CPDA-4**	**DA-C2**	**DA-C3**	**DA-C4**	**DA-C5**	**DA-C6**	**DA-C7**	**DA-C8**	**DA-C9**	**DA-C10**	**DA-C11**	**DA-C12**
						Depth Interval (ft)	**4.1 - 4.1**	**4.3 - 4.3**	**4.2 - 4.2**	**0 - 1**	**2.9 - 5.09**	**0 - 1**	**0 - 1**	**0 - 1**	**1.4 - 4.4**	**1.6 - 4.6**	**1.7 - 4.7**	**0.3 - 2.3**	**0.5 - 3.5**	**7.2 - 7.2**	**6.9 - 6.9**	**0.3 - 0.3**	**0.2 - 1.8**	**0 - 3**	**7 - 7**
						Sample Date	**10/20/00**	**10/20/00**	**10/20/00**	**12/16/96**	**01/24/00**	**12/16/96**	**12/16/96**	**12/16/96**	**09/18/00**	**09/29/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**
						Sample ID	**1140-CP-C68**	**1140-CP-C69**	**1140-CP-C70**	**CPDA-1**	**CPD-1-A (0-3 FT)**	**CPDA-2**	**CPDA-3**	**CPDA-4**	**1120-DA-C2**	**1120-DA-C3**	**1120-DA-C4**	**1120-DA-C5**	**1120-DA-C6**	**1120-DA-C7**	**1120-DA-C8**	**1120-DA-C9**	**1120-DA-C10**	**1120-DA-C11**	**1120-DA-C12**
Normal (N) or Field Duplicate (FD) Sample							**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**																						
			S-1/ GW-1	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Magnesium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	**950**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	**34**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	0.0033	20	20	30	30	NA	0.05 U	NA	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	2.6	600	600	1000	1000	NA	NA	NA	NA	**4.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	**230**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	0.052	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	0.08	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	**80**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.0014	8	8	80	80	NA	NA	NA	NA	0.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	300	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	8.6	400	400	700	700	NA	NA	NA	NA	**6.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	NA	NA	NA	**11**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																									
Ammonia	mg/kg	NS	NS	NS	--	--	NA	NA	NA	**363**	NA	**126**	**153**	**161**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	NA	NA	NA	**590**	NA	**26,800**	**650**	**24,900**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																									
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																					
Arsenic	mg/L	0.01	0.01	0.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**DA-C13**	**DA-C14**	**DA-C15**	**DA-C16**	**DA-C17**	**DA-C18**	**DA-C19**	**DA-C20**	**DA-C21**	**DA-C22**	**DA-C23**	**DA-C24**	**DA-C27**	**DA-C28**	**DA-C29**	**DA-C30**	**DA-C31**	**DA-C32**
						Depth Interval (ft)	**7 - 7**	**5.9 - 5.9**	**1.2 - 4.2**	**1.2 - 4.2**	**6.2 - 6.2**	**6.3 - 6.3**	**1.3 - 4.3**	**0.3 - 3.3**	**6.4 - 6.4**	**6 - 6**	**6.1 - 6.1**	**5.7 - 5.7**	**1.6 - 4.6**	**2.7 - 5.7**	**6.2 - 6.2**	**6.5 - 9.5**	**4.9 - 7.9**	**5 - 8**
						Sample Date	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**
						Sample ID	**1120-DA-C13**	**1120-DA-C14**	**1120-DA-C15**	**1120-DA-C16**	**1120-DA-C17**	**1120-DA-C18**	**1120-DA-C19**	**1120-DA-C20**	**1120-DA-C21**	**1120-DA-C22**	**1120-DA-C23**	**1120-DA-C24**	**1120-DA-C27**	**1120-DA-C28**	**1120-DA-C29-RISK**	**1120-DA-C30**	**1120-DA-C31**	**1120-DA-C32**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
Volatiles																								
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	**68,000**	**7,100**	130 U	120 U	**440**	140 U	130 U	130 U	**420**	**1,000**	160 U	150 U	130 U	140 U	**4,650**	**370**	120 U	130 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	**27,000**	**2,600**	130 U	120 U	140 U	140 U	130 U	130 U	150 U	**350**	160 U	150 U	130 U	140 U	**1,800**	130 U	120 U	130 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	15,000 U	2,500 U	2,600 U	2,300 U	2,700 U	2,900 U	2,600 U	2,600 U	3,000 U	2,700 U	3,100 U	3,000 U	2,600 U	2,800 U	3,000 U	2,600 U	2,500 U	2,600 U
2-Hexanone	ug/kg	0.88	NS	NS	--	--	3,000 U	510 U	520 U	460 U	550 U	580 U	520 U	520 U	590 U	530 U	620 U	590 U	510 U	560 U	610 U	520 U	500 U	510 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	**3,200**	**1,700**	130 U	120 U	**9,200**	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	**750**	130 U	120 U	130 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	15,000 U	2,500 U	2,600 U	2,300 U	2,700 U	2,900 U	2,600 U	2,600 U	3,000 U	2,700 U	3,100 U	3,000 U	2,600 U	2,800 U	3,000 U	2,600 U	2,500 U	2,600 U
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	740 U	130 U	130 U	120 U	**220**	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	**96 JB**	120 U	130 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	740 U	130 U	**180 B**	**160 B**	140 U	**190**	**180**	**170**	**230**	**180**	**210**	**190**	130 U	140 U	150 U	130 U	120 U	130 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	7,400 U	1,300 U	1,300 U	1,200 U	1,400 U	1,400 U	1,300 U	1,300 U	1,500 U	1,300 U	1,600 U	1,500 U	1,300 U	1,400 U	1,500 U	1,300 U	1,200 U	1,300 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	120	NS	NS	--	--	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	**7,500**	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	**510**	150 U	130 U	140 U	150 U	**450**	120 U	130 U
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	130 U	120 U	130 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**DA-C13**	**DA-C14**	**DA-C15**	**DA-C16**	**DA-C17**	**DA-C18**	**DA-C19**	**DA-C20**	**DA-C21**	**DA-C22**	**DA-C23**	**DA-C24**	**DA-C27**	**DA-C28**	**DA-C29**	**DA-C30**	**DA-C31**	**DA-C32**
						Depth Interval (ft)	**7 - 7**	**5.9 - 5.9**	**1.2 - 4.2**	**1.2 - 4.2**	**6.2 - 6.2**	**6.3 - 6.3**	**1.3 - 4.3**	**0.3 - 3.3**	**6.4 - 6.4**	**6 - 6**	**6.1 - 6.1**	**5.7 - 5.7**	**1.6 - 4.6**	**2.7 - 5.7**	**6.2 - 6.2**	**6.5 - 9.5**	**4.9 - 7.9**	**5 - 8**
						Sample Date	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**
						Sample ID	**1120-DA-C13**	**1120-DA-C14**	**1120-DA-C15**	**1120-DA-C16**	**1120-DA-C17**	**1120-DA-C18**	**1120-DA-C19**	**1120-DA-C20**	**1120-DA-C21**	**1120-DA-C22**	**1120-DA-C23**	**1120-DA-C24**	**1120-DA-C27**	**1120-DA-C28**	**1120-DA-C29-RISK**	**1120-DA-C30**	**1120-DA-C31**	**1120-DA-C32**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	740 U	130 U	130 U	120 U	140 U	140 U	130 U	130 U	150 U	130 U	160 U	150 U	130 U	140 U	150 U	**96 JB**	120 U	130 U
Semivolatiles																								
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	4.6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	NA	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	NA	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	NA	350 U	340 U	NA	NA	340 U	340 U	NA	NA	NA	1,900 U	710 U	370 U	NA	370 U	1,800 U	370 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	NA	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	NA	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	NA	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	200,000 UC	190,000 U	1,700 U	1,700 U	97,000 U	98,000 U	1,700 U	1,700 U	21,000 U	19,000 U	2,000,000 U	9,700 U	3,500 U	1,800 U	42,000 UC	1,800 U	9,000 U	1,800 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	**448,000 C**	**1,582,000**	**1,200**	**420**	**381,000**	**370,000**	**1,100**	340 U	**73,000**	**94,000**	**1,590,000**	**16,000**	**7,200**	**6,200**	**119,000 C**	**3,400**	**12,000**	**860**
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	NA	350 U	340 U	NA	NA	340 U	340 U	NA	NA	NA	1,900 U	710 U	370 U	NA	370 U	1,800 U	370 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	**98,000 C**	**109,000**	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	NA	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	NA	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	NA	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**DA-C13**	**DA-C14**	**DA-C15**	**DA-C16**	**DA-C17**	**DA-C18**	**DA-C19**	**DA-C20**	**DA-C21**	**DA-C22**	**DA-C23**	**DA-C24**	**DA-C27**	**DA-C28**	**DA-C29**	**DA-C30**	**DA-C31**	**DA-C32**
						Depth Interval (ft)	**7 - 7**	**5.9 - 5.9**	**1.2 - 4.2**	**1.2 - 4.2**	**6.2 - 6.2**	**6.3 - 6.3**	**1.3 - 4.3**	**0.3 - 3.3**	**6.4 - 6.4**	**6 - 6**	**6.1 - 6.1**	**5.7 - 5.7**	**1.6 - 4.6**	**2.7 - 5.7**	**6.2 - 6.2**	**6.5 - 9.5**	**4.9 - 7.9**	**5 - 8**
						Sample Date	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**
						Sample ID	**1120-DA-C13**	**1120-DA-C14**	**1120-DA-C15**	**1120-DA-C16**	**1120-DA-C17**	**1120-DA-C18**	**1120-DA-C19**	**1120-DA-C20**	**1120-DA-C21**	**1120-DA-C22**	**1120-DA-C23**	**1120-DA-C24**	**1120-DA-C27**	**1120-DA-C28**	**1120-DA-C29-RISK**	**1120-DA-C30**	**1120-DA-C31**	**1120-DA-C32**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	40,000 UC	**49,000**	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	**2,800 J**	400,000 U	1,900 U	710 U	**800**	**6,500 JC**	**480**	1,800 U	370 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	40,000 UC	38,000 U	350 U	340 U	19,000 U	20,000 U	340 U	340 U	4,100 U	3,800 U	400,000 U	1,900 U	710 U	370 U	8,300 UC	370 U	1,800 U	370 U
Pesticides/PCBs																								
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	12 U	11 U	10 U	10 UC	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	12 U	11 U	10 U	10 UC	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	12 U	11 U	10 U	10 UC	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U
Aldrin	ug/kg	0.15	80	80	3,000	3,000	12 U	11 U	10 U	10 UC	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	**14**	**15**	10 U	10 U
alpha-BHC	ug/kg	0.042	NS	NS	--	--	12 U	11 U	10 U	10 UC	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U
beta-BHC	ug/kg	0.15	NS	NS	--	--	12 U	11 U	10 U	10 UC	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	12 U	11 U	10 U	10 UC	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	12 U	11 U	10 U	10 UC	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	12 U	11 U	10 U	10 U	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	**22**	10 U	10 U
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	12 U	11 U	10 U	10 UC	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	12 U	11 U	10 U	10 UC	12 U	12 U	10 U	10 U	**200**	12 U	12 U	12 U	**170**	**47**	12 U	**28**	10 U	10 U
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	12 U	11 U	10 U	10 U	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	12 U	11 U	10 U	10 UC	12 U	12 U	10 U	10 U	12 U	12 U	12 U	12 U	10 U	11 U	12 U	11 U	10 U	10 U
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																								
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																								
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/kg	0.035	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	1.9	90	90	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	0.069	70	70	100	100	**0.56**	0.3 U	0.3 U	0.3 U	**1.4**	**1.4**	0.3 U	0.3 U	0.3 U	0.3 U	**2.3**	0.3 U	0.3 U	**0.82**	0.3 U	0.3 U	0.3 U	0.3 U
Calcium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	**10**	**18**	**7.8**	**23**	**20**	**15**	**41**	**23**	**6.8**	**5.7**	**8.4**	**5.8**	**13**	**22**	**50**	**27**	**34**	**5.8**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	35	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	NS	200	200	600	600	**2.4**	**3**	**2**	**6.1**	**3.4**	**2.6**	**2.8**	**6.1**	**2**	**2.5**	**2.8**	**2**	**1.7**	**3.6**	**2.6**	**3**	**1.8**	**2.4**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**DA-C13**	**DA-C14**	**DA-C15**	**DA-C16**	**DA-C17**	**DA-C18**	**DA-C19**	**DA-C20**	**DA-C21**	**DA-C22**	**DA-C23**	**DA-C24**	**DA-C27**	**DA-C28**	**DA-C29**	**DA-C30**	**DA-C31**	**DA-C32**
						Depth Interval (ft)	**7 - 7**	**5.9 - 5.9**	**1.2 - 4.2**	**1.2 - 4.2**	**6.2 - 6.2**	**6.3 - 6.3**	**1.3 - 4.3**	**0.3 - 3.3**	**6.4 - 6.4**	**6 - 6**	**6.1 - 6.1**	**5.7 - 5.7**	**1.6 - 4.6**	**2.7 - 5.7**	**6.2 - 6.2**	**6.5 - 9.5**	**4.9 - 7.9**	**5 - 8**
						Sample Date	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/18/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**	**09/29/00**
						Sample ID	**1120-DA-C13**	**1120-DA-C14**	**1120-DA-C15**	**1120-DA-C16**	**1120-DA-C17**	**1120-DA-C18**	**1120-DA-C19**	**1120-DA-C20**	**1120-DA-C21**	**1120-DA-C22**	**1120-DA-C23**	**1120-DA-C24**	**1120-DA-C27**	**1120-DA-C28**	**1120-DA-C29-RISK**	**1120-DA-C30**	**1120-DA-C31**	**1120-DA-C32**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
Magnesium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	0.0033	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	2.6	600	600	1000	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	0.052	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	0.08	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.0014	8	8	80	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	300	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	8.6	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																								
Ammonia	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.36**	**6.7**	**7.34**	**6.85**	**7.06**	**4.75**
Sulfate	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																								
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																				
Arsenic	mg/L	0.01	0.01	0.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**DA-C35**	**DB-C3**	**DB-C4**	**DB-C5**	**DB-C6**	**DB-C7**	**DB-C8**	**DB-C9**	**DB-C10**	**DB-C11**	**DB-C12**	**DB-C13**	**DB-C14**	**DB-C15**	**DB-C16**	**DRMA-COMP-A**	**DRMA-COMP-B**	**DRMB-COMP**	**G1-DRMB**
						Depth Interval (ft)	**7.9 - 7.9**	**1.2 - 4.2**	**6.8 - 6.8**	**1.4 - 4.4**	**1.4 - 4.4**	**6 - 6**	**5.7 - 5.7**	**1.6 - 4.6**	**0.8 - 3.8**	**6.2 - 6.2**	**5.9 - 5.9**	**1.9 - 4.9**	**1.3 - 1.7**	**1.9 - 4.9**	**5.3 - 5.3**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**
						Sample Date	**09/29/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**
						Sample ID	**1120-DA-C35**	**97598-DB-C3**	**97598-DB-C4**	**97598-DB-C5**	**97598-DB-C6**	**97598-DB-C7**	**97598-DB-C8**	**97598-DB-C9**	**97598-DB-C10**	**97598-DB-C11**	**97598-DB-C12**	**97598-DB-C13**	**97598-DB-C14**	**97598-DB-C15**	**97598-DB-C16**	**DRMA (COMP A)**	**DRMA (COMP B)**	**DRMB (COMP)**	**G1-DRMB**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Volatiles																									
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U	52 U	**87**	55 U	73 U	39 U	NA	NA	NA	**13**
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	150 U	74 U	42 U	49 U	**150**	59 U	50 U	59 U	87 U	58 U	52 U	**160**	55 U	73 U	39 U	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	150 U	74 U	42 U	49 U	**690**	59 U	50 U	59 U	87 U	58 U	52 U	**790**	55 U	**71 J**	39 U	NA	NA	NA	NA
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	150 U	74 U	42 U	**130**	**4,600**	59 U	50 U	59 U	87 U	58 U	52 U	**3,900**	**130**	**370**	39 U	NA	NA	NA	NA
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	150 U	74 U	42 U	**85**	**2,900**	59 U	50 U	59 U	87 U	58 U	52 U	**2,600**	**60**	**250**	39 U	NA	NA	NA	NA
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	**2,600**	74 U	42 U	NA	**370**	59 U	50 U	59 U	87 U	58 U	52 U	550 U	55 U	73 U	39 U	NA	NA	NA	6 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	**7,300**	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	3,000 U	740 U	420 U	490 U	680 U	590 U	500 U	590 U	870 U	580 U	520 U	620 U	550 U	730 U	390 U	NA	NA	NA	**1 J**
2-Hexanone	ug/kg	0.88	NS	NS	--	--	600 U	740 U	420 U	490 U	680 U	590 U	500 U	590 U	870 U	580 U	520 U	620 U	550 U	730 U	390 U	NA	NA	NA	11 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	**18,000**	74 U	42 U	49 U	**370**	59 U	50 U	59 U	87 U	58 U	52 U	**160**	55 U	73 U	39 U	NA	NA	NA	NA
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	3,000 U	740 U	420 U	490 U	680 U	590 U	500 U	590 U	870 U	580 U	520 U	620 U	550 U	730 U	390 U	NA	NA	NA	**8 JB**
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	**620**	74 U	42 U	49 U	**160**	59 U	50 U	59 U	87 U	58 U	52 U	**120**	55 U	73 U	39 U	NA	NA	NA	6 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	**370**	74 U	42 U	49 U	**650**	59 U	50 U	59 U	87 U	58 U	52 U	**470**	55 U	73 U	39 U	NA	NA	NA	NA
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	150 U	74 U	42 U	49 U	**350**	59 U	50 U	59 U	87 U	58 U	52 U	**290**	55 U	73 U	39 U	NA	NA	NA	NA
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	150 U	**320 B**	**400 B**	**500 B**	**300 B**	**150 B**	**290 B**	**420 B**	**580 B**	**640 B**	**310 B**	**880 B**	**120 B**	**370 B**	**200 B**	NA	NA	NA	6 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	1,500 U	150 U	85 U	99 U	140 U	120 U	100 U	120 U	170 U	120 U	100 U	**620**	110 U	150 U	77 U	NA	NA	NA	NA
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	120	NS	NS	--	--	150 U	74 U	42 U	49 U	**590**	59 U	50 U	59 U	87 U	58 U	52 U	**560**	55 U	73 U	39 U	NA	NA	NA	NA
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	150 U	74 U	42 U	49 U	**530**	59 U	50 U	59 U	87 U	58 U	52 U	**450**	55 U	**42 J**	39 U	NA	NA	NA	NA
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	150 U	74 U	42 U	49 U	**210**	59 U	50 U	59 U	87 U	58 U	52 U	**150**	55 U	73 U	39 U	NA	NA	NA	NA
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	150 U	74 U	42 U	49 U	**430**	59 U	50 U	59 U	87 U	58 U	52 U	**290**	55 U	73 U	39 U	NA	NA	NA	6 U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	**13,000**	74 U	42 U	49 U	**94**	59 U	50 U	59 U	87 U	58 U	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	150 U	74 U	42 U	49 U	68 U	59 U	50 U	59 U	87 U	58 U	52 U	62 U	55 U	73 U	39 U	NA	NA	NA	6 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	DA-C35	DB-C3	DB-C4	DB-C5	DB-C6	DB-C7	DB-C8	DB-C9	DB-C10	DB-C11	DB-C12	DB-C13	DB-C14	DB-C15	DB-C16	DRMA-COMP-A	DRMA-COMP-B	DRMB-COMP	G1-DRMB
						Depth Interval (ft)	7.9 - 7.9	1.2 - 4.2	6.8 - 6.8	1.4 - 4.4	1.4 - 4.4	6 - 6	5.7 - 5.7	1.6 - 4.6	0.8 - 3.8	6.2 - 6.2	5.9 - 5.9	1.9 - 4.9	1.3 - 1.7	1.9 - 4.9	5.3 - 5.3	0 - 1	0 - 1	0 - 1	0 - 1
						Sample Date	09/29/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	12/15/96	12/15/96	12/15/96	12/15/96
						Sample ID	1120-DA-C35	97598-DB-C3	97598-DB-C4	97598-DB-C5	97598-DB-C6	97598-DB-C7	97598-DB-C8	97598-DB-C9	97598-DB-C10	97598-DB-C11	97598-DB-C12	97598-DB-C13	97598-DB-C14	97598-DB-C15	97598-DB-C16	DRMA (COMP A)	DRMA (COMP B)	DRMB (COMP)	G1-DRMB
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																			
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	150 U	74 U	42 U	49 U	**880**	59 U	50 U	59 U	87 U	58 U	52 U	**740**	NA	**42 J**	39 U	NA	NA	NA	6 U
Semivolatiles																									
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	410 U	310 U	300 U	**270 JF**	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**100 J**	NA
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA
2-Methylphenol	ug/kg	75	NS	NS	--	--	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**49 J**	NA
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**340 J**	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA
Acetophenone	ug/kg	58	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	4.6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**20 J**	NA
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**47 J**	NA
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	NA	1,600 U	380 U	NA
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	2,000 U	620 U	600 U	**770 F**	**1,100**	570 U	580 U	530 U	810 U	590 U	570 U	550 U	530 U	**380 J**	590 U	44,000 U	7,800 U	**640 J**	NA
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	**7,900**	**860 B**	**810 B**	**10,000 F**	**8,600**	290 UB	290 UB	270 UB	**1,100 B**	300 UB	290 UB	**16,000**	**1,400 B**	**3,500 B**	**90 JB**	**1,300 JB**	**5,300 B**	**2,900 B**	NA
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA
Carbazole	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**52 J**	NA
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	270 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	NA	1,600 U	380 U	NA
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	410 U	310 U	300 U	**480 F**	**990**	290 U	290 U	265.1 U	400 U	300 U	290 U	**220 J**	270 U	300 U	290 U	**200 JB**	**130 JB**	**330 JB**	NA
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	**45 J**	**110 J**	NA
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	380 U	NA
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	410 U	310 U	300 U	270 UF	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	**260 J**	270 U	300 U	290 U	9,100 U	1,600 U	**99 J**	NA
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**DA-C35**	**DB-C3**	**DB-C4**	**DB-C5**	**DB-C6**	**DB-C7**	**DB-C8**	**DB-C9**	**DB-C10**	**DB-C11**	**DB-C12**	**DB-C13**	**DB-C14**	**DB-C15**	**DB-C16**	**DRMA-COMP-A**	**DRMA-COMP-B**	**DRMB-COMP**	**G1-DRMB**
						Depth Interval (ft)	**7.9 - 7.9**	**1.2 - 4.2**	**6.8 - 6.8**	**1.4 - 4.4**	**1.4 - 4.4**	**6 - 6**	**5.7 - 5.7**	**1.6 - 4.6**	**0.8 - 3.8**	**6.2 - 6.2**	**5.9 - 5.9**	**1.9 - 4.9**	**1.3 - 1.7**	**1.9 - 4.9**	**5.3 - 5.3**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**
						Sample Date	**09/29/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**
						Sample ID	**1120-DA-C35**	**97598-DB-C3**	**97598-DB-C4**	**97598-DB-C5**	**97598-DB-C6**	**97598-DB-C7**	**97598-DB-C8**	**97598-DB-C9**	**97598-DB-C10**	**97598-DB-C11**	**97598-DB-C12**	**97598-DB-C13**	**97598-DB-C14**	**97598-DB-C15**	**97598-DB-C16**	**DRMA (COMP A)**	**DRMA (COMP B)**	**DRMB (COMP)**	**G1-DRMB**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	410 U	310 U	**120 J**	**1,400 F**	**700**	290 U	290 U	265.1 U	400 U	300 U	290 U	**1,600**	270 U	**330**	290 U	**2,800 J**	**2,700**	**1,000**	NA
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**74 J**	NA
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	410 U	310 U	300 U	270 UF	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**2,400**	NA
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	410 U	310 U	300 U	270 U	280 U	290 U	290 U	265.1 U	400 U	300 U	290 U	270 U	270 U	300 U	290 U	9,100 U	1,600 U	**120 J**	NA
Pesticides/PCBs																									
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U	19 U	17 U	17 U	19 U	19 U	**3.4 J**	**1.7 J**	**17 J**	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U	19 U	17 U	17 U	19 U	19 U	3.7 U	**1.9 J**	19 U	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U	19 U	17 U	17 U	19 U	19 U	**3.1 J**	**6.4**	**30**	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	**0.46 J**	**1.2 J**	9.8 U	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	**5**	**1.6 J**	9.8 U	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	**63**	9.1 U	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	1.9 U	2 U	9.8 U	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	**3.6**	**4.5**	**52**	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U	19 U	17 U	17 U	19 U	19 U	3.7 U	**6.9**	19 U	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	**5.6**	**4.7**	**99**	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U	19 U	17 U	17 U	19 U	19 U	3.7 U	3.8 U	19 U	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	12 U	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U	19 U	17 U	17 U	19 U	19 U	3.7 U	3.8 U	19 U	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	20 U	19 U	17 U	18 U	18 U	18 U	17 U	26 U	18 U	19 U	17 U	17 U	19 U	19 U	**4.8**	3.8 U	19 U	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	12 U	9.9 U	**28**	**230**	**660**	9.2 U	9.1 U	8.3 U	13 U	9.1 U	9.3 U	**120**	**20**	**130**	9.3 U	**4.7**	**3.4**	**170**	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	1.9 U	**0.87 J**	9.8 U	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	12 U	9.9 U	9.4 U	8.6 U	8.9 U	9.2 U	9.1 U	8.3 U	13 U	9.1 U	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	1.9 U	**2.8**	9.8 U	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	9.9 U	9.4 U	8.6 U	**42**	9.2 U	9.1 U	8.3 U	**20**	9.1 U	9.3 U	8.6 U	8.4 U	9.5 U	9.3 U	1.9 U	**8.8**	9.8 U	NA
EPH																									
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																									
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**5,560**	**12,900**	**4,070**	NA
Antimony	mg/kg	0.035	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.7**	**30.9**	**3.8**	NA
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**22.3 B**	**43.2**	**13.9 B**	NA
Beryllium	mg/kg	1.9	90	90	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.32 B**	**0.61 B**	0.21 U	NA
Cadmium	mg/kg	0.069	70	70	100	100	0.4 U	0.73 U	0.76 U	0.67 U	0.7 U	0.69 U	0.67 U	0.62 U	4.8 U	0.73 U	0.71 U	0.63 U	0.68 U	0.71 U	0.71 U	0.21 U	0.19 U	0.21 U	NA
Calcium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2,060**	**1,850**	**2,580**	NA
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	**7.7**	**4**	**27**	**88**	**240**	**6.8**	**5**	**15**	**25**	**8.7**	**7.1**	**39**	**21**	**79**	**9.8**	**24.1 *N**	**40.2 *N**	**52.6 *N**	NA
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.9 B**	**11.3**	**1.9 B**	NA
Copper	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.7**	**21.7**	**6.2**	NA
Iron	mg/kg	35	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7,580**	**17,200**	**3,720**	NA
Lead	mg/kg	NS	200	200	600	600	**2.5**	**3.9**	3.8 U	**3.6**	**4.2**	3.5 U	**1.8 J**	**3.5**	24 U	3.6 U	**2.1 J**	**4.2**	**4**	**5.5**	**3.6**	**9.4**	**17**	**19.5**	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**DA-C35**	**DB-C3**	**DB-C4**	**DB-C5**	**DB-C6**	**DB-C7**	**DB-C8**	**DB-C9**	**DB-C10**	**DB-C11**	**DB-C12**	**DB-C13**	**DB-C14**	**DB-C15**	**DB-C16**	**DRMA-COMP-A**	**DRMA-COMP-B**	**DRMB-COMP**	**G1-DRMB**
						Depth Interval (ft)	**7.9 - 7.9**	**1.2 - 4.2**	**6.8 - 6.8**	**1.4 - 4.4**	**1.4 - 4.4**	**6 - 6**	**5.7 - 5.7**	**1.6 - 4.6**	**0.8 - 3.8**	**6.2 - 6.2**	**5.9 - 5.9**	**1.9 - 4.9**	**1.3 - 1.7**	**1.9 - 4.9**	**5.3 - 5.3**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**
						Sample Date	**09/29/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**08/10/00**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**
						Sample ID	**1120-DA-C35**	**97598-DB-C3**	**97598-DB-C4**	**97598-DB-C5**	**97598-DB-C6**	**97598-DB-C7**	**97598-DB-C8**	**97598-DB-C9**	**97598-DB-C10**	**97598-DB-C11**	**97598-DB-C12**	**97598-DB-C13**	**97598-DB-C14**	**97598-DB-C15**	**97598-DB-C16**	**DRMA (COMP A)**	**DRMA (COMP B)**	**DRMB (COMP)**	**G1-DRMB**
Normal (N) or Field Duplicate (FD) Sample							**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**																						
			S-1/ GW-1	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Magnesium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,920**	**4,880**	**668 B**	NA
Manganese	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**109**	**351**	**44.5**	NA
Mercury	mg/kg	0.0033	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.11**	0.09 U	**0.38**	NA
Nickel	mg/kg	2.6	600	600	1000	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**10.2**	**30.1**	**3.5 B**	NA
Potassium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**652 B**	**1,840**	**190 B**	NA
Selenium	mg/kg	0.052	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	0.08	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**131 B**	**174 B**	**79 B**	NA
Thallium	mg/kg	0.0014	8	8	80	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.8 B**	**1.8 B**	1.7 U	NA
Tin	mg/kg	300	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	8.6	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**11.3**	**24.9**	**7.2 B**	NA
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**37.2 E**	**63 E**	**41.4 E**	NA
General Chemistry																									
Ammonia	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**47.4**	**93**	**263**	NA
Chloride	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NS	--	--	**7.66**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2,310**	**260**	**5,110**	NA
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																									
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																					
Arsenic	mg/L	0.01	0.01	0.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA	OSFILL-450	RSO-14		RSO-15		SD-C24	SD-C24B
						Depth Interval (ft)	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0.5 - 0.5	0.87 - 2.13		1.52 - 4.52		3 - 3	2 - 2
						Sample Date	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	10/13/00	01/24/00		01/24/00		10/18/00	10/18/00
						Sample ID	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA	1130-OSFILL-450	RSO-14-S1 (0-3 FT)	RSO-14-S1 (0-3)	RSO-15-S1 (0-3 FT)	RSO-15-S1 (0-3)	1140-SD-C24	1140-SD-C24B-RISK
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																		
Volatiles																								
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	**16**	**10**	**8**	**2 J**	5 U	5 U	**8**	**9**	5 U	**10**	**18**	130 U	NA	5 U	NA	9 U	NA	NA
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	130 U	NA	5 U	NA	9 U	NA	NA
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130 U	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130 U	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130 U	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130 U	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	**0.8 J**	5 U	**4 J**	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	130 U	NA	5 U	NA	9 U	NA	NA
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	7 U	5 U	**1 J**	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	130 U	NA	5 U	NA	9 U	NA	NA
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	**4 J**	11 U	11 U	11 U	11 U	11 U	11 U	11 U	10 U	12 U	12 U	2,600 U	NA	10 U	NA	17 U	NA	NA
2-Hexanone	ug/kg	0.88	NS	NS	--	--	14 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	10 U	12 U	12 U	510 U	NA	10 UJ	NA	17 UJ	NA	NA
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130 U	NA	NA	NA	NA	NA	NA
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	**22 B**	**9 JB**	**10 JB**	**6 JB**	**7 JB**	**10 JB**	**21 B**	**10 JB**	**10 B**	**13 B**	**19**	2,600 U	NA	10 U	NA	17 U	NA	NA
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	130 U	NA	5 U	NA	9 U	NA	NA
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	130 U	NA	5 U	NA	9 U	NA	NA
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	130 U	NA	5 U	NA	9 U	NA	NA
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130 U	NA	NA	NA	NA	NA	NA
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130 U	NA	NA	NA	NA	NA	NA
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	130 U	NA	5 U	NA	9 U	NA	NA
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,300 U	NA	NA	NA	NA	NA	NA
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130 U	NA	NA	NA	NA	NA	NA
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130 U	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130 U	NA	NA	NA	NA	NA	NA
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	130 U	NA	5 U	NA	9 U	NA	NA
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	130 U	NA	5 U	NA	9 U	NA	NA
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	7 U	**0.7 J**	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	**0.9 J**	130 U	NA	5 U	NA	9 U	NA	NA
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	130 U	NA	5 U	NA	9 U	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA	OSFILL-450	RSO-14		RSO-15		SD-C24	SD-C24B
						Depth Interval (ft)	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0.5 - 0.5	0.87 - 2.13		1.52 - 4.52		3 - 3	2 - 2
						Sample Date	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	12/15/96	10/13/00	01/24/00		01/24/00		10/18/00	10/18/00
						Sample ID	G2-DRMB	G3-DRMB	G4-DRMB	GA1-DRMA	GA2-DRMA	GA3-DRMA	GA4-DRMA	GB1-DRMA	GB2-DRMA	GB3-DRMA	GB4-DRMA	1130-OSFILL-450	RSO-14-S1 (0-3 FT)	RSO-14-S1 (0-3)	RSO-15-S1 (0-3 FT)	RSO-15-S1 (0-3)	1140-SD-C24	1140-SD-C24B-RISK
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																		
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	7 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	130 U	NA	5 U	NA	9 U	NA	NA
Semivolatiles																								
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
2-Methylphenol	ug/kg	75	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,400 U	NA	2,000 U	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Acetophenone	ug/kg	58	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	4.6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	NA	NA
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	NA	NA
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	NA	NA
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,700 U	NA	6,800 U	NA	9,500 U	450,000 UC	530,000 UC
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	**9,500**	**753,000 C**	**243,500 C**
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Carbazole	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	NA	NA
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	**70,000 JC**
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	NA	NA
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**G2-DRMB**	**G3-DRMB**	**G4-DRMB**	**GA1-DRMA**	**GA2-DRMA**	**GA3-DRMA**	**GA4-DRMA**	**GB1-DRMA**	**GB2-DRMA**	**GB3-DRMA**	**GB4-DRMA**	**OSFILL-450**	**RSO-14**		**RSO-15**		**SD-C24**	**SD-C24B**
						Depth Interval (ft)	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0.5 - 0.5**	**0.87 - 2.13**		**1.52 - 4.52**		**3 - 3**	**2 - 2**
						Sample Date	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**10/13/00**	**01/24/00**		**01/24/00**		**10/18/00**	**10/18/00**
						Sample ID	**G2-DRMB**	**G3-DRMB**	**G4-DRMB**	**GA1-DRMA**	**GA2-DRMA**	**GA3-DRMA**	**GA4-DRMA**	**GB1-DRMA**	**GB2-DRMA**	**GB3-DRMA**	**GB4-DRMA**	**1130-OSFILL-450**	**RSO-14-S1 (0-3 FT)**	**RSO-14-S1 (0-3)**	**RSO-15-S1 (0-3 FT)**	**RSO-15-S1 (0-3)**	**1140-SD-C24**	**1140-SD-C24B-RISK**
Normal (N) or Field Duplicate (FD) Sample							**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**																					
			S-1/ GW-1	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350 U	NA	1,400 U	NA	2,000 U	90,000 UC	110,000 UC
Pesticides/PCBs																								
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																								
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**29,000**	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**29,000**	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9,900**	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**39,000**	NA	NA	NA	NA	NA	NA
Metals																								
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**13,000**	NA	**5,500**	NA	NA	NA
Antimony	mg/kg	0.035	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**10**	NA	NA	NA	NA	NA	NA
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.8**	**83**	NA	**13**	NA	NA	NA
Beryllium	mg/kg	1.9	90	90	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	NA	**0.21**	NA	NA	NA
Cadmium	mg/kg	0.069	70	70	100	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2 U	0.2 U	NA	0.2 U	NA	NA	NA
Calcium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7,900**	NA	**17,000**	NA	NA	NA
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.4**	**65**	NA	**28**	NA	**1,600**	**390**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**15**	NA	**2.8**	NA	NA	NA
Copper	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18 U	NA	18 U	NA	NA	NA
Iron	mg/kg	35	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**17,000**	NA	**8,200**	NA	NA	NA
Lead	mg/kg	NS	200	200	600	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.3**	**11**	NA	**10**	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**G2-DRMB**	**G3-DRMB**	**G4-DRMB**	**GA1-DRMA**	**GA2-DRMA**	**GA3-DRMA**	**GA4-DRMA**	**GB1-DRMA**	**GB2-DRMA**	**GB3-DRMA**	**GB4-DRMA**	**OSFILL-450**	**RSO-14**		**RSO-15**		**SD-C24**	**SD-C24B**
						Depth Interval (ft)	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0.5 - 0.5**	**0.87 - 2.13**		**1.52 - 4.52**		**3 - 3**	**2 - 2**
						Sample Date	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**12/15/96**	**10/13/00**	**01/24/00**		**01/24/00**		**10/18/00**	**10/18/00**
						Sample ID	**G2-DRMB**	**G3-DRMB**	**G4-DRMB**	**GA1-DRMA**	**GA2-DRMA**	**GA3-DRMA**	**GA4-DRMA**	**GB1-DRMA**	**GB2-DRMA**	**GB3-DRMA**	**GB4-DRMA**	**1130-OSFILL-450**	**RSO-14-S1 (0-3 FT)**	**RSO-14-S1 (0-3)**	**RSO-15-S1 (0-3 FT)**	**RSO-15-S1 (0-3)**	**1140-SD-C24**	**1140-SD-C24B-RISK**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
Magnesium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**8,100**	NA	**1,400**	NA	NA	NA
Manganese	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**200**	NA	**88**	NA	NA	NA
Mercury	mg/kg	0.0033	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.04 U	**0.051**	NA	0.05 U	NA	NA	NA
Nickel	mg/kg	2.6	600	600	1000	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**35**	NA	**6**	NA	NA	NA
Potassium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3,900**	NA	**360**	NA	NA	NA
Selenium	mg/kg	0.052	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	0.08	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**110**	NA	**80**	NA	NA	NA
Thallium	mg/kg	0.0014	8	8	80	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	1 U	NA	NA	NA
Tin	mg/kg	300	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	8.6	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**36**	NA	**14**	NA	NA	NA
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**36**	NA	**19**	NA	NA	NA
General Chemistry																								
Ammonia	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																								
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																				
Arsenic	mg/L	0.01	0.01	0.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**TP-21**	**WD-C1**	**WD-C1B**	**WD-C2**	**WD-C2B**	**WD-C3**	**WD-C3B**	**WD-C4**	**WD-C4B**	**WD-C5**	**WD-C5B**	**WD-C6**	**WD-C6B**	**WD-C7**	**WD-C7B**	**WD-C8**	**WD-C8B**	**WD-C9**
						Depth Interval (ft)		**8.3 - 8.3**	**7.3 - 7.3**	**8 - 8**	**7 - 7**	**7.7 - 7.7**	**6.7 - 6.7**	**7.6 - 7.6**	**6.6 - 6.6**	**7.4 - 7.4**	**6.5 - 6.5**	**7.1 - 7.1**	**6.2 - 6.2**	**6.6 - 6.6**	**5.6 - 5.6**	**6.8 - 6.8**	**5.8 - 5.8**	**7 - 7**
						Sample Date	**10/08/91**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**
						Sample ID	**TP-21-SN8**	**1140-WD-C1**	**1140-WD-C1B**	**1140-WD-C2**	**1140-WD-C2B**	**1140-WD-C3**	**1140-WD-C3B**	**1140-WD-C4**	**1140-WD-C4B**	**1140-WD-C5**	**1140-WD-C5B**	**1140-WD-C6**	**1140-WD-C6B**	**1140-WD-C7**	**1140-WD-C7B**	**1140-WD-C8**	**1140-WD-C8B**	**1140-WD-C9**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
Volatiles																								
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	2.7 U	NA	NA	NA	NA	NA	NA	3,000 U	3,000 U	NA	NA	NA	NA	NA	NA	3,200 U	2,500 U	NA
2-Hexanone	ug/kg	0.88	NS	NS	--	--	2.7 U	NA	NA	NA	NA	NA	NA	610 U	600 U	NA	NA	NA	NA	NA	NA	640 U	500 U	NA
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	4.6 U	NA	NA	NA	NA	NA	NA	3,000 U	3,000 U	NA	NA	NA	NA	NA	NA	3,200 U	2,500 U	NA
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	1.8 U	NA	NA	NA	NA	NA	NA	**220 B**	150 UB	NA	NA	NA	NA	NA	NA	**220 B**	120 UB	NA
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	1,500 U	1,500 U	NA	NA	NA	NA	NA	NA	1,600 U	1,200 U	NA
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	**0.3 J**	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

						Sample Location	TP-21	WD-C1	WD-C1B	WD-C2	WD-C2B	WD-C3	WD-C3B	WD-C4	WD-C4B	WD-C5	WD-C5B	WD-C6	WD-C6B	WD-C7	WD-C7B	WD-C8	WD-C8B	WD-C9
						Depth Interval (ft)		8.3 - 8.3	7.3 - 7.3	8 - 8	7 - 7	7.7 - 7.7	6.7 - 6.7	7.6 - 7.6	6.6 - 6.6	7.4 - 7.4	6.5 - 6.5	7.1 - 7.1	6.2 - 6.2	6.6 - 6.6	5.6 - 5.6	6.8 - 6.8	5.8 - 5.8	7 - 7
						Sample Date	10/08/91	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00	09/21/00	09/19/00
						Sample ID	TP-21-SN8	1140-WD-C1	1140-WD-C1B	1140-WD-C2	1140-WD-C2B	1140-WD-C3	1140-WD-C3B	1140-WD-C4	1140-WD-C4B	1140-WD-C5	1140-WD-C5B	1140-WD-C6	1140-WD-C6B	1140-WD-C7	1140-WD-C7B	1140-WD-C8	1140-WD-C8B	1140-WD-C9
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																		
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	0.9 U	NA	NA	NA	NA	NA	NA	150 U	150 U	NA	NA	NA	NA	NA	NA	160 U	120 U	NA
Semivolatiles																								
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	ug/kg	150	NS	NS	--	--	990 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	ug/kg	4.6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	NA	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	NA	390 U	370 U	2,000 U	NA	NA	NA	NA	NA	850 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	NA	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	4,800 UJ	9,500 U	2,000 U	4,100 U	2,000 U	2,000 U	2,000 U	2,000 U	110,000 UC	2,000 U	1,800 U	10,000 U	96,000 UC	22,000 U	94,000 UC	22,000 U	92,000 UC	4,300 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	**1,100,000 J**	**29,000**	**1,400**	**15,000**	**5,000**	**5,600**	**1,200**	**2,900**	**166,000 C**	**3,900**	**600**	**33,000**	**210,000 C**	**71,000**	**79,000 C**	**54,000**	**426,000 C**	**16,000**
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	NA	390 U	370 U	2,000 U	NA	NA	NA	NA	NA	850 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	1,300 U	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	**880 J**	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	NA	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**TP-21**	**WD-C1**	**WD-C1B**	**WD-C2**	**WD-C2B**	**WD-C3**	**WD-C3B**	**WD-C4**	**WD-C4B**	**WD-C5**	**WD-C5B**	**WD-C6**	**WD-C6B**	**WD-C7**	**WD-C7B**	**WD-C8**	**WD-C8B**	**WD-C9**
						Depth Interval (ft)		**8.3 - 8.3**	**7.3 - 7.3**	**8 - 8**	**7 - 7**	**7.7 - 7.7**	**6.7 - 6.7**	**7.6 - 7.6**	**6.6 - 6.6**	**7.4 - 7.4**	**6.5 - 6.5**	**7.1 - 7.1**	**6.2 - 6.2**	**6.6 - 6.6**	**5.6 - 5.6**	**6.8 - 6.8**	**5.8 - 5.8**	**7 - 7**
						Sample Date	**10/08/91**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**
						Sample ID	**TP-21-SN8**	**1140-WD-C1**	**1140-WD-C1B**	**1140-WD-C2**	**1140-WD-C2B**	**1140-WD-C3**	**1140-WD-C3B**	**1140-WD-C4**	**1140-WD-C4B**	**1140-WD-C5**	**1140-WD-C5B**	**1140-WD-C6**	**1140-WD-C6B**	**1140-WD-C7**	**1140-WD-C7B**	**1140-WD-C8**	**1140-WD-C8B**	**1140-WD-C9**
Normal (N) or Field Duplicate (FD) Sample			**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	990 UJ	**1,400 J**	390 U	**1,300**	400 U	**310 J**	390 U	**240 J**	22,000 UC	**210 J**	370 U	2,000 U	19,000 UC	**4,900**	19,000 UC	4,300 U	18,000 UC	**1,200**
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	990 UJ	1,900 U	390 U	810 U	400 U	390 U	390 U	400 U	22,000 UC	390 U	370 U	2,000 U	19,000 UC	4,400 U	19,000 UC	4,300 U	18,000 UC	850 U
Pesticides/PCBs																								
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	**36 J**	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	R	NA	NA	NA	NA	NA	13 U	12 U	12 U	NA	NA	NA	NA	NA	NA	13 U	11 U	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																								
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																								
Aluminum	mg/kg	3,000	NS	NS	--	--	**3,100 J**	NA	NA	NA	NA	NA	**3,600**	**7,400**	**4,600**	NA	NA	NA	NA	NA	NA	**3,400**	**2,300**	NA
Antimony	mg/kg	0.035	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	**4 J**	NA	NA	NA	NA	NA	2 U	**6.8**	2 U	NA	NA	NA	NA	NA	NA	**2.2**	2 U	NA
Barium	mg/kg	16	1,000	1,000	5,000	5,000	**11**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	1.9	90	90	200	200	1.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	0.069	70	70	100	100	1 U	NA	NA	NA	NA	NA	0.4 U	0.3 U	0.4 U	NA	NA	NA	NA	NA	NA	0.3 U	0.3 U	NA
Calcium	mg/kg	NS	NS	NS	--	--	**160,000 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	**110**	**520**	**68**	**350**	**36**	**110**	**210**	**160**	**51**	**160**	**240**	**58**	**500**	**810**	**580**	**160**	**340**	**110**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	0.027	NS	NS	--	--	1.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	2.8	NS	NS	--	--	**5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	35	NS	NS	--	--	**2,600**	NA	NA	NA	NA	NA	NA	**11,000**	**3,300**	NA	NA	NA	NA	NA	NA	**3,400**	**2,600**	NA
Lead	mg/kg	NS	200	200	600	600	10 U	NA	NA	NA	NA	NA	NA	**4.7**	**5.4**	NA	NA	NA	NA	NA	NA	**2.2**	**2**	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**TP-21**	**WD-C1**	**WD-C1B**	**WD-C2**	**WD-C2B**	**WD-C3**	**WD-C3B**	**WD-C4**	**WD-C4B**	**WD-C5**	**WD-C5B**	**WD-C6**	**WD-C6B**	**WD-C7**	**WD-C7B**	**WD-C8**	**WD-C8B**	**WD-C9**
						Depth Interval (ft)		**8.3 - 8.3**	**7.3 - 7.3**	**8 - 8**	**7 - 7**	**7.7 - 7.7**	**6.7 - 6.7**	**7.6 - 7.6**	**6.6 - 6.6**	**7.4 - 7.4**	**6.5 - 6.5**	**7.1 - 7.1**	**6.2 - 6.2**	**6.6 - 6.6**	**5.6 - 5.6**	**6.8 - 6.8**	**5.8 - 5.8**	**7 - 7**
						Sample Date	**10/08/91**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**	**09/21/00**	**09/19/00**
						Sample ID	**TP-21-SN8**	**1140-WD-C1**	**1140-WD-C1B**	**1140-WD-C2**	**1140-WD-C2B**	**1140-WD-C3**	**1140-WD-C3B**	**1140-WD-C4**	**1140-WD-C4B**	**1140-WD-C5**	**1140-WD-C5B**	**1140-WD-C6**	**1140-WD-C6B**	**1140-WD-C7**	**1140-WD-C7B**	**1140-WD-C8**	**1140-WD-C8B**	**1140-WD-C9**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
Magnesium	mg/kg	NS	NS	NS	--	--	**440**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	2.8	NS	NS	--	--	**49**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	0.0033	20	20	30	30	**0.91**	NA	NA	NA	NA	NA	NA	0.05 U	0.06 U	NA	NA	NA	NA	NA	NA	0.06 U	0.05 U	NA
Nickel	mg/kg	2.6	600	600	1000	1000	4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	NS	NS	NS	--	--	**280**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	0.052	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	0.08	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	NS	NS	NS	--	--	**110**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	0.0014	8	8	80	80	R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	300	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	8.6	400	400	700	700	**12**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	**38**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																								
Ammonia	mg/kg	NS	NS	NS	--	--	**47**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	mg/kg	NS	NS	NS	--	--	40 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	S.U.	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	**29,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																								
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																				
Arsenic	mg/L	0.01	0.01	0.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**WD-C9B**	**WD-C10**	**WD-C10B**	**WD-C11**		**WD-C11B**		**WD-C12**	**WD-C12B**	**WD-C13**	**WD-C13B**	**WD-C14**	**WD-C14B**	**WD-C15**	**WD-C15B**	**WD-C16**	**SS-420**	**SS-421**	**SS-422**
						Depth Interval (ft)	**6 - 6**	**6.6 - 6.6**	**5.6 - 5.6**	**5.6 - 5.6**		**5.6 - 5.6**		**6.1 - 6.1**	**5.2 - 5.2**	**6.1 - 6.1**	**5.2 - 5.2**	**7.6 - 7.6**	**6.9 - 6.9**	**10 - 10**	**9.3 - 9.3**	**10.1 - 10.1**	**0 - 1**	**0 - 1**	**0 - 1**
						Sample Date	**09/21/00**	**09/19/00**	**09/19/00**	**09/19/00**		**09/19/00**	**09/21/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/13/00**	**09/15/09**	**09/15/09**	**09/15/09**
						Sample ID	**1140-WD-C9B**	**1140-WD-C10**	**1140-WD-C10B**	**1140-WD-C11**	**1140-WD-C11 (156878)**	**1140-WD-C11B**	**1140-WD-C11B (157182)**	**1140-WD-C12**	**1140-WD-C12B**	**1140-WD-C13**	**1140-WD-C13B**	**1140-WD-C14**	**1140-WD-C14B**	**1140-WD-C15**	**1140-WD-C15B**	**1140-WD-C16**	**OC-SS-420-0.0/1.0-XXX**	**OC-SS-421-0.0/1.0-XXX**	**OC-SS-422-0.0/1.0-XXX**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Volatiles																									
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	4.6 U	6 U	5.8 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	4.6 U	6 U	5.8 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	NA	NA	2,800 U	NA	2,900 U	NA	NA	NA	NA	NA	NA	NA	NA	3,100 U	3,100 U	23 U	30 U	29 U
2-Hexanone	ug/kg	0.88	NS	NS	--	--	NA	NA	NA	570 U	NA	580 U	NA	NA	NA	NA	NA	NA	NA	NA	630 U	610 U	23 U	30 U	29 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	NA	NA	2,800 U	NA	2,900 U	NA	NA	NA	NA	NA	NA	NA	NA	3,100 U	3,100 U	230 UJ	300 UJ	290 UJ
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	4.6 U	6 U	5.8 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	46 U	60 U	58 U
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	NA	NA	NA	**180 B**	NA	140 UB	NA	NA	NA	NA	NA	NA	NA	NA	**590 B**	150 U	9.1 U	12 U	12 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	NA	NA	1,400 U	NA	1,400 U	NA	NA	NA	NA	NA	NA	NA	NA	1,600 U	1,500 U	23 U	30 U	29 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	3 U	2.9 U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	2.3 U	3 U	2.9 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	WD-C9B	WD-C10	WD-C10B	WD-C11		WD-C11B		WD-C12	WD-C12B	WD-C13	WD-C13B	WD-C14	WD-C14B	WD-C15	WD-C15B	WD-C16	SS-420	SS-421	SS-422
						Depth Interval (ft)	6 - 6	6.6 - 6.6	5.6 - 5.6	5.6 - 5.6		5.6 - 5.6		6.1 - 6.1	5.2 - 5.2	6.1 - 6.1	5.2 - 5.2	7.6 - 7.6	6.9 - 6.9	10 - 10	9.3 - 9.3	10.1 - 10.1	0 - 1	0 - 1	0 - 1
						Sample Date	09/21/00	09/19/00	09/19/00	09/19/00		09/19/00	09/21/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	10/13/00	09/15/09	09/15/09	09/15/09
						Sample ID	1140-WD-C9B	1140-WD-C10	1140-WD-C10B	1140-WD-C11	1140-WD-C11 (156878)	1140-WD-C11B	1140-WD-C11B (157182)	1140-WD-C12	1140-WD-C12B	1140-WD-C13	1140-WD-C13B	1140-WD-C14	1140-WD-C14B	1140-WD-C15	1140-WD-C15B	1140-WD-C16	OC-SS-420-0.0/1.0-XXX	OC-SS-421-0.0/1.0-XXX	OC-SS-422-0.0/1.0-XXX
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																			
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	NA	140 U	NA	140 U	NA	NA	NA	NA	NA	NA	NA	NA	160 U	150 U	4.6 U	6 U	5.8 U
Semivolatiles																									
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U
Aniline	ug/kg	4.6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 UJ	42 UJ	39 UJ
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**15 J**	42 U	39 U
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	390 U	410 U	NA	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	**11 J**	42 U	39 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	1,900 U	2,100 U	92,000 UC	2,100 U	NA	2,000 U	NA	4,100 U	1,800 U	2,000 U	1,900 U	2,100 U	2,000 U	2,100 U	2,200 U	2,100 U	180 U	210 U	190 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	74 U	84 U	78 U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	**580**	**1,100**	**366,000 C**	430 U	NA	**1,200**	NA	**12,000**	370 U	410 U	**730**	**1,600**	**3,300**	420 U	**790**	**640**	**520 EB**	**1,600 EB**	**410 EB**
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	**12 J**
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	390 U	410 U	NA	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	**15 J**	39 U
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**14 J**	NA	39 U
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	**12 J**	**20 J**	**16 J**
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	89 U	100 U	93 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 U	42 U	39 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**WD-C9B**	**WD-C10**	**WD-C10B**	**WD-C11**		**WD-C11B**		**WD-C12**	**WD-C12B**	**WD-C13**	**WD-C13B**	**WD-C14**	**WD-C14B**	**WD-C15**	**WD-C15B**	**WD-C16**	**SS-420**	**SS-421**	**SS-422**
						Depth Interval (ft)	**6 - 6**	**6.6 - 6.6**	**5.6 - 5.6**	**5.6 - 5.6**		**5.6 - 5.6**		**6.1 - 6.1**	**5.2 - 5.2**	**6.1 - 6.1**	**5.2 - 5.2**	**7.6 - 7.6**	**6.9 - 6.9**	**10 - 10**	**9.3 - 9.3**	**10.1 - 10.1**	**0 - 1**	**0 - 1**	**0 - 1**
						Sample Date	**09/21/00**	**09/19/00**	**09/19/00**	**09/19/00**		**09/19/00**	**09/21/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/13/00**	**09/15/09**	**09/15/09**	**09/15/09**
						Sample ID	**1140-WD-C9B**	**1140-WD-C10**	**1140-WD-C10B**	**1140-WD-C11**	**1140-WD-C11 (156878)**	**1140-WD-C11B**	**1140-WD-C11B (157182)**	**1140-WD-C12**	**1140-WD-C12B**	**1140-WD-C13**	**1140-WD-C13B**	**1140-WD-C14**	**1140-WD-C14B**	**1140-WD-C15**	**1140-WD-C15B**	**1140-WD-C16**	**OC-SS-420-0.0/1.0-XXX**	**OC-SS-421-0.0/1.0-XXX**	**OC-SS-422-0.0/1.0-XXX**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	**810**	410 U	**19,000 C**	430 U	NA	**520**	NA	**760 J**	370 U	**970**	390 U	**1,900**	410 U	420 U	440 U	**600**	**13 JEB**	**33 JEB**	39 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	44 U	50 U	47 U
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	37 U	42 U	39 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	390 U	410 U	18,000 UC	430 U	NA	390 U	NA	820 U	370 U	410 U	390 U	420 U	410 U	420 U	440 U	420 U	**13 J**	**16 J**	**14 J**
Pesticides/PCBs																									
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	NA	NA	NA	NA	13 U	NA	12 U	NA	NA	NA	NA	NA	NA	12 U	13 U	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																									
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																									
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	NA	NA	**2,700 F**	NA	**4,200**	NA	NA	NA	NA	NA	NA	NA	**3,300**	**3,300**	NA	**6,600**	**6,800**	**7,400**
Antimony	mg/kg	0.035	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.57 UJ	0.69 UJ	0.77 UJ
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	NA	NA	2 U	NA	**1.9**	NA	NA	NA	NA	NA	NA	NA	2 U	2 U	NA	**9.5**	**8.4**	**5.6**
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**43**	**52**	**81**
Beryllium	mg/kg	1.9	90	90	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.24**	**0.25 J**	**0.27 J**
Cadmium	mg/kg	0.069	70	70	100	100	NA	NA	NA	0.4 U	NA	0.3 U	NA	NA	NA	NA	NA	NA	NA	0.3 U	0.3 U	NA	**0.33**	**0.34**	**0.26 J**
Calcium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**12,000**	**29,000**	**33,000**
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	**20**	**50**	**77**	**660**	NA	**170**	NA	**10**	**6.3**	**11**	**6.7**	**18**	**6.4**	**19**	**15**	**6**	**48**	**52**	**36**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.5**	**3.5**	**3.5**
Copper	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.7**	**7.7**	**7.8**
Iron	mg/kg	35	NS	NS	--	--	NA	NA	NA	**3,100 F**	NA	**3,000**	NA	NA	NA	NA	NA	NA	NA	NA	**1,100**	**2,900**	**9,300**	**9,000**	**8,800**
Lead	mg/kg	NS	200	200	600	600	NA	NA	NA	2 U	NA	**2.9**	NA	NA	NA	NA	NA	NA	NA	NA	**1.7**	**2.1**	**5.8**	**5.3**	**6**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**WD-C9B**	**WD-C10**	**WD-C10B**	**WD-C11**		**WD-C11B**		**WD-C12**	**WD-C12B**	**WD-C13**	**WD-C13B**	**WD-C14**	**WD-C14B**	**WD-C15**	**WD-C15B**	**WD-C16**	**SS-420**	**SS-421**	**SS-422**
						Depth Interval (ft)	**6 - 6**	**6.6 - 6.6**	**5.6 - 5.6**	**5.6 - 5.6**		**5.6 - 5.6**		**6.1 - 6.1**	**5.2 - 5.2**	**6.1 - 6.1**	**5.2 - 5.2**	**7.6 - 7.6**	**6.9 - 6.9**	**10 - 10**	**9.3 - 9.3**	**10.1 - 10.1**	**0 - 1**	**0 - 1**	**0 - 1**
						Sample Date	**09/21/00**	**09/19/00**	**09/19/00**	**09/19/00**		**09/19/00**	**09/21/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/04/00**	**10/13/00**	**09/15/09**	**09/15/09**	**09/15/09**
						Sample ID	**1140-WD-C9B**	**1140-WD-C10**	**1140-WD-C10B**	**1140-WD-C11**	**1140-WD-C11 (156878)**	**1140-WD-C11B**	**1140-WD-C11B (157182)**	**1140-WD-C12**	**1140-WD-C12B**	**1140-WD-C13**	**1140-WD-C13B**	**1140-WD-C14**	**1140-WD-C14B**	**1140-WD-C15**	**1140-WD-C15B**	**1140-WD-C16**	**OC-SS-420-0.0/1.0-XXX**	**OC-SS-421-0.0/1.0-XXX**	**OC-SS-422-0.0/1.0-XXX**
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																			
Magnesium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	0.05 U	NA	0.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2,200**	**2,400**	**2,600**
Manganese	mg/kg	2.8	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**110**	**110**	**120**
Mercury	mg/kg	0.0033	20	20	30	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	0.05 U	0.14 U	0.2 U	0.16 U
Nickel	mg/kg	2.6	600	600	1000	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.9**	**8**	**7.9**
Potassium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,900**	**1,400**	**1,500**
Selenium	mg/kg	0.052	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.57 U	0.69 U	0.77 U
Silver	mg/kg	0.08	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.42 J**	**0.61 J**	**0.35 J**
Sodium	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**79 J**	**200**	**440**
Thallium	mg/kg	0.0014	8	8	80	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1 U	1.4 U	1.5 U
Tin	mg/kg	300	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**18 J**	**20 J**	**14 J**
Vanadium	mg/kg	8.6	400	400	700	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**12**	**13**	**12**
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**18**	**18**	**17**
General Chemistry																									
Ammonia	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.5 U	7.4 U	7.3 U
Chloride	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22 U	25 U	**44**
pH	S.U.	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,100**	**2,300**	**620**
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																									
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500 U	NA	840 U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110 U	NA	**96 J**
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3 U	NA	**4.1**
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																					
Arsenic	mg/L	0.01	0.01	0.9	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SS-423**	**SS-424**	**SS-425**	**SS-426**	**SS-429**	**SS-430**	**SS-431**	**SB-701**														
						Depth Interval (ft)	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 1**	**0 - 10**	**0 - 2**		**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**20 - 21**	**31 - 32**								
						Sample Date	**09/15/09**	**09/15/09**	**09/15/09**	**09/16/09**	**09/16/09**	**09/16/09**	**09/16/09**	**11/11/19**	**11/11/19**		**11/11/19**	**11/11/19**	**11/11/19**	**11/11/19**	**11/11/19**	**11/11/19**								
						Sample ID	**OC-SS-423-0.0/1.0-XXX**	**OC-SS-424-0.0/1.0-XXX**	**OC-SS-425-0.0/1.0-XXX**	**OC-SS-426-0.0/1.0-XXX**	**OC-SS-429-0.0/1.0-XXX**	**OC-SS-430-0.0/1.0-XXX**	**OC-SS-431-0.0/1.0-XXX**	**OC-SB-701-0.0/10-XXX-20191111**	**OC-SB-701-0.0/2.0-XXX-20191111**		**OC-SB-701-2.0/4.0-XXX-20191111**	**OC-SB-701-4.0/6.0-XXX-20191111**	**OC-SB-701-6.0/8.0-XXX-20191111**	**OC-SB-701-8.0/10-XXX-20191111**	**OC-SB-701-20/21-XXX-20191111**	**OC-SB-701-31/32-XXX-20191111**								
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**	**N**								
Chemical	**Units**		**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																								
Volatiles																														
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	**0.7 J**	4.3 U	5.2 U	5.2 U	4.1 U								
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	**1.9 J**	**0.54 J**	4.3 U	5.2 U	5.2 U	4.1 U								
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**3.8 J**	**16**	4.3 U	5.2 U	5.2 U	4.1 U								
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**0.82 J**	**0.79 J**	4.3 U	5.2 U	5.2 U	4.1 U								
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**0.32 J**	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	4.8 U	4.9 U	4.8 U	4.8 U	6.5 U	6 U	4.5 U	NA	4.3 UJ	5.8 UJ	**59**	**67**	**0.76 J**	5.2 U	**0.58 J**	4.1 U								
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	4.8 U	4.9 U	4.8 U	4.8 U	6.5 U	6 U	4.5 U	NA	4.3 UJ	5.8 UJ	**24**	**34**	4.3 U	5.2 U	5.2 U	4.1 U								
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	24 U	25 U	24 U	24 U	33 U	30 U	23 U	NA	22 U	29 U	**21 J+**	**23 J+**	21 U	26 U	26 U	20 U								
2-Hexanone	ug/kg	0.88	NS	NS	--	--	24 U	25 U	24 U	24 U	33 U	30 U	23 U	NA	22 UJ	29 UJ	23 U	26 U	21 U	26 U	26 U	20 U								
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	**0.41 J**	**0.48 J**	4.3 U	5.2 U	5.2 U	4.1 U								
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	240 UJ	250 UJ	240 UJ	240 UJ	330 UJ	300 UJ	230 UJ	NA	**14 J-**	**7.4 J-**	**82 J**	**99 J**	**16 J**	**12 J**	**16 J**	**14 J**								
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	**0.82 J**	4.3 U	5.2 U	5.2 U	4.1 U								
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
Carbon disulfide	ug/kg	24	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**4.2 J**	**6.6**	4.3 U	5.2 U	5.2 U	4.1 U								
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
Dibromomethane	ug/kg	0.21	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
Diethyl ether	ug/kg	88	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**0.49 J**	**1.4 J**	4.3 U	5.2 U	5.2 U	4.1 U								
Isopropylbenzene	ug/kg	74	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**1.2 J**	**3.7 J**	4.3 U	5.2 U	5.2 U	4.1 U								
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	4.8 U	4.9 U	4.8 U	4.8 U	6.5 U	6 U	4.5 U	NA	4.3 U	5.8 U	4.6 U	**0.98 J**	4.3 U	5.2 U	5.2 U	4.1 U								
Methyl acetate	ug/kg	410	NS	NS	--	--	48 U	49 U	48 U	48 U	65 U	60 U	45 U	NA	43 UJ	58 UJ	46 U	52 U	43 U	52 U	52 U	41 U								
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	9.6 U	9.9 U	9.5 U	9.5 U	13 U	12 U	9.1 U	NA	19 U	18 U	26 U	17 U	25 U	26 U	26 U	15 U								
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	24 U	25 U	24 U	24 U	33 U	30 U	23 U	NA	22 UJ	29 UJ	**3 J**	**180**	**15 J**	26 U	26 U	20 U								
n-Butylbenzene	ug/kg	320	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
n-Propylbenzene	ug/kg	120	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**1.2 J**	**7**	4.3 U	5.2 U	5.2 U	4.1 U								
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**0.75 J**	**1.6 J**	4.3 U	5.2 U	5.2 U	4.1 U								
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 UJ	5.8 UJ	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	**0.43 J**	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	2.4 U	2.5 U	2.4 U	2.4 U	3.3 U	3 U	2.3 U	NA	4.3 U	5.8 U	4.6 U	5.2 U	4.3 U	5.2 U	5.2 U	4.1 U								

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SS-423**		**SS-424**		**SS-425**		**SS-426**		**SS-429**		**SS-430**		**SS-431**		**SB-701**											
						Depth Interval (ft)	**0 - 1**		**0 - 1**		**0 - 1**		**0 - 1**		**0 - 1**		**0 - 1**		**0 - 1**		**0 - 10**		**0 - 2**			**2 - 4**		**4 - 6**		**6 - 8**		**8 - 10**		**20 - 21**		**31 - 32**	
						Sample Date	**09/15/09**		**09/15/09**		**09/15/09**		**09/16/09**		**09/16/09**		**09/16/09**		**09/16/09**		**11/11/19**		**11/11/19**			**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**	
						Sample ID	**OC-SS-423-0.0/1.0-XXX**		**OC-SS-424-0.0/1.0-XXX**		**OC-SS-425-0.0/1.0-XXX**		**OC-SS-426-0.0/1.0-XXX**		**OC-SS-429-0.0/1.0-XXX**		**OC-SS-430-0.0/1.0-XXX**		**OC-SS-431-0.0/1.0-XXX**		**OC-SB-701-0.0/10-XXX-20191111**		**OC-SB-701-0.0/2.0-XXX-20191111**		**OC-SB-701-0.0/2.0-DUP-20191111**	**OC-SB-701-2.0/4.0-XXX-20191111**		**OC-SB-701-4.0/6.0-XXX-20191111**		**OC-SB-701-6.0/8.0-XXX-20191111**		**OC-SB-701-8.0/10-XXX-20191111**		**OC-SB-701-20/21-XXX-20191111**		**OC-SB-701-31/32-XXX-20191111**	
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**		**FD**	**N**		**N**		**N**		**N**		**N**		**N**	
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																														
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	4.8	U	4.9	U	4.8	U	4.8	U	6.5	U	6	U	4.5	U	NA		4.3	U	5.8	U	4.6	U	**2.6**	**J**	4.3	U	5.2	U	5.2	U	4.1	U
Semivolatiles																																						
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	**7.4**	**J**	**1.9**	**J**	38	U	40	U	37	U	34	U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		8.2	U	8.3	U	7.7	U	7.9	U	7.8	U	8.1	U	7.5	U	7	U
2-Methylphenol	ug/kg	75	NS	NS	--	--	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
4-Methylphenol	ug/kg	150	NS	NS	--	--		NA		NA		NA		NA		NA		NA		NA	NA			NA		NA		NA		NA		NA		NA		NA		NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		8.2	U	8.3	U	7.7	U	7.9	U	7.8	U	8.1	U	7.5	U	7	U
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		8.2	U	8.3	U	7.7	U	7.9	U	7.8	U	8.1	U	7.5	U	7	U
Acetophenone	ug/kg	58	NS	NS	--	--	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		82	U	**2.2**	**J**	77	U	79	U	78	U	81	U	75	U	70	U
Aniline	ug/kg	4.6	NS	NS	--	--	39	UJ	38	UJ	40	UJ	36	UJ	39	UJ	44	UJ	38	UJ	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		8.2	U	8.3	U	7.7	U	**2.1**	**J**	7.8	U	8.1	U	7.5	U	7	U
Azobenzene	ug/kg	0.93	NS	NS	--	--	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		400	U	400	U	1,900	U	400	U	380	U	390	U	**62**	**J**	350	U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	**17**	**J**	38	U	40	U	36	U	39	U	**60**		38	U	NA		82	UJ	83	UJ	77	U	79	U	78	U	81	U	75	U	70	U
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	39	U	38	U	40	U	36	U	**19**	**J**	**17**	**J**	38	U	NA		8.2	U	**5.4**	**J**	7.7	U	**4.2**	**J**	7.8	U	8.1	U	7.5	U	7	U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	39	U	38	U	40	U	36	U	**14**	**J**	**17**	**J**	38	U	NA		8.2	U	8.3	U	7.7	U	7.9	U	7.8	U	8.1	U	7.5	U	7	U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	39	U	38	U	40	U	36	U	**23**	**J**	**27**	**J**	**14**	**J**	NA		8.2	U	**5.7**	**J**	7.7	U	**3.2**	**J**	7.8	U	8.1	U	7.5	U	7	U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		8.2	U	8.3	U	7.7	U	7.9	U	7.8	U	8.1	U	7.5	U	7	U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		8.2	U	8.3	U	7.7	U	7.9	U	7.8	U	8.1	U	7.5	U	7	U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	200	U	190	U	200	U	180	U	200	U	220	U	190	U	NA		210	UJ	210	UJ	200	U	200	U	200	U	200	U	190	U	180	U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	78	U	76	U	79	U	72	U	79	U	88	U	76	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	**450**	**EB**	**380**	**EB**	**660**	**EB**	**620**	**EB**	**330**	**EB**	**400**	**EB**	**1,500**	**EB**	NA		**640**		**800**		**3,900**		**150**	**J**	380	U	400	U	370	U	340	U
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
Carbazole	ug/kg	NS	NS	NS	--	--	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		8.2	U	8.3	U	7.7	U	7.9	U	7.8	U	8.1	U	7.5	U	7	U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	39	U	38	U	40	U	36	U	**21**	**J**	**21**	**J**	38	U	NA		8.2	U	**6**	**J**	7.7	U	**4.6**	**J**	7.8	U	8.1	U	7.5	U	7	U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		8.2	U	8.3	U	7.7	U	7.9	U	7.8	U	8.1	U	7.5	U	7	U
Dibenzofuran	ug/kg	15	NS	NS	--	--	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		40	U	41	U	38	U	39	U	38	U	40	U	37	U	34	U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	39	U	38	U	**15**	**J**	36	U	39	U	44	U	38	U	NA			NA		NA		NA		NA		NA		NA		NA	
Diphenylamine	ug/kg	230	NS	NS	--	--		NA	38	U		NA		NA	39	U		NA	**20**	**J**	NA			NA		NA		NA		NA		NA		NA		NA	
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	39	U	38	U	40	U	**12**	**J**	**42**		**41**	**J**	**12**	**J**	NA		**3.5**	**J**	**7.9**	**J**	**8.2**		**6.3**	**J**	7.8	U	8.1	U	7.5	U	7	U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	39	U	38	U	40	U	**20**	**J**	39	U	44	U	**22**	**J**	NA		8.2	U	8.3	U	7.7	U	7.9	U	7.8	U	8.1	U	7.5	U	7	U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		8.2	U	8.3	U	7.7	U	7.9	U	7.8	U	8.1	U	7.5	U	7	U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	94	U	91	U	95	U	86	U	95	U	110	U	91	U	NA		**2.5**	**J**	**5.6**	**J**	**34**		**540**		7.8	U	8.1	U	7.5	U	7	U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	39	U	38	U	40	U	36	U	39	U	44	U	38	U	NA		8.2	U	8.3	U	7.7	U	7.9	U	7.8	U	8.1	U	7.5	U	7	U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

						Sample Location	SS-423	SS-424	SS-425	SS-426	SS-429	SS-430	SS-431	SB-701								
						Depth Interval (ft)	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 10	0 - 2		2 - 4	4 - 6	6 - 8	8 - 10	20 - 21	31 - 32
						Sample Date	09/15/09	09/15/09	09/15/09	09/16/09	09/16/09	09/16/09	09/16/09	11/11/19	11/11/19		11/11/19	11/11/19	11/11/19	11/11/19	11/11/19	11/11/19
						Sample ID	OC-SS-423-0.0/1.0-XXX	OC-SS-424-0.0/1.0-XXX	OC-SS-425-0.0/1.0-XXX	OC-SS-426-0.0/1.0-XXX	OC-SS-429-0.0/1.0-XXX	OC-SS-430-0.0/1.0-XXX	OC-SS-431-0.0/1.0-XXX	OC-SB-701-0.0/10-XXX-20191111	OC-SB-701-0.0/2.0-XXX-20191111	OC-SB-701-0.0/2.0-DUP-20191111	OC-SB-701-2.0/4.0-XXX-20191111	OC-SB-701-4.0/6.0-XXX-20191111	OC-SB-701-6.0/8.0-XXX-20191111	OC-SB-701-8.0/10-XXX-20191111	OC-SB-701-20/21-XXX-20191111	OC-SB-701-31/32-XXX-20191111
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based	MassDEP criteria				N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N
Chemical		SSL	S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	21 JEB	38 U	36 JEB	14 JEB	12 JEB	55 EB	36 JEB	NA	93	120	430	1,500	38 U	40 U	37 U	34 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	47 U	46 U	48 U	43 U	47 U	15 J	46 U	NA	2.4 J	4.6 J	6.5 J	5.6 J	2.8 J	8.1 U	7.5 U	7 U
Phenol	ug/kg	330	1,000	20,000	1,000	20,000	39 U	38 U	40 U	36 U	39 U	44 U	38 U	NA	40 U	41 U	23 J	39 U	38 U	40 U	37 U	34 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	39 U	38 U	40 U	36 U	47	32 J	38 U	NA	8.2 U	8.3 U	8.6	7.6 J	7.8 U	8.1 U	7.5 U	7 U
Pesticides/PCBs																						
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	3	500	3	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																						
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																						
Aluminum	mg/kg	3,000	NS	NS	--	--	7,800	6,200	7,500	7,100	8,000	8,000	7,800	NA	9,900	8,200	7,400	4,700	4,000	3,400	5,200	13,000
Antimony	mg/kg	0.035	20	20	30	30	0.74 UJ	0.65 UJ	0.71 UJ	0.59 UJ	0.77 UJ	0.86 UJ	0.65 UJ	NA	0.63 J-	0.53 J-	17 U	18 U	17 U	19 U	1.1 J	0.85 J
Arsenic	mg/kg	0.0015	20	20	50	50	12	7.5	8.4	3.8	8.5	23	8.4	NA	8.6	10	7.3	0.76 J	1.9 J	3.5	11	2.4
Barium	mg/kg	16	1,000	1,000	5,000	5,000	42	34	51	29	80	56	42	NA	71 J+	49 J+	46	7	7.5	9.9	16	58
Beryllium	mg/kg	1.9	90	90	200	200	0.29 J	0.33	0.29	0.29	0.28 J	0.31 J	0.29	NA	0.46 J	0.34	0.33	0.16 J	0.18 J	0.16 J	0.31	0.58 J
Cadmium	mg/kg	0.069	70	70	100	100	0.51	0.26	0.42	0.41	0.41	0.92	0.79	NA	0.37	0.35	0.17 J	0.24 U	0.22 U	0.25 U	0.23 U	0.22 U
Calcium	mg/kg	NS	NS	NS	--	--	12,000	14,000	35,000	12,000	33,000	15,000	13,000	NA	28,000	24,000	44,000	2,100	1,100	1,100	1,300	7,500
Chromium	mg/kg	4,000,000	100	100	200	200	60	55	75	28	87	66	59	NA	72 J+	120 J+	200	8.1	14	12	580	460
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	NA	NA	NA	NA	NA	NA	2.8	2.5	3.7	0.66	0.73	0.98	8.9	22.6
Cobalt	mg/kg	0.027	NS	NS	--	--	4.6	3.8	4.1	5.3	4.1	5.6	4.2	NA	3.9	5.2	3.5	1.1	1.4	3	2.1	11
Copper	mg/kg	2.8	NS	NS	--	--	8.2	7.9	8.3	7.4	8.4	8.4	9.3	NA	10	9.9	8.2	0.75 J	1.6	2.9	7.7	27
Iron	mg/kg	35	NS	NS	--	--	13,000	9,100	10,000	13,000	10,000	20,000	10,000	NA	10,000	11,000	8,800	3,200	3,700	4,700	15,000	22,000
Lead	mg/kg	NS	200	200	600	600	5.7	6.3	6.3	4.5	5.4	8.2	7.1	NA	11	12	7.8	2.5	1.9	1.9	3.8	3.7

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SS-423**		**SS-424**		**SS-425**		**SS-426**		**SS-429**		**SS-430**		**SS-431**		**SB-701**											
						Depth Interval (ft)	**0 - 1**		**0 - 1**		**0 - 1**		**0 - 1**		**0 - 1**		**0 - 1**		**0 - 1**		**0 - 10**		**0 - 2**				**2 - 4**		**4 - 6**		**6 - 8**		**8 - 10**		**20 - 21**		**31 - 32**	
						Sample Date	**09/15/09**		**09/15/09**		**09/15/09**		**09/16/09**		**09/16/09**		**09/16/09**		**09/16/09**		**11/11/19**		**11/11/19**				**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**	
						Sample ID	**OC-SS-423-0.0/1.0-XXX**		**OC-SS-424-0.0/1.0-XXX**		**OC-SS-425-0.0/1.0-XXX**		**OC-SS-426-0.0/1.0-XXX**		**OC-SS-429-0.0/1.0-XXX**		**OC-SS-430-0.0/1.0-XXX**		**OC-SS-431-0.0/1.0-XXX**		**OC-SB-701-0.0/10-XXX-20191111**		**OC-SB-701-0.0/2.0-XXX-20191111**		**OC-SB-701-0.0/2.0-DUP-20191111**		**OC-SB-701-2.0/4.0-XXX-20191111**		**OC-SB-701-4.0/6.0-XXX-20191111**		**OC-SB-701-6.0/8.0-XXX-20191111**		**OC-SB-701-8.0/10-XXX-20191111**		**OC-SB-701-20/21-XXX-20191111**		**OC-SB-701-31/32-XXX-20191111**	
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**		**N**		**FD**		**N**		**N**		**N**		**N**		**N**		**N**	
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																																
Magnesium	mg/kg	NS	NS	NS	--	--	**2,700**		**1,900**		**2,500**		**3,900**		**2,700**		**2,100**		**2,700**		NA		**3,700**	**J+**	**2,900**	**J+**	**2,400**		**1,000**		**1,200**		**1,200**		**1,600**		**8,700**	
Manganese	mg/kg	2.8	NS	NS	--	--	**160**		**100**		**140**		**250**		**130**		**370**		**140**		NA		**180**	**J**	**150**	**J**	**120**		**50**		**41**		**45**		**100**		**340**	
Mercury	mg/kg	0.0033	20	20	30	30	0.21	U	0.21	U	0.15	U	0.18	U	0.21	U	0.21	U	**0.031**	**J**	NA		**0.031**	**J**	**0.036**		**0.069**		0.024	U	0.023	U	0.024	U	0.022	U	0.02	U
Nickel	mg/kg	2.6	600	600	1000	1000	**9.6**		**10**		**8.7**		**7.5**		**8.8**		**9.8**		**10**		NA		**11**		**11**		**11**		**4.1**	**J**	**5.2**	**J**	**6.3**		**7.3**		**15**	
Potassium	mg/kg	NS	NS	NS	--	--	**1,100**		**1,100**		**1,400**		**1,600**		**1,500**		**1,000**		**1,100**		NA		**1,200**	**J+**	**1,100**	**J+**	**920**		**340**		**400**		**530**		**550**		**4,100**	
Selenium	mg/kg	0.052	400	400	700	700	0.74	U	0.65	U	0.71	U	0.59	U	0.77	U	0.86	U	0.65	U	NA		4.8	U	4.9	U	4.4	U	4.9	U	4.4	U	5	U	4.6	U	4.4	U
Silver	mg/kg	0.08	100	100	200	200	**0.63**	**J**	**0.76**		**1**		**0.13**	**J**	**1.2**		**0.67**	**J**	**0.7**		NA		0.72	U	0.73	U	0.66	U	0.73	U	0.67	U	0.75	U	0.69	U	0.66	U
Sodium	mg/kg	NS	NS	NS	--	--	**46**	**J**	**62**	**J**	**96**	**J**	**74**	**J**	**250**		**77**	**J**	**63**	**J**	NA		**150**	**J**	**130**	**J**	**160**		**97**	**J**	**75**	**J**	**73**	**J**	**240**		**1,100**	
Thallium	mg/kg	0.0014	8	8	80	80	1.5	U	1.3	U	1.4	U	1.2	U	1.5	U	1.7	U	1.3	U	NA		7.2	U	7.3	U	6.6	U	7.3	U	6.7	U	7.5	U	6.9	U	6.6	U
Tin	mg/kg	300	NS	NS	--	--	**24**	**J**	**22**	**J**	**30**	**J**	**10**	**J**	**36**	**J**	**26**	**J**	**24**	**J**	NA		**0.72**	**J**	**1.1**	**J**	**1.1**	**J**	2.4	U	2.2	U	2.5	U	**0.61**	**J**	**0.69**	**J**
Vanadium	mg/kg	8.6	400	400	700	700	**15**		**12**		**15**		**18**		**14**		**17**		**14**		NA		**19**	**J+**	**18**	**J+**	**16**		**6.1**		**6**		**6.6**		**21**		**58**	
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	**19**		**20**		**20**		**23**		**18**		**19**		**21**		NA		**26**	**J+**	**28**	**J+**	**27**		**7**		**8.4**		**10**		**12**		**36**	
General Chemistry																																						
Ammonia	mg/kg	NS	NS	NS	--	--	8.4	U	**24**		**18**		6.5	U	8.2	U	**39**		**20**		NA		**4.7**		**6.5**		**28**		**35**		**21**		**27**		**25**		**210**	
Chloride	mg/kg	NS	NS	NS	--	--	18	U	22	U	21	U	17	U	19	U	20	U	15	U	NA		12	UJ	12	UJ	11	UJ	12	UJ	11	UJ	12	UJ	11	UJ	**390**	**J**
pH	S.U.	NS	NS	NS	--	--		NA		NA		NA		NA		NA		NA		NA	**8.4**	**J**		NA		NA		NA		NA		NA		NA		NA		NA
Sulfate	mg/kg	NS	NS	NS	--	--	**57**		**8,100**		**13,000**		**1,000**		**920**		**2,400**		**5,100**		NA		**12,000**	**J**	**13,000**	**J**	**15,000**	**J**	**230**	**J**	**130**	**J**	**250**	**J**	**190**	**J**	**3,900**	**J**
Total Organic Carbon	mg/kg	NS	NS	NS	--	--		NA	**9,400**			NA		NA		NA		NA		NA	NA			NA		NA		NA		NA		NA		NA		NA		NA
Other Analyses																																						
Dimethylformamide	ug/kg	1.2	NS	NS	--	--		NA	560	U		NA		NA	760	U		NA	690	U	NA		180	U	180	U	200	U	220	U	150	U	160	U	170	U	170	U
Formaldehyde	ug/kg	0.078	NS	NS	--	--		NA	110	U		NA		NA	**170**			NA	**100**	**J**	NA		2,500	UJ	2,500	UJ	**1,600**	**J**	**1,500**	**J**	2,300	UJ	2,400	UJ	2,200	UJ	**5,300**	**J**
Hydrazine	ug/kg	0.00022	NS	NS	--	--		NA	**2**	**J**		NA		NA	**0.62**	**J**		NA	**1.6**	**J**	NA		**5.3**	**J**	**5.7**	**J**	**11**		**2.8**	**J**	**1.7**	**J**	**2.2**	**J**	**1.8**	**J**	5.3	U
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																																		
Arsenic	mg/L	0.01	0.01	0.9	--	--		NA		NA		NA		NA		NA		NA		NA	**0.0097**	**J**		NA		NA		NA		NA		NA		NA		NA		NA
Barium	mg/L	2	2	50	--	--		NA		NA		NA		NA		NA		NA		NA	**0.21**	**J**		NA		NA		NA		NA		NA		NA		NA		NA
Cadmium	mg/L	0.005	0.005	0.004	--	--		NA		NA		NA		NA		NA		NA		NA	**0.0011**	**J**		NA		NA		NA		NA		NA		NA		NA		NA
Chromium	mg/L	0.1	0.1	0.3	--	--		NA		NA		NA		NA		NA		NA		NA	**0.13**			NA		NA		NA		NA		NA		NA		NA		NA
Lead	mg/L	0.015	0.015	0.01	--	--		NA		NA		NA		NA		NA		NA		NA	**0.011**	**J**		NA		NA		NA		NA		NA		NA		NA		NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-702								SB-703								
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35	0 - 10	0 - 2	2 - 4		4 - 6	6 - 8	8 - 10	17 - 18	30 - 32
						Sample Date	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/05/19	11/05/19	11/05/19		11/05/19	11/05/19	11/05/19	11/05/19	11/05/19
						Sample ID	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108	OC-SB-703-0.0/10-XXX-20191105	OC-SB-703-0.0/2.0-XXX-20191105	OC-SB-703-2.0/4.0-XXX-20191105	OC-SB-703-2.0/4.0-DUP-20191105	OC-SB-703-4.0/6.0-XXX-20191105	OC-SB-703-6.0/8.0-XXX-20191105	OC-SB-703-8.0/10-XXX-20191105	OC-SB-703-17/18-XXX-20191105	OC-SB-703-30/32-XXX-20191105
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Volatiles																							
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**1.1 J**
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	**0.37 J-**	**0.27 J-**	4.6 U	5 U	5 U	4.5 U	3 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	4.7 U	**2.4 J**	**1.2 J**	**13**	**16**	4.2 U	11 U	NA	**0.9 J**	**1.7 J-**	**1.4 J-**	4.6 U	5 U	5 U	4.5 U	3 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	4.7 U	**0.84 J**	4.9 U	**4.4**	**3.1 J**	4.2 U	11 U	NA	4.7 U	**0.67 J-**	**0.46 J-**	4.6 U	5 U	5 U	4.5 U	3 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	23 U	**14 J+**	**29 J+**	**4.4 J+**	23 U	21 U	54 U	NA	**6.6 J**	**10 J**	**9.5 J-**	23 U	25 U	25 U	22 U	15 U
2-Hexanone	ug/kg	0.88	NS	NS	--	--	NA	23 U	21 U	25 U	21 U	23 U	21 U	54 U	NA	24 U	22 UJ	20 UJ	23 U	25 U	25 U	22 U	15 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	**23 J**	**54 J**	**54 J**	**20 J**	**5.6 J**	**5.1 J**	**12 J**	NA	**30 J**	**37 J-**	**43 J-**	**6.5 J**	**23 J**	**4.2 J**	220 U	**7.6 J**
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	4.7 U	4.1 U	4.9 U	**0.37 J**	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**0.78 J**
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	**4.4 J-**	**6.5 J-**	4.6 U	5 U	5 U	4.5 U	3 U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**4.6**
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	**0.77 J-**	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	47 U	41 U	**8.1 J**	42 U	**6.3 J**	42 U	**7.5 J**	NA	47 U	44 UJ	40 UJ	46 U	50 U	50 U	45 U	30 U
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	NA	6.5 U	5.6 U	8.4 U	4.5 U	20 U	21 U	57 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	23 U	21 U	25 U	21 U	23 U	21 U	54 U	NA	24 U	22 UJ	20 UJ	23 U	25 U	25 U	22 U	15 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	**0.62 J**
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	4.4 UJ	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-702								SB-703								
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35	0 - 10	0 - 2	2 - 4		4 - 6	6 - 8	8 - 10	17 - 18	30 - 32
						Sample Date	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/05/19	11/05/19	11/05/19		11/05/19	11/05/19	11/05/19	11/05/19	11/05/19
						Sample ID	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108	OC-SB-703-0.0/10-XXX-20191105	OC-SB-703-0.0/2.0-XXX-20191105	OC-SB-703-2.0/4.0-XXX-20191105	OC-SB-703-2.0/4.0-DUP-20191105	OC-SB-703-4.0/6.0-XXX-20191105	OC-SB-703-6.0/8.0-XXX-20191105	OC-SB-703-8.0/10-XXX-20191105	OC-SB-703-17/18-XXX-20191105	OC-SB-703-30/32-XXX-20191105
Normal (N) or Field Duplicate (FD) Sample			**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.7 U	4.1 U	4.9 U	4.2 U	4.6 U	4.2 U	11 U	NA	4.7 U	**0.77 J-**	4 UJ	4.6 U	5 U	5 U	4.5 U	3 U
Semivolatiles																							
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	38 U	**2 J**	37 U	75 U	35 U	38 U	35 U	NA	**2.6 J**	**3.2 J**	**4.3 J**	40 U	41 U	36 U	37 U	36 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	**2.2 J**	40 U	41 U	36 UJ	37 U	36 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	7.7 U	7.1 U	7.5 U	15 U	7.1 U	7.7 U	7.2 U	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	7.7 U	7.1 U	7.5 U	**5.5 J**	7.1 U	7.7 U	7.2 U	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	NA	7.7 U	**1.7 J**	7.5 U	**3.3 J**	7.1 U	7.7 U	7.2 U	NA	**3 J**	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	77 U	71 U	75 U	150 U	71 U	77 U	72 U	NA	87 U	79 U	**2.4 J**	82 U	84 U	73 UJ	74 U	72 U
Aniline	ug/kg	4.6	NS	NS	--	--	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 UJ	37 U	36 U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	NA	7.7 U	**2.2 J**	7.5 U	**15**	7.1 U	7.7 U	7.2 U	NA	**3.1 J**	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	380 U	350 U	370 U	360 U	350 U	370 U	350 U	NA	430 U	400 U	370 U	410 U	410 U	360 U	360 U	360 U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	R	R	R	R	71 U	77 U	72 U	NA	**10 J**	R	**5.8 J-**	82 U	84 U	R	74 U	72 U
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	**8.8**	**11**	**3.9 J**	**49**	7.1 U	7.7 U	7.2 U	NA	**6.9 J**	**3.5 J**	**4.3 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	**9.7**	**10**	**3.7 J**	**45**	7.1 U	7.7 U	7.2 U	NA	**7.3 J**	**3.4 J**	**4.3 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	**11**	**17**	**5.3 J**	**43**	7.1 U	7.7 U	7.2 U	NA	**10**	**4.1 J**	**6.8 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	NA	**8.5**	**10**	**3.2 J**	**29**	7.1 U	7.7 U	7.2 U	NA	**7.6 J**	**3.7 J**	**4.9 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	NA	**5.3 J**	**5.9 J**	7.5 U	**20**	7.1 U	7.7 U	7.2 U	NA	**3.1 J**	**3 J**	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	NA	200 U	180 U	190 U	390 U	180 U	190 U	180 U	NA	220 U	R	**50 J-**	210 U	210 U	R	190 U	180 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	NA	**230 J**	**270 J**	**3,500**	**800**	**630**	380 U	350 U	NA	**1,600**	**650 J**	**1,400 J**	400 U	410 U	**60 J**	370 U	360 U
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	7.7 U	**1.8 J**	7.5 U	**3.7 J**	7.1 U	7.7 U	7.2 U	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	NA	**10**	**14**	**4.5 J**	**46**	7.1 U	7.7 U	7.2 U	NA	**9.3**	**4.6 J**	**6.5 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	**3.4 J**	**2.7 J**	7.5 U	**9.6 J**	7.1 U	7.7 U	7.2 U	NA	**2.4 J**	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	38 U	35 U	**2 J**	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	38 U	40 U	41 U	36 U	37 U	36 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	NA	**14**	**15**	**5.9 J**	**81**	**3 J**	7.7 U	7.2 U	NA	**14**	**6.3 J**	**9**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	7.7 U	7.1 U	7.5 U	**5.3 J**	7.1 U	7.7 U	7.2 U	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	**7.3 J**	**8.7**	**2.8 J**	**25**	7.1 U	7.7 U	7.2 U	NA	**6 J**	**3 J**	**3.5 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	7.7 U	**1.4 J**	7.5 U	15 U	**2.2 J**	7.7 U	7.2 U	NA	**2.7 J**	**4.5 J**	**5.7 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	7.7 U	7.1 U	7.5 U	15 U	7.1 U	7.7 U	7.2 U	NA	8.7 U	7.9 U	7.7 U	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-702**								**SB-703**											
						Depth Interval (ft)	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**28 - 29**	**34 - 35**	**0 - 10**	**0 - 2**	**2 - 4**		**4 - 6**	**6 - 8**	**8 - 10**	**17 - 18**	**30 - 32**
						Sample Date	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/05/19**	**11/05/19**	**11/05/19**		**11/05/19**	**11/05/19**	**11/05/19**	**11/05/19**	**11/05/19**
						Sample ID	**OC-SB-702-0.0/10-XXX-20191108**	**OC-SB-702-0.0/2.0-XXX-20191108**	**OC-SB-702-2.0/4.0-XXX-20191108**	**OC-SB-702-4.0/6.0-XXX-20191108**	**OC-SB-702-6.0/8.0-XXX-20191108**	**OC-SB-702-8.0/10-XXX-20191108**	**OC-SB-702-28/29-XXX-20191108**	**OC-SB-702-34/35-XXX-20191108**	**OC-SB-703-0.0/10-XXX-20191105**	**OC-SB-703-0.0/2.0-XXX-20191105**	**OC-SB-703-2.0/4.0-XXX-20191105**	**OC-SB-703-2.0/4.0-DUP-20191105**	**OC-SB-703-4.0/6.0-XXX-20191105**	**OC-SB-703-6.0/8.0-XXX-20191105**	**OC-SB-703-8.0/10-XXX-20191105**	**OC-SB-703-17/18-XXX-20191105**	**OC-SB-703-30/32-XXX-20191105**
Normal (N) or Field Duplicate (FD) Sample			**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	NA	**13 J**	35 U	**12 J**	75 U	35 U	38 U	35 U	NA	**37 J**	**130 J**	**350 J**	40 U	41 U	36 U	37 U	36 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	NA	**6.4 J**	**9.4**	**4.5 J**	**48**	7.1 U	7.7 U	7.2 U	NA	**8.1 J**	**3.9 J**	**5.4 J**	8.2 U	8.4 U	7.3 U	7.4 U	**2 J**
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	NA	38 U	35 U	37 U	75 U	35 U	38 U	35 U	NA	43 U	39 U	**25 J**	40 U	41 U	36 U	37 U	36 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	NA	**13**	**14**	**6.4 J**	**87**	**3 J**	7.7 U	7.2 U	NA	**12**	**5.6 J**	**7.5 J**	8.2 U	8.4 U	7.3 U	7.4 U	7.2 U
Pesticides/PCBs																							
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																							
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																							
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	**9,200**	**9,000**	**11,000**	**10,000**	**6,300**	**3,700**	**11,000**	NA	**9,000**	**6,500 J+**	**6,700 J+**	**4,700**	**4,600**	**6,100**	**1,100**	**4,800**
Antimony	mg/kg	0.035	20	20	30	30	NA	17 U	16 U	17 U	16 U	**0.55 J**	18 U	**0.74 J**	NA	20 U	18 U	18 U	19 U	18 U	16 U	17 U	17 U
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	**5.1**	**7.6**	**9.7**	**11**	**26**	**6.5**	**3.8**	NA	**13**	**4.1**	**4.7**	**3.4**	**7.5**	**4.2**	**0.91 J**	**3.3**
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	**46**	**33**	**41**	**41**	**29**	**24**	**41**	NA	**89 J**	**12 J-**	**15 J-**	**11 J**	**10 J**	**15 J**	**20 J**	**14 J**
Beryllium	mg/kg	1.9	90	90	200	200	NA	**0.5**	**0.44**	**0.65**	**0.55**	**0.28**	**0.15 J**	**5.9**	NA	**0.39**	**0.21 J**	**0.24**	**0.19 J**	**0.22 J**	**0.3**	**0.059 J**	**0.14 J**
Cadmium	mg/kg	0.069	70	70	100	100	NA	**0.036 J**	0.21 U	0.22 U	0.22 U	0.23 U	0.23 U	0.22 U	NA	**0.3 J**	**0.06 J**	**0.11 J**	0.26 U	0.25 U	0.22 U	**0.044 J**	0.23 U
Calcium	mg/kg	NS	NS	NS	--	--	NA	**14,000**	**3,800**	**2,800**	**2,300**	**1,400**	**2,200**	**5,000**	NA	**92,000**	**5,900 J+**	**6,300 J+**	**3,800**	**2,000**	**1,200**	**4,800**	**5,400**
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	NA	**32**	**20**	**34**	**42**	**22**	**64**	**580**	NA	**180**	**14 J+**	**20 J+**	**6.8**	**9.9**	**52**	**10**	**190**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	**1.6**	**0.98**	**0.71**	**0.55**	0.44 U	**1**	**7.5**	NA	**5.8**	**0.7 J**	**2.3 J**	**0.29 J**	**0.37 J**	**3.2**	**0.41 J**	**9.8**
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	**5.6**	**4.1**	**6.5**	**6**	**7**	**3.2**	**13**	NA	**3.5**	**2.2**	**2.6**	**2.4**	**2.4**	**2.8**	**0.62**	**4.3**
Copper	mg/kg	2.8	NS	NS	--	--	NA	**8.2**	**9.3**	**9.4**	**12**	**9.5**	**7**	**29**	NA	**9.2**	**2.9 J**	**5.3 J**	**2.1**	**2.9**	**7.3**	**0.5 J**	**19**
Iron	mg/kg	35	NS	NS	--	--	NA	**13,000**	**9,800**	**13,000**	**13,000**	**15,000**	**8,000**	**20,000**	NA	**9,200**	**5,000 J+**	**6,400 J+**	**5,200**	**7,900**	**7,600**	**1,400**	**11,000**
Lead	mg/kg	NS	200	200	600	600	NA	**12**	**22**	**7.4**	**14**	**9.3**	**10**	**5**	NA	**9.7**	**3.6**	**6.4**	**2.3**	**2.6**	**3.6**	**1.6**	**3**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-702								SB-703								
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	28 - 29	34 - 35	0 - 10	0 - 2	2 - 4		4 - 6	6 - 8	8 - 10	17 - 18	30 - 32
						Sample Date	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/08/19	11/05/19	11/05/19	11/05/19		11/05/19	11/05/19	11/05/19	11/05/19	11/05/19
						Sample ID	OC-SB-702-0.0/10-XXX-20191108	OC-SB-702-0.0/2.0-XXX-20191108	OC-SB-702-2.0/4.0-XXX-20191108	OC-SB-702-4.0/6.0-XXX-20191108	OC-SB-702-6.0/8.0-XXX-20191108	OC-SB-702-8.0/10-XXX-20191108	OC-SB-702-28/29-XXX-20191108	OC-SB-702-34/35-XXX-20191108	OC-SB-703-0.0/10-XXX-20191105	OC-SB-703-0.0/2.0-XXX-20191105	OC-SB-703-2.0/4.0-XXX-20191105	OC-SB-703-2.0/4.0-DUP-20191105	OC-SB-703-4.0/6.0-XXX-20191105	OC-SB-703-6.0/8.0-XXX-20191105	OC-SB-703-8.0/10-XXX-20191105	OC-SB-703-17/18-XXX-20191105	OC-SB-703-30/32-XXX-20191105
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Chemical		SSL	S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Magnesium	mg/kg	NS	NS	NS	--	--	NA	**4,000**	**2,600**	**3,900**	**4,500**	**3,600**	**1,700**	**6,300**	NA	**2,500**	**1,100 J+**	**1,300 J+**	**1,100**	**1,800**	**1,800**	**250**	**3,100**
Manganese	mg/kg	2.8	NS	NS	--	--	NA	**270**	**130**	**200**	**200**	**250**	**72**	**220**	NA	**110**	**63 J+**	**76 J+**	**61**	**89**	**73**	**32**	**110**
Mercury	mg/kg	0.0033	20	20	30	30	NA	**0.041**	**0.11**	**0.011 J**	**0.02 J**	0.022 U	0.022 U	0.021 U	NA	**0.037**	**0.032**	**0.025**	0.024 U	0.025 U	0.022 U	0.021 U	**0.008 J**
Nickel	mg/kg	2.6	600	600	1000	1000	NA	**8.2**	**10**	**23**	**23**	**31**	**3.8 J**	**15**	NA	**8.9**	**7**	**8**	**4.6 J**	**7.3**	**7.5**	**0.9 J**	**5.4 J**
Potassium	mg/kg	NS	NS	NS	--	--	NA	**1,300**	**1,400**	**1,800**	**1,800**	**1,500**	**1,100**	**2,100**	NA	**980**	**550**	**660**	**430**	**580**	**670**	**330**	**820**
Selenium	mg/kg	0.052	400	400	700	700	NA	4.6 U	4.3 U	**0.61 J**	4.4 U	4.6 U	**0.54 J**	4.4 U	NA	5.3 U	4.9 U	4.7 U	5.2 U	4.9 U	4.3 U	4.6 U	4.5 U
Silver	mg/kg	0.08	100	100	200	200	NA	0.69 U	0.64 U	0.66 U	0.65 U	0.68 U	0.7 U	0.66 U	NA	0.8 U	0.73 U	0.71 U	0.77 U	0.74 U	0.65 U	0.68 U	0.68 U
Sodium	mg/kg	NS	NS	NS	--	--	NA	**220**	**130 J**	**160**	**130 J**	**110 J**	**200**	**340**	NA	**160 J**	170 U	170 U	180 U	170 U	150 U	160 U	**260**
Thallium	mg/kg	0.0014	8	8	80	80	NA	6.9 U	6.4 U	6.6 U	6.5 U	6.8 U	7 U	6.6 U	NA	8 U	7.3 U	7.1 U	7.7 U	7.4 U	6.5 U	6.8 U	6.8 U
Tin	mg/kg	300	NS	NS	--	--	NA	**0.91 J**	**0.69 J**	**0.82 J**	**1.2 J**	**0.62 J**	2.3 U	**0.61 J**	NA	**1.1 J**	2.4 U	**0.73 J**	2.6 U	2.5 U	2.2 U	2.3 U	2.3 U
Vanadium	mg/kg	8.6	400	400	700	700	NA	**25**	**18**	**23**	**22**	**16**	**17**	**58**	NA	**16**	**8.4**	**9.7**	**7.8**	**8.9**	**12**	**3.6**	**27**
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	**30**	**28**	**28**	**33**	**26**	**11**	**32**	NA	**22**	**24**	**29**	**10**	**11**	**17**	**2.9**	**15**
General Chemistry																							
Ammonia	mg/kg	NS	NS	NS	--	--	NA	**4 J**	**6**	**6**	**7.8**	**13**	**11**	**41**	NA	**7**	**12**	**10**	**7.9**	**10**	**10**	**5.1**	**130**
Chloride	mg/kg	NS	NS	NS	--	--	NA	**9.3 J**	10 UJ	11 UJ	11 UJ	10 U	**5.3 J**	**5.8 J**	NA	**5.4 J**	12 U	11 U	12 U	**5.8 J**	**9.2 J**	11 U	**210**
pH	S.U.	NS	NS	NS	--	--	**7.4 J**	NA	NA	NA	NA	NA	NA	NA	**5.4 J**	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	NA	**610 J**	**3,000 J**	**6,100 J**	**730 J**	**180**	**140**	**1,000**	NA	**18,000**	**10,000**	**16,000**	**430**	**180**	**160**	**16,000**	**1,300**
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																							
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	160 U	160 U	170 U	150 U	140 U	170 U	140 U	NA	180 U	200 U	190 U	200 U	200 U	200 U	180 U	190 U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	2,300 U	**1,500 J**	2,200 UJ	2,200 UJ	2,200 UJ	2,300 UJ	2,200 UJ	NA	**1,800 J**	**2,900 J**	**4,900 J**	2,500 U	2,500 U	2,200 U	2,200 U	**1,300 J**
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	5.8 U	**1.5 J**	5.4 U	5.5 U	**2.1 J**	**5.5**	5.5 U	NA	6.7 U	**7.4 J**	**4.2 J**	6.6 U	5.8 U	5.8 U	5.8 U	**9.4**
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																			
Arsenic	mg/L	0.01	0.01	0.9	--	--	**0.0077 J**	NA	NA	NA	NA	NA	NA	NA	0.015 U	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	**0.2 J**	NA	NA	NA	NA	NA	NA	NA	**0.2 J**	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	0.002 U	NA	NA	NA	NA	NA	NA	NA	**0.00061 J**	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	**0.017 J**	NA	NA	NA	NA	NA	NA	NA	**0.095**	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	**0.012 J**	NA	NA	NA	NA	NA	NA	NA	**0.012 J**	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-704									SB-705							
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18
						Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19
						Sample ID	OC-SB-704-0.0/10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Chemical	Units		S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Volatiles																							
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	7.3 U	**0.58 J**	**0.36 J**	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	**3 J**	**2.7 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	**1.4 J**	**1.1 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	**5.1 J**	**6.2**	**1.3 J**	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	**5.5**	**7.4 J-**	**11 J-**	4.3 U	3.7 U	4.2 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	7.3 U	**3 J**	**0.56 J**	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	**2.1 J**	**2.3 J-**	**3.8 J-**	4.3 U	3.7 U	4.2 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	**17 J+**	**23 J+**	**64 J+**	**9.6 J+**	**29 J+**	24 U	21 U	22 U	NA	21 U	**14 J+**	**20 J+**	**32 J+**	**560 J+**	19 U	21 U
2-Hexanone	ug/kg	0.88	NS	NS	--	--	NA	37 U	27 U	20 U	19 U	23 U	24 U	21 U	22 U	NA	21 U	22 U	24 UJ	23 UJ	21 U	19 U	21 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	**1.9 J**	**1.2 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	**0.52 J-**	4.7 UJ	4.3 U	3.7 U	4.2 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	**93 J**	**68 J**	**64 J**	**38 J**	**54 J**	**18 J**	210 U	**22 J**	NA	**14 J**	**46 J**	**74 J-**	**69 J-**	**18 J**	190 U	**19 J**
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	7.3 U	**0.41 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	**0.28 J**	4.3 U	3.7 U	4.2 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	7.3 U	**6**	**2.5 J**	3.7 U	**2.4 J**	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	**3.4 J**	**2.8 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	7.3 U	**1.3 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	73 U	54 U	41 U	37 U	45 U	48 U	43 U	43 U	NA	42 U	43 U	48 UJ	**150 J+**	**41 J**	37 U	42 U
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	NA	14 U	11 U	6.1 U	4.7 U	8.8 U	7.8 U	6.7 U	7.2 U	NA	9.7 U	6.2 U	7.3 U	6.9 U	29 U	26 U	9.1 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	**2.5 J**	**1.4 J**	20 U	19 U	23 U	24 U	21 U	22 U	NA	21 U	22 U	24 UJ	23 UJ	21 U	19 U	21 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	7.3 U	**0.49 J**	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 UJ	4.7 UJ	4.3 U	3.7 U	4.2 U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	**1.4 J**	**4.2 J**	**0.5 J**	**0.38 J**	4.5 U	4.8 U	4.3 U	**0.53 J**	NA	4.2 U	**0.48 J**	**0.6 J**	**0.72 J**	4.3 U	3.7 U	4.2 U
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-704									SB-705							
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18
						Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19
						Sample ID	OC-SB-704-0.0/10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108
Normal (N) or Field Duplicate (FD) Sample			MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Chemical	Units	11/2019 MCL-based SSL	S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	7.3 U	5.4 U	4.1 U	3.7 U	4.5 U	4.8 U	4.3 U	4.3 U	NA	4.2 U	4.3 U	4.8 U	4.7 U	4.3 U	3.7 U	4.2 U
Semivolatiles																							
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	**24 J**	**7.8 J**	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	**33 J**	1,100 U	**45 J**	37 U	35 U	35 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 UJ	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	**37**	**1.9 J**	7.3 U	**2.3 J**	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	**100 J**	**51 J**	7.6 U	7.2 U	7 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 UJ	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	**31 J**	**6.4 J**	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	**16 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	170 U	**5.7 J**	73 U	72 U	74 U	74 U	74 U	74 U	NA	78 U	230 U	2,100 U	2,000 U	76 U	72 U	70 U
Aniline	ug/kg	4.6	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	NA	**9.1 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	410 U	370 U	370 U	360 U	340 U	340 U	360 U	350 U	NA	380 U	1,800 U	2,100 U	2,000 U	370 U	360 U	350 U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	R	**10 J-**	R	R	R	R	R	R	NA	R	**230 J-**	2,100 U	2,000 U	76 U	72 U	70 U
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	**13 J**	**2.8 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**3 J**	**8.9 J**	210 U	200 U	7.6 U	7.2 U	7 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	**10 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**2.6 J**	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	**14 J**	**2.6 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**3.1 J**	**8.2 J**	210 U	200 U	7.6 U	7.2 U	7 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	NA	**8.4 J**	**1.8 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**1.8 J**	**5.4 J**	210 U	200 U	7.6 U	7.2 U	7 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	NA	**5.2 J**	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	NA	R	190 U	190 U	180 U	190 U	190 U	190 U	190 UJ	NA	200 U	590 U	5,400 U	5,100 U	190 U	180 U	180 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 UJ	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	NA	**7,600**	**2,400**	360 U	350 U	360 U	360 U	370 U	360 U	NA	**110 J**	**2,400**	**2,100 J**	**2,200 J**	370 U	350 U	350 U
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	NA	**18**	**3.7 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**2.8 J**	**7.6 J**	210 U	200 U	7.6 U	7.2 U	7 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	17 U	7.6 U	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**2.6 J**	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	**8.8 J**	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	NA	84 U	38 U	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	NA	**47**	**6.9 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**4.7 J**	**11 J**	210 U	200 U	7.6 U	7.2 U	7 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	**21**	**1.9 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	**8.1 J**	**2 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**1.7 J**	23 U	210 U	200 U	7.6 U	7.2 U	7 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	**15 J**	**2.4 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	**4.6 J**	210 U	200 U	7.6 U	7.2 U	7 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	**23**	**2 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	7.8 U	23 U	**60 J**	200 U	7.6 U	7.2 U	7 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-704**									**SB-705**								
						Depth Interval (ft)	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**12 - 13**	**19 - 20**	**33 - 34**	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**		**6 - 8**	**8 - 10**	**17 - 18**
						Sample Date	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/08/19**	**11/08/19**	**11/08/19**	**11/08/19**		**11/08/19**	**11/08/19**	**11/08/19**
						Sample ID	**OC-SB-704-0.0/10-XXX-20191107**	**OC-SB-704-0.0/2.0-XXX-20191107**	**OC-SB-704-2.0/4.0-XXX-20191107**	**OC-SB-704-4.0/6.0-XXX-20191107**	**OC-SB-704-6.0/8.0-XXX-20191107**	**OC-SB-704-8.0/10-XXX-20191107**	**OC-SB-704-12/13-XXX-20191107**	**OC-SB-704-19/20-XXX-20191107**	**OC-SB-704-33/34-XXX-20191107**	**OC-SB-705-0.0/10-XXX-20191108**	**OC-SB-705-0.0/2.0-XXX-20191108**	**OC-SB-705-2.0/4.0-XXX-20191108**	**OC-SB-705-4.0/6.0-XXX-20191108**	**OC-SB-705-4.0/6.0-DUP-20191108**	**OC-SB-705-6.0/8.0-XXX-20191108**	**OC-SB-705-8.0/10-XXX-20191108**	**OC-SB-705-17/18-XXX-20191108**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	NA	**390**	**26 J**	36 U	35 U	36 U	36 U	37 U	36 U	NA	39 U	**400**	**2,700**	**2,500**	37 U	35 U	35 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	NA	**84**	**9.7**	**2.8 J**	7.2 U	7.4 U	**2.4 J**	7.4 U	7.4 U	NA	**4.8 J**	**7.8 J**	210 U	200 U	7.6 U	7.2 U	7 U
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	NA	**330**	**68**	**42**	**14 J**	36 U	36 U	37 U	36 UJ	NA	39 U	110 U	1,100 U	1,000 U	37 U	35 U	35 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	NA	**42**	**6.3 J**	7.3 U	7.2 U	7.4 U	7.4 U	7.4 U	7.4 U	NA	**4.2 J**	**12 J**	210 U	200 U	7.6 U	7.2 U	7 U
Pesticides/PCBs																							
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																							
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																							
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	**7,700**	**5,600**	**4,800**	**15,000**	**9,200**	**5,200**	**6,800**	**3,500**	NA	**5,100**	**5,400**	**5,900 J+**	**5,700 J+**	**3,700**	**5,800**	**9,700**
Antimony	mg/kg	0.035	20	20	30	30	NA	19 U	18 U	16 U	16 U	16 U	17 U	17 U	17 U	NA	17 U	17 U	20 U	19 U	17 U	16 U	17 U
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	**17**	**5.4**	**4.8**	**11**	**7.8**	**3.1**	**14**	**4.5**	NA	**14**	**7.1**	**6.6**	**7.1**	**6.5**	**4.4**	**3.6**
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	**61**	**11**	**12**	**79**	**37**	**18**	**22**	**10**	NA	**12**	**17**	**16**	**15**	**9.3**	**23**	**52**
Beryllium	mg/kg	1.9	90	90	200	200	NA	**0.38**	**0.27**	**0.17 J**	**0.67 J**	**0.5 J**	**0.18 J**	**0.33**	**0.16 J**	NA	**0.28**	**0.22**	**0.23 J**	**0.24 J**	**0.14 J**	**0.34 J**	**0.4 J**
Cadmium	mg/kg	0.069	70	70	100	100	NA	**0.45**	**0.058 J**	0.22 U	0.21 U	0.21 U	0.22 U	0.22 U	**0.039 J**	NA	**0.17 J**	**0.26**	**0.45**	**0.43**	0.23 U	0.21 U	0.22 U
Calcium	mg/kg	NS	NS	NS	--	--	NA	**110,000**	**3,700**	**2,200**	**2,100**	**1,800**	**2,100**	**1,700**	**2,400**	NA	**1,200**	**1,600**	**3,600 J+**	**3,500 J+**	**1,200**	**1,800**	**3,300**
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	NA	**140**	**8.6**	**13**	**63**	**97**	**58**	**310**	**300**	NA	**13**	**21**	**77 J**	**130 J**	**410**	**250**	**330**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	**4.1**	0.49 U	0.46 U	**2.4**	**5.3**	**1.3**	**4.1**	**6.3**	NA	0.46 U	**1.1**	**1.5 J**	**2.7 J**	**7.4**	**9.9**	**4.2**
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	**3.7**	**2.2**	**2.3**	**6.1**	**4.4**	**2.9**	**7.1**	**3.6**	NA	**1.9**	**2.4**	**2.9**	**2.4**	**2.1**	**3.9**	**7.4**
Copper	mg/kg	2.8	NS	NS	--	--	NA	**8.5**	**0.84 J**	**3.9**	**14**	**11**	**4.8**	**17**	**12**	NA	**4.5**	**5**	**5.5**	**6.4**	**5**	**11**	**20**
Iron	mg/kg	35	NS	NS	--	--	NA	**10,000**	**3,800**	**6,200**	**20,000**	**13,000**	**9,600**	**17,000**	**5,300**	NA	**6,400**	**6,100**	**7,700 J+**	**7,100 J+**	**4,900**	**9,000**	**16,000**
Lead	mg/kg	NS	200	200	600	600	NA	**8.3**	**3.1**	**2.7**	**5.9**	**5.2**	**4.1**	**4.2**	**2.1**	NA	**3.9**	**6.3**	**7.9**	**8.9**	**2.2**	**3.2**	**3**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts
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						Sample Location	SB-704									SB-705							
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	12 - 13	19 - 20	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6		6 - 8	8 - 10	17 - 18
						Sample Date	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19	11/08/19	11/08/19	11/08/19	11/08/19		11/08/19	11/08/19	11/08/19
						Sample ID	OC-SB-704-0.0/10-XXX-20191107	OC-SB-704-0.0/2.0-XXX-20191107	OC-SB-704-2.0/4.0-XXX-20191107	OC-SB-704-4.0/6.0-XXX-20191107	OC-SB-704-6.0/8.0-XXX-20191107	OC-SB-704-8.0/10-XXX-20191107	OC-SB-704-12/13-XXX-20191107	OC-SB-704-19/20-XXX-20191107	OC-SB-704-33/34-XXX-20191107	OC-SB-705-0.0/10-XXX-20191108	OC-SB-705-0.0/2.0-XXX-20191108	OC-SB-705-2.0/4.0-XXX-20191108	OC-SB-705-4.0/6.0-XXX-20191108	OC-SB-705-4.0/6.0-DUP-20191108	OC-SB-705-6.0/8.0-XXX-20191108	OC-SB-705-8.0/10-XXX-20191108	OC-SB-705-17/18-XXX-20191108
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Magnesium	mg/kg	NS	NS	NS	--	--	NA	**2,300**	**820**	**1,700**	**5,200**	**3,100**	**2,500**	**2,800**	**1,600**	NA	**1,600**	**1,800**	**1,900**	**1,500**	**920**	**2,500**	**6,900**
Manganese	mg/kg	2.8	NS	NS	--	--	NA	**93**	**31**	**68**	**210**	**130**	**91**	**120**	**98**	NA	**83**	**60**	**98 J+**	**88 J+**	**55**	**100**	**170**
Mercury	mg/kg	0.0033	20	20	30	30	NA	**0.035**	0.023 U	0.022 U	0.021 U	0.02 U	**0.01 J**	0.022 U	0.022 U	NA	0.022 U	**0.028**	**0.026 J**	**0.031**	0.022 U	0.022 U	0.02 U
Nickel	mg/kg	2.6	600	600	1000	1000	NA	**8.6**	**4.7 J**	**7.8**	**18**	**11**	**7**	**14**	**6.9**	NA	**6.1**	**7.6**	**8.1**	**6.9**	**4.7 J**	**11**	**17**
Potassium	mg/kg	NS	NS	NS	--	--	NA	**770**	**410**	**640**	**4,300**	**1,700**	**740**	**1,300**	**460**	NA	**650**	**970**	**700**	**570**	**380**	**950**	**2,600**
Selenium	mg/kg	0.052	400	400	700	700	NA	5 U	4.7 U	4.4 U	4.3 U	4.2 U	4.4 U	4.5 U	4.6 U	NA	**0.52 J**	4.5 U	5.5 U	5 U	**0.79 J**	4.3 U	4.5 U
Silver	mg/kg	0.08	100	100	200	200	NA	0.75 U	0.71 U	0.66 U	0.64 U	0.64 U	0.66 U	0.67 U	0.69 U	NA	0.69 U	0.67 U	0.82 U	0.74 U	0.68 U	0.64 U	0.67 U
Sodium	mg/kg	NS	NS	NS	--	--	NA	**190**	**80 J**	**130 J**	**280**	**240**	**100 J**	**110 J**	**2,600**	NA	**90 J**	**60 J**	**67 J**	**58 J**	**69 J**	**140 J**	**170**
Thallium	mg/kg	0.0014	8	8	80	80	NA	7.5 U	7.1 U	6.6 U	6.4 U	6.4 U	6.6 U	6.7 U	6.9 U	NA	6.9 U	6.7 U	8.2 U	7.4 U	6.8 U	6.4 U	6.7 U
Tin	mg/kg	300	NS	NS	--	--	NA	**0.97 J**	**0.51 J**	2.2 U	**0.92 J**	**0.59 J**	2.2 U	**0.66 J**	2.3 U	NA	**0.52 J**	2.2 U	**0.69 J**	**0.57 J**	2.3 U	2.1 U	**0.53 J**
Vanadium	mg/kg	8.6	400	400	700	700	NA	**18**	**7.5**	**9.4**	**34**	**21**	**14**	**26**	**9.3**	NA	**9.3**	**10**	**12**	**11**	**7**	**16**	**34**
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	**22**	**10**	**13**	**42**	**27**	**15**	**24**	**8.6**	NA	**11**	**25**	**22**	**22**	**7.5**	**18**	**25**
General Chemistry																							
Ammonia	mg/kg	NS	NS	NS	--	--	NA	**15**	**44**	**40**	**46**	**41**	**29**	**40**	**620**	NA	**3.8 J**	**5.8**	**7.5**	**11**	**8.2**	**29**	**39**
Chloride	mg/kg	NS	NS	NS	--	--	NA	**4.7 J**	11 UJ	11 UJ	11 UJ	**4.8 J**	10 UJ	11 UJ	**1,300 J**	NA	11 UJ	11 UJ	13 U	12 U	11 U	11 U	**5.4 J**
pH	S.U.	NS	NS	NS	--	--	**7.7 J**	NA	NA	NA	NA	NA	NA	NA	NA	**7.6 J**	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	NA	**18,000 J**	**16,000 J**	**760 J**	**530 J**	**150 J**	**68 J**	**270 J**	**6,100 J**	NA	**77 J**	**1,400 J**	**3,400 J**	**3,400 J**	**160**	**190**	**200 J**
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																							
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	260 U	180 U	180 U	150 U	180 U	160 U	160 U	140 U	NA	170 U	170 U	200 U	170 U	150 U	200 U	190 U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	2,500 U	**2,700**	2,200 U	2,200 U	**1,600 J**	2,100 U	2,200 U	**1,600 J**	NA	**1,400 J**	2,200 U	**5,400 J**	**7,200 J**	**1,500 J**	2,200 UJ	2,200 UJ
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	**86**	**19**	**1.3 J**	5.5 U	**1.7 J**	5.3 U	5.7 U	5.6 U	NA	5.6 U	5.6 U	**1.7 J**	5.8 UJ	5.5 U	5.8 U	5.7 U
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																			
Arsenic	mg/L	0.01	0.01	0.9	--	--	**0.011 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.017**	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	**0.18 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.15 J**	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	**0.0014 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.0047**	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	**0.24**	NA	NA	NA	NA	NA	NA	NA	NA	**0.19**	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	**0.012 J**	NA	NA	NA	NA	NA	NA	NA	NA	**0.0097 J**	NA	NA	NA	NA	NA	NA	NA

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-706								SB-707								
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17
						Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19
						Sample ID	OC-SB-706-0.0/10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Volatiles																							
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	**0.83 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.85 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 UJ	4.1 UJ	3.9 U	5 U	4.4 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.9 J**	5 U	3.1 U	NA	**2.5 J**	**1.4 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.6 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.5 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.5 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**1.2 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.68 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	4.5 U	**1.3 J**	**1.9 J**	3.7 U	**75**	**0.54 J**	**1.9 J**	NA	5.2 U	**6.3**	**1 J**	3.8 U	4.1 U	3.9 U	5 U	4.4 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**25**	5 U	3.1 U	NA	5.2 U	**3.5 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	23 U	**15 J+**	**8.2 J**	19 U	**17 J+**	25 U	15 U	NA	**15 J**	**21 J+**	21 U	19 U	**3.9 J**	19 U	25 U	22 U
2-Hexanone	ug/kg	0.88	NS	NS	--	--	NA	23 U	21 U	19 U	19 U	21 U	25 U	15 U	NA	26 U	20 U	21 U	19 UJ	20 UJ	19 U	25 U	22 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	230 U	210 U	190 U	190 U	210 U	250 U	150 U	NA	260 U	200 U	210 U	190 UJ	200 UJ	190 U	250 U	220 U
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2 J**	5 U	3.1 U	NA	5.2 U	**0.2 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2.6 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2.2 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.91 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**5.6**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**2.9 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	45 U	42 U	39 U	37 U	42 U	50 U	31 U	NA	52 U	39 U	42 U	38 UJ	41 UJ	39 U	50 U	44 U
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	23 U	21 U	19 U	19 U	21 U	25 U	15 U	NA	26 U	20 U	21 U	19 UJ	20 UJ	19 U	25 U	22 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.94 J**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	**6.1**	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	**0.5 J**	5 U	3.1 U	NA	5.2 U	**0.41 J**	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-706**								**SB-707**												
						Depth Interval (ft)	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**10 - 12**	**20 - 22**	**26 - 27**	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**		**8 - 10**	**12 - 13**	**15 - 17**
						Sample Date	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**	**11/07/19**		**11/07/19**	**11/07/19**	**11/07/19**
						Sample ID	**OC-SB-706-0.0/10-XXX-20191106**	**OC-SB-706-0.0/2.0-XXX-20191106**	**OC-SB-706-2.0/4.0-XXX-20191106**	**OC-SB-706-4.0/6.0-XXX-20191106**	**OC-SB-706-6.0/8.0-XXX-20191106**	**OC-SB-706-10/12-XXX-20191106**	**OC-SB-706-20/22-XXX-20191106**	**OC-SB-706-26/27-XXX-20191106**	**OC-SB-707-0.0/10-XXX-20191107**	**OC-SB-707-0.0/2.0-XXX-20191107**	**OC-SB-707-2.0/4.0-XXX-20191107**	**OC-SB-707-4.0/6.0-XXX-20191107**	**OC-SB-707-6.0/8.0-XXX-20191107**	**OC-SB-707-6.0/8.0-DUP-20191107**	**OC-SB-707-8.0/10-XXX-20191107**	**OC-SB-707-12/13-XXX-20191107**	**OC-SB-707-15/17-XXX-20191107**
Normal (N) or Field Duplicate (FD) Sample			**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	4.5 U	4.2 U	3.9 U	3.7 U	4.2 U	5 U	3.1 U	NA	5.2 U	3.9 U	4.2 U	3.8 U	4.1 U	3.9 U	5 U	4.4 U
Semivolatiles																							
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	**5.3 J**	**5,500**	36 U	72 U	**910**	36 U	35 U	NA	**19 J**	36 U	35 U	34 U	35 U	36 U	37 U	35 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	**4.9 J**	350 U	36 U	72 U	40 U	36 U	35 U	NA	**68 J**	**1.7 J**	35 U	34 U	35 U	36 U	37 U	35 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**10 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	72 U	**190 J**	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	**4.4 J**	720 U	72 U	150 U	81 U	72 U	71 U	NA	330 U	73 U	72 U	69 U	71 U	72 U	75 U	71 U
Aniline	ug/kg	4.6	NS	NS	--	--	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	360 U	3,600 U	360 U	350 U	2,000 U	360 U	350 U	NA	410 U	360 U	360 U	350 U	350 U	360 U	370 U	350 U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	R	R	R	R	R	R	R	NA	R	R	R	R	R	R	R	R
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	**5.3 J**	72 U	7.2 U	15 U	**3.6 J**	7.2 U	7.1 U	NA	**17 J**	**1.4 J**	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	**4.7 J**	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**11 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	**6.8 J**	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**22 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	NA	**3.8 J**	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**16 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	NA	370 U	1,800 U	180 U	370 U	200 U	180 U	180 U	NA	820 U	190 U	180 U	R	R	180 U	190 U	180 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	NA	**770**	**370,000**	**170 J**	**210 J**	**120,000**	**240 J**	350 U	NA	**8,100**	**500**	**2,400**	340 U	350 U	360 U	370 U	350 U
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	15 U	**55 J**	7.2 U	15 U	**8.9**	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	NA	**5.6 J**	72 U	7.2 U	15 U	**4 J**	7.2 U	7.1 U	NA	**19 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	72 U	**29 J**	36 U	72 U	**4.6 J**	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	NA	72 U	**2,100**	36 U	72 U	**360**	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	NA	72 U	350 U	36 U	72 U	**47**	36 U	35 U	NA	160 U	36 U	**23 J**	34 U	35 U	36 U	37 U	35 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	NA	**6.6 J**	**46 J**	7.2 U	15 U	**12**	7.2 U	7.1 U	NA	**21 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	15 U	72 U	7.2 U	15 U	**3.6 J**	7.2 U	7.1 U	NA	33 U	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	**3.2 J**	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**17 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	**4.5 J**	72 U	7.2 U	15 U	**2.5 J**	7.2 U	7.1 U	NA	**7.3 J**	7.3 U	7.2 U	6.9 U	**1.6 J**	7.2 U	7.5 U	7.1 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	15 U	72 U	7.2 U	15 U	8.1 U	7.2 U	7.1 U	NA	**8.4 J**	7.3 U	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

							Sample Location	SB-706								SB-707								
							Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17
							Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19
							Sample ID	OC-SB-706-0.0/10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107
Normal (N) or Field Duplicate (FD) Sample								N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Chemical	Units	11/2019 MCL-based SSL	MassDEP criteria S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																		
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--		NA	52 J	28,000 J	36 U	25 J	6,200 J	36 U	35 U	NA	510	18 J	35 U	34 U	35 U	36 U	37 U	35 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000		NA	4.5 J	150	4.5 J	4.5 J	28	2 J	7.1 U	NA	16 J	3.3 J	2.6 J	2.5 J	2.1 J	7.2 U	7.5 U	7.1 U
Phenol	ug/kg	330	1,000	20,000	1,000	20,000		NA	72 U	350 U	36 U	72 U	40 U	36 U	35 U	NA	160 U	36 U	35 U	34 U	35 U	36 U	37 U	35 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000		NA	6.9 J	68 J	7.2 U	15 U	15	7.2 U	7.1 U	NA	31 J	1.7 J	7.2 U	6.9 U	7.1 U	7.2 U	7.5 U	7.1 U
Pesticides/PCBs																								
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	3	500	3	500		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																								
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																								
Aluminum	mg/kg	3,000	NS	NS	--	--		NA	5,000	13,000	9,000	11,000	3,800	5,400	8,100	NA	8,300	14,000	6,400	7,400 J+	8,200 J+	7,700	14,000	2,700
Antimony	mg/kg	0.035	20	20	30	30		NA	0.63 J	1.1 J	0.95 J	83 U	18 U	0.6 J	1.3 J	NA	1 J	1.2 J	15 U	0.65 J-	0.62 J-	0.5 J	1 J	17 U
Arsenic	mg/kg	0.0015	20	20	50	50		NA	11	7.6	6.2	17	3.2	3.3	3.1	NA	33	29	5	3.6	3.5	2.4	3.7	1.4 J
Barium	mg/kg	16	1,000	1,000	5,000	5,000		NA	16	43	34	41	10	25	42	NA	28	55	16	26	26	25	60	15
Beryllium	mg/kg	1.9	90	90	200	200		NA	0.27	0.39	0.35	0.48	0.14 J	0.24	0.23	NA	0.38	0.62	0.32	0.4	0.38	0.38	0.48	0.14 J
Cadmium	mg/kg	0.069	70	70	100	100		NA	0.5	0.22 U	0.23 U	0.22 U	0.24 U	0.22 U	0.22 U	NA	0.18 J	0.22 U	0.051 J	0.22 U	0.21 U	0.23 U	0.23 U	0.22 U
Calcium	mg/kg	NS	NS	NS	--	--		NA	1,600	3,500	1,700	3,800	1,500	770	3,200	NA	12,000	3,700	7,000	2,400	2,700	3,300	4,400	950
Chromium	mg/kg	4,000,000	100	100	200	200		NA	19	200	890	1,300	310	460	460	NA	79	44	120	83 J-	84 J-	72	170	100
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200		NA	0.95	2.9	6.6	20.8	3.6	4.7	5.6	NA	2.7	1	7.6	3.4	2.9	4.2	5.5	5.5
Cobalt	mg/kg	0.027	NS	NS	--	--		NA	2.2	9.1	4.4	6.8	1.6	3.3	6.2	NA	5.7	13	3.2	3.2	3.7	3.8	6.2	1.2
Copper	mg/kg	2.8	NS	NS	--	--		NA	5.7	27	11	25	3.5	9.9	39	NA	11	22	12	11	11	9.6	13	3.9
Iron	mg/kg	35	NS	NS	--	--		NA	7,000	16,000	12,000	23,000	4,500	11,000	14,000	NA	16,000	19,000	7,700	9,500	10,000	7,800	16,000	4,500
Lead	mg/kg	NS	200	200	600	600		NA	4.7	8.2	5.6	21	3.4	3	3.8	NA	11	14	4.8	5.5	5.4	4.3	9.2	1.7

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

						Sample Location	SB-706								SB-707								
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	10 - 12	20 - 22	26 - 27	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8		8 - 10	12 - 13	15 - 17
						Sample Date	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/07/19	11/07/19	11/07/19	11/07/19	11/07/19		11/07/19	11/07/19	11/07/19
						Sample ID	OC-SB-706-0.0/10-XXX-20191106	OC-SB-706-0.0/2.0-XXX-20191106	OC-SB-706-2.0/4.0-XXX-20191106	OC-SB-706-4.0/6.0-XXX-20191106	OC-SB-706-6.0/8.0-XXX-20191106	OC-SB-706-10/12-XXX-20191106	OC-SB-706-20/22-XXX-20191106	OC-SB-706-26/27-XXX-20191106	OC-SB-707-0.0/10-XXX-20191107	OC-SB-707-0.0/2.0-XXX-20191107	OC-SB-707-2.0/4.0-XXX-20191107	OC-SB-707-4.0/6.0-XXX-20191107	OC-SB-707-6.0/8.0-XXX-20191107	OC-SB-707-6.0/8.0-DUP-20191107	OC-SB-707-8.0/10-XXX-20191107	OC-SB-707-12/13-XXX-20191107	OC-SB-707-15/17-XXX-20191107
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N	N	N
Chemical		SSL	S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Magnesium	mg/kg	NS	NS	NS	--	--	NA	1,700	6,200	2,700	4,200	1,100	1,700	3,900	NA	3,000	6,400	3,200	2,500	2,900	2,500	4,900	960
Manganese	mg/kg	2.8	NS	NS	--	--	NA	87	210	130	180	53	89	140	NA	110	310	150	160 J+	180 J+	120	170	36
Mercury	mg/kg	0.0033	20	20	30	30	NA	0.011 J	0.09	0.022 U	0.022 U	0.065	0.01 J	0.0089 J	NA	0.042	0.022 U	0.0086 J	0.022 U	0.021 U	0.021 U	0.02 J	0.011 J
Nickel	mg/kg	2.6	600	600	1000	1000	NA	6.3	23	12	17	4 J	7	12	NA	15	40	13	8.9	10	9.8	19	3.2 J
Potassium	mg/kg	NS	NS	NS	--	--	NA	750	2,000	1,500	2,000	460	730	1,500	NA	890	2,700	750	1,400	1,700	1,300	2,600	710
Selenium	mg/kg	0.052	400	400	700	700	NA	0.82 J	4.4 U	4.6 U	4.4 U	4.8 U	4.4 U	4.3 U	NA	5 U	4.4 U	4.1 U	4.4 U	4.2 U	4.5 U	4.5 U	4.5 U
Silver	mg/kg	0.08	100	100	200	200	NA	0.66 U	0.66 U	0.68 U	0.66 U	0.71 U	0.66 U	0.65 U	NA	0.75 U	0.66 U	0.62 U	0.66 U	0.63 U	0.68 U	0.68 U	0.67 U
Sodium	mg/kg	NS	NS	NS	--	--	NA	82 J	220	210	330	58 J	97 J	290	NA	86 J	170	130 J	240	310	370	470	110 J
Thallium	mg/kg	0.0014	8	8	80	80	NA	6.6 U	6.6 U	6.8 U	6.6 U	7.1 U	6.6 U	6.5 U	NA	7.5 U	6.6 U	6.2 U	6.6 U	6.3 U	6.8 U	6.8 U	6.7 U
Tin	mg/kg	300	NS	NS	--	--	NA	0.59 J	0.78 J	2.3 U	0.81 J	2.4 U	2.2 U	2.2 U	NA	0.61 J	0.84 J	2.1 U	0.57 J	0.57 J	0.5 J	0.85 J	2.2 U
Vanadium	mg/kg	8.6	400	400	700	700	NA	10	40	19	35	8.3	18	35	NA	19	33	15	17 J	19 J	15	32	8.6
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	14	27	23	46	9.5	19	26	NA	28	43	16	21	23	15	40	7.8
General Chemistry																							
Ammonia	mg/kg	NS	NS	NS	--	--	NA	10	14	9.6	12	11	11	12	NA	6	13	6.5	5.6 J-	5.5 J-	7.5	17	18
Chloride	mg/kg	NS	NS	NS	--	--	NA	11 UJ	11 UJ	7 J	4.8 J	12 UJ	11 UJ	15 J	NA	5.2 J	11 UJ	11 UJ	4.1 J	5.6 J	9.9 J	11 U	11 U
pH	S.U.	NS	NS	NS	--	--	6.1 J	NA	NA	NA	NA	NA	NA	NA	7.4 J	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	NA	1,000 J-	410 J	120 J	160 J	290 J	66 J	140 J	NA	170 J	2,100 J	7,100 J	130 J	150	190	53	46
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																							
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	200 U	180 U	160 U	170 U	230 U	160 U	170 U	NA	170 U	220 U	160 U	150 U	160 U	140 U	190 U	180 U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	2,300 UJ	2,200 UJ	2,200 UJ	2,200 UJ	2,400 J	2,200 UJ	2,200 UJ	NA	3,200 J	2,200 UJ	2,200 UJ	1,300 J	2,100 UJ	1,500 J	2,300 UJ	2,100 UJ
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	5.4 U	5.7 U	5.6 U	5.5 U	6.1 U	5.6 U	5.6 U	NA	5.6 J	2 J	9.3	2.7 J	2.6 J	1.7 J	6.3 U	5.4 U
Metals (TCLP)		11/2019 MCL	GW-1	GW-3																			
Arsenic	mg/L	0.01	0.01	0.9	--	--	0.015 U	NA	NA	NA	NA	NA	NA	NA	0.035 J+	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	0.19 J	NA	NA	NA	NA	NA	NA	NA	0.15 J	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	0.0028	NA	NA	NA	NA	NA	NA	NA	0.0018 J	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	0.18	NA	NA	NA	NA	NA	NA	NA	0.057	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	0.014 J	NA	NA	NA	NA	NA	NA	NA	0.027	NA	NA	NA	NA	NA	NA	NA	NA

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-708																					
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	16 - 18	22 - 24	28 - 30	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	
						Sample Date	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	
						Sample ID	OC-SB-708-0.0/10-XXX-20191104	OC-SB-708-0.0/2.0-XXX-20191104	OC-SB-708-2.0/4.0-XXX-20191104	OC-SB-708-4.0/6.0-XXX-20191104	OC-SB-708-6.0/8.0-XXX-20191104	OC-SB-708-8.0/10-XXX-20191104	OC-SB-708-16/18-XXX-20191104	OC-SB-708-22/24-XXX-20191104	OC-SB-708-28/30-XXX-20191104	OC-SB-708-33/34-XXX-20191104	OC-SB-709-0.0/10-XXX-20191106	OC-SB-709-0.0/2.0-XXX-20191106	OC-SB-709-2.0/4.0-XXX-20191106	OC-SB-709-4.0/6.0-XXX-20191106	OC-SB-709-6.0/8.0-XXX-20191106	OC-SB-709-8.0/10-XXX-20191106	OC-SB-709-8.0/10-DUP-20191106
Normal (N) or Field Duplicate (FD) Sample		11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Volatiles																							
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	6.4 U	**0.37 J**	4.4 U	**0.43 J**	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	**0.52 J**	**0.89 J**	4.5 U	3.7 U	4.9 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	**0.63 J**	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	**2.7 J**	6 U	**5.7**	**9.1**	**2.7 J**	**0.74 J**	**1 J**	**0.44 J**	3.4 U	NA	4.4 U	**3 J**	**2.7 J**	4.5 U	3.7 U	4.9 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	**0.88 J**	6 U	**0.76 J**	**2.1 J**	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	**1.2 J**	**0.77 J**	4.5 U	3.7 U	4.9 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	32 U	**11 J+**	22 U	19 U	21 U	**4.1 J+**	18 U	22 U	**5.5 J+**	NA	22 U	**9.5 J**	**16 J+**	23 U	18 U	25 U
2-Hexanone	ug/kg	0.88	NS	NS	--	--	NA	32 U	30 U	22 U	19 U	21 U	21 U	18 U	22 U	17 U	NA	22 U	19 U	22 U	23 U	18 UJ	25 UJ
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	**1.3 J**	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	**20 J**	**41 J**	**12 J**	**11 J**	**5.3 J**	**13 J**	**4.4 J**	**15 J**	**24 J**	NA	**5.8 J**	**33 J**	**77 J**	**22 J**	**11 J-**	**10 J-**
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	**1.3 J**	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	**3.9 J**	6 U	4.4 U	3.9 U	4.3 U	**2.9 J**	3.6 U	4.5 U	**3 J**	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	**1 J**	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	**0.42 J**	**0.27 J**	**0.33 J**	4.5 U	**0.29 J**	**0.57 J**
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	**1.4 J**	**0.75 J**	**1.1 J**	**0.76 J**	**0.88 J**	**1.7 J**
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	64 U	60 U	44 U	39 U	43 U	41 U	36 U	45 U	34 U	NA	44 U	39 U	44 U	45 U	37 UJ	49 UJ
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	**1.1 J**	30 U	22 U	19 U	21 U	21 U	18 U	22 U	**0.53 J**	NA	22 U	19 U	22 U	23 U	18 UJ	25 UJ
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	**0.34 J**	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	**0.61 J**	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	**0.99 J**	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	4.4 U	3.9 U	4.4 U	4.5 U	3.7 U	4.9 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-708										SB-709						
						Depth Interval (ft)	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	16 - 18	22 - 24	28 - 30	33 - 34	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	
						Sample Date	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	11/06/19	
						Sample ID	OC-SB-708-0.0/10-XXX-20191104	OC-SB-708-0.0/2.0-XXX-20191104	OC-SB-708-2.0/4.0-XXX-20191104	OC-SB-708-4.0/6.0-XXX-20191104	OC-SB-708-6.0/8.0-XXX-20191104	OC-SB-708-8.0/10-XXX-20191104	OC-SB-708-16/18-XXX-20191104	OC-SB-708-22/24-XXX-20191104	OC-SB-708-28/30-XXX-20191104	OC-SB-708-33/34-XXX-20191104	OC-SB-709-0.0/10-XXX-20191106	OC-SB-709-0.0/2.0-XXX-20191106	OC-SB-709-2.0/4.0-XXX-20191106	OC-SB-709-4.0/6.0-XXX-20191106	OC-SB-709-6.0/8.0-XXX-20191106	OC-SB-709-8.0/10-XXX-20191106	OC-SB-709-8.0/10-DUP-20191106
Normal (N) or Field Duplicate (FD) Sample	Units	11/2019 MCL-based SSL	MassDEP criteria				N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	FD
Chemical			S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	6.4 U	6 U	4.4 U	3.9 U	4.3 U	4.1 U	3.6 U	4.5 U	3.4 U	NA	**1.4 J**	**0.75 J**	**1.1 J**	**0.76 J**	**0.88 J**	**1.7 J**
Semivolatiles																							
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	**3.5 J**	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U	NA	**4.4 J**	**10 J**	**7 J**	**3.4 J**	39 U	38 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	**2.2 J**	38 U	36 U	**7.5 J**	34 U	34 U	35 U	38 U	36 U	NA	**3.9 J**	**23 J**	**14 J**	38 U	39 U	38 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	**3.9 J**	38 U	39 U	38 U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	7.2 U	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	7.2 U	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	NA	**1.6 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	**3.4 J**	77 U	74 U	71 U	70 U	69 U	72 U	78 U	72 U	NA	**4.1 J**	230 U	**8.3 J**	77 U	78 U	77 U
Aniline	ug/kg	4.6	NS	NS	--	--	NA	36 U	38 U	36 U	**17 J**	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	NA	**2.6 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	**2.3 J**	7.7 U	7.8 U	7.7 U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	360 U	380 U	360 U	340 U	330 U	350 U	360 U	380 U	350 U	NA	390 U	380 U	380 U	380 U	380 U	380 U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	R	R	R	R	R	R	R	R	R	NA	R	R	R	R	R	R
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	**10**	**1.7 J**	7.4 U	**1.6 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**9.4**	**26**	**8.5**	7.7 U	7.8 U	7.7 U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	**8.5**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**8.9**	**22 J**	**7.5 J**	7.7 U	7.8 U	7.7 U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	**17**	7.7 U	7.4 U	**2.1 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**12**	**28**	**13**	7.7 U	7.8 U	7.7 U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	NA	**6.7 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**7.4 J**	**13 J**	**6.5 J**	7.7 U	7.8 U	7.7 U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	NA	**4.5 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**5.2 J**	**11 J**	**4.3 J**	7.7 U	7.8 U	7.7 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	NA	180 U	190 U	190 U	180 U	180 U	180 U	180 U	200 U	180 U	NA	200 U	580 U	200 U	190 U	R	R
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	**2.9 J**	NA	39 U	110 U	38 U	38 U	39 U	38 U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	NA	**500**	**72 J**	**57 J**	**2,900**	340 U	340 U	350 U	380 U	360 U	NA	**940**	**6,300**	**6,900**	**6,700**	390 U	380 U
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	**1.9 J**	7.7 U	7.4 U	**2.2 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	**5.7 J**	7.7 U	7.7 U	7.8 U	7.7 U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	NA	**16**	**2.1 J**	7.4 U	**2.7 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**12**	**27**	**12**	7.7 U	7.8 U	7.7 U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	**2.7 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**2.1 J**	23 U	7.7 U	7.7 U	7.8 U	7.7 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	NA	36 U	**20 J**	**25 J**	35 U	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U	NA	39 U	110 U	38 U	38 U	39 U	38 U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	NA	**18 J**	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U	NA	39 U	**72 J**	**29 J**	38 U	39 U	38 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	NA	36 U	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U	NA	**61**	110 U	38 U	38 U	39 U	38 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	NA	**9.8**	**2.8 J**	7.4 U	**3.1 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**14**	**35**	**16**	7.7 U	7.8 U	7.7 U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	7.2 U	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	**5.9 J**	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**6.3 J**	**13 J**	**6.5 J**	7.7 U	7.8 U	7.7 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	**5 J**	**1.9 J**	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**5 J**	**6.7 J**	**3.7 J**	7.7 U	7.8 U	**2.3 J**
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	7.2 U	7.7 U	7.4 U	7.1 U	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	8 U	23 U	7.7 U	7.7 U	7.8 U	7.7 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-708**										**SB-709**							
						Depth Interval (ft)	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**16 - 18**	**22 - 24**	**28 - 30**	**33 - 34**	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	
						Sample Date	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	
						Sample ID	**OC-SB-708-0.0/10-XXX-20191104**	**OC-SB-708-0.0/2.0-XXX-20191104**	**OC-SB-708-2.0/4.0-XXX-20191104**	**OC-SB-708-4.0/6.0-XXX-20191104**	**OC-SB-708-6.0/8.0-XXX-20191104**	**OC-SB-708-8.0/10-XXX-20191104**	**OC-SB-708-16/18-XXX-20191104**	**OC-SB-708-22/24-XXX-20191104**	**OC-SB-708-28/30-XXX-20191104**	**OC-SB-708-33/34-XXX-20191104**	**OC-SB-709-0.0/10-XXX-20191106**	**OC-SB-709-0.0/2.0-XXX-20191106**	**OC-SB-709-2.0/4.0-XXX-20191106**	**OC-SB-709-4.0/6.0-XXX-20191106**	**OC-SB-709-6.0/8.0-XXX-20191106**	**OC-SB-709-8.0/10-XXX-20191106**	**OC-SB-709-8.0/10-DUP-20191106**
Normal (N) or Field Duplicate (FD) Sample			**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**
Chemical	**Units**	**11/2019 MCL-based SSL**	**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	NA	**100**	38 U	36 U	**280**	34 U	34 U	35 U	38 U	36 U	NA	**49**	**1,600**	**450**	**27 J**	39 U	38 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	NA	**7.3**	**2.9 J**	**2.3 J**	**2.3 J**	7 U	6.9 U	7.2 U	**2.8 J**	7.2 U	NA	**8.3**	**15 J**	**9.3**	**2.5 J**	**3.6 J**	**2.1 J**
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	NA	**13 J**	38 U	36 U	35 U	34 U	34 U	35 U	38 U	36 U	NA	**80**	**53 J**	**340**	38 U	39 U	38 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	NA	**10**	**2.9 J**	7.4 U	**4.1 J**	7 U	6.9 U	7.2 U	7.8 U	7.2 U	NA	**14**	**34**	**16**	**1.8 J**	7.8 U	7.7 U
Pesticides/PCBs																							
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																							
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																							
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	**8,600**	**5,200**	**11,000**	**7,300**	**12,000**	**9,500**	**8,800**	**2,300**	**4,800**	NA	**8,400**	**5,200**	**7,500**	**5,000**	**10,000**	**8,300**
Antimony	mg/kg	0.035	20	20	30	30	NA	**0.72 J**	18 U	**1.1 J**	16 U	**0.57 J**	**0.77 J**	**0.91 J**	17 U	16 U	NA	19 U	18 U	17 U	18 U	18 U	16 U
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	**17**	**6.3**	**16**	**2.9**	**3.2**	**3.8**	**2.3**	**0.75 J**	**1.2 J**	NA	**7.6**	**5.6**	**6**	**3.8**	**7**	**4.8**
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	**54**	**16**	**47**	**23**	**45**	**15 J+**	**58**	**15**	**23**	NA	**49 J**	**13 J**	**21 J**	**12 J**	**49 J-**	**46 J-**
Beryllium	mg/kg	1.9	90	90	200	200	NA	**0.43**	**0.24**	**0.34**	**0.34**	**0.52**	**0.36**	**0.27**	**0.085 J**	**0.16 J**	NA	**0.3**	**0.18 J**	**0.25 J**	**0.22 J**	**0.52**	**0.36 J**
Cadmium	mg/kg	0.069	70	70	100	100	NA	**0.035 J**	**0.16 J**	**0.036 J**	**0.2 J**	**0.14 J**	0.21 U	0.22 U	0.23 U	0.22 U	NA	**0.13 J**	**0.6 J**	**0.29 J**	0.24 U	0.24 U	0.22 U
Calcium	mg/kg	NS	NS	NS	--	--	NA	**7,900**	**2,400**	**2,300**	**3,700**	**2,900**	**1,200 J+**	**2,300**	**910**	**1,500**	NA	**11,000**	**4,600**	**4,200**	**550**	**2,200**	**1,500**
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	NA	**26**	**40**	**40**	**18**	**31**	**150 J-**	**270**	**140**	**400**	NA	**63**	**29**	**39**	**420**	**21**	**17**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	**4.9**	**0.7**	**0.76**	**0.72**	**0.8**	**2.6**	**11.4**	**7.9**	**6**	NA	**2.2**	**1.2**	**1.7**	**8**	**0.74**	**0.7**
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	**5.8**	**2.8**	**7.4**	**2.9**	**6.6**	**5.6**	**4**	**0.87**	**2.4**	NA	**3.7**	**2.6**	**4.6**	**2.1**	**6.6**	**6.5**
Copper	mg/kg	2.8	NS	NS	--	--	NA	**11**	**5.2**	**15**	**10**	**17**	**15 J-**	**9**	**2**	**9.3**	NA	**7.7**	**4.8**	**11**	**5**	**11**	**9.2**
Iron	mg/kg	35	NS	NS	--	--	NA	**11,000**	**5,700**	**16,000**	**6,900**	**12,000**	**14,000**	**15,000**	**9,200**	**7,200**	NA	**10,000**	**5,900**	**8,100**	**5,300**	**13,000**	**9,900**
Lead	mg/kg	NS	200	200	600	600	NA	**7.5**	**4.4**	**7.2**	**4.5**	**6.2**	**3**	**5.4**	**2**	**2.3**	NA	**8.2**	**5**	**6.2**	**5.7**	**7.1**	**5.7**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-708**																												
						Depth Interval (ft)	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**16 - 18**	**22 - 24**	**28 - 30**	**33 - 34**	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**												
						Sample Date	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**	**11/06/19**												
						Sample ID	**OC-SB-708-0.0/10-XXX-20191104**	**OC-SB-708-0.0/2.0-XXX-20191104**	**OC-SB-708-2.0/4.0-XXX-20191104**	**OC-SB-708-4.0/6.0-XXX-20191104**	**OC-SB-708-6.0/8.0-XXX-20191104**	**OC-SB-708-8.0/10-XXX-20191104**	**OC-SB-708-16/18-XXX-20191104**	**OC-SB-708-22/24-XXX-20191104**	**OC-SB-708-28/30-XXX-20191104**	**OC-SB-708-33/34-XXX-20191104**	**OC-SB-709-0.0/10-XXX-20191106**	**OC-SB-709-0.0/2.0-XXX-20191106**	**OC-SB-709-2.0/4.0-XXX-20191106**	**OC-SB-709-4.0/6.0-XXX-20191106**	**OC-SB-709-6.0/8.0-XXX-20191106**	**OC-SB-709-8.0/10-XXX-20191106**	**OC-SB-709-8.0/10-DUP-20191106**											
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**FD**											
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																												
Magnesium	mg/kg	NS	NS	NS	--	--	NA	**3,200**	**1,700**	**7,300**	**2,100**	**3,800**	**5,200 J-**	**4,100**	**1,000**	**2,500**	NA	**3,100**	**1,400**	**2,600**	**1,300**	**3,300 J-**	**3,000 J-**											
Manganese	mg/kg	2.8	NS	NS	--	--	NA	**170**	**77**	**190**	**110**	**140**	**100 J-**	**140**	**42**	**90**	NA	**150**	**53**	**100**	**45**	**130 J-**	**120 J-**											
Mercury	mg/kg	0.0033	20	20	30	30	NA	**0.016 J**	**0.012 J**	0.022 U	0.019 U	0.019 U	0.022 U	0.021 U	0.021 U	**0.012 J**	NA	**0.022 J**	**0.042**	**0.041**	**0.014 J**	0.024 U	0.021 U											
Nickel	mg/kg	2.6	600	600	1000	1000	NA	**18**	**9.5**	**33**	**9**	**19**	**17**	**12**	**2.8 J**	**8.6**	NA	**10**	**7.4**	**14**	**7.1**	**13**	**14**											
Potassium	mg/kg	NS	NS	NS	--	--	NA	**1,700**	**780**	**2,800**	**1,100**	**2,400**	**1,000 J+**	**3,000**	**1,700**	**1,400**	NA	**1,000**	**540**	**1,000**	**580**	**1,600**	**1,800**											
Selenium	mg/kg	0.052	400	400	700	700	NA	4.2 U	4.7 U	4.6 U	4.4 U	4.1 U	**1.3 J**	**0.61 J**	4.6 U	4.3 U	NA	5 U	4.7 U	4.5 U	4.9 U	4.9 U	4.4 U											
Silver	mg/kg	0.08	100	100	200	200	NA	0.63 U	0.71 U	0.7 U	0.66 U	0.61 U	0.63 U	0.65 U	0.69 U	0.65 U	NA	0.75 U	0.7 U	0.67 U	0.73 U	0.73 U	0.66 U											
Sodium	mg/kg	NS	NS	NS	--	--	NA	**200**	**63 J**	**160**	**86 J**	**470**	**81 J**	**300**	**230**	**380**	NA	170 U	160 U	160 U	170 U	**150 J**	150 U											
Thallium	mg/kg	0.0014	8	8	80	80	NA	6.3 U	7.1 U	7 U	6.6 U	6.1 U	6.3 U	6.5 U	6.9 U	6.5 U	NA	7.5 U	7 U	6.7 U	7.3 U	7.3 U	6.6 U											
Tin	mg/kg	300	NS	NS	--	--	NA	**0.65 J**	2.4 U	**0.59 J**	**0.52 J**	**0.96 J**	2.1 U	**0.68 J**	2.3 U	2.2 U	NA	2.5 U	**0.5 J**	**0.62 J**	2.4 U	**0.77 J**	**0.5 J**											
Vanadium	mg/kg	8.6	400	400	700	700	NA	**18**	**9.9**	**28**	**17**	**36**	**31 J-**	**33**	**9.1**	**16**	NA	**16**	**10**	**16**	**8.2**	**23**	**18**											
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	**22**	**17**	**35**	**23**	**37**	**23**	**26**	**7.2**	**15**	NA	**21**	**18**	**20**	**17**	**28 J-**	**24 J-**											
General Chemistry																																		
Ammonia	mg/kg	NS	NS	NS	--	--	NA	7.3 U	**18**	6.6 U	**15**	9.9 U	**8.5**	**17**	**62**	**150**	NA	**4.1 J**	**7.6**	**15**	**3.5 J**	**6.7 J**	**14 J**											
Chloride	mg/kg	NS	NS	NS	--	--	NA	11 UJ	12 UJ	11 UJ	10 UJ	10 UJ	11 UJ	**7.2 J**	**70 J**	**210 J**	NA	12 U	11 U	12 U	**17**	12 U	11 U											
pH	S.U.	NS	NS	NS	--	--	**5.8 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.3 J**	NA	NA	NA	NA	NA	NA											
Sulfate	mg/kg	NS	NS	NS	--	--	NA	**430 J**	**590 J**	**190 J**	**1,800 J**	**57 J**	**35 J**	**100 J**	**460 J**	**1,200 J**	NA	**1,300**	**12,000**	**63**	**150**	**110**	**140**											
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA											
Other Analyses																																		
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	200 U	210 U	180 U	210 U	210 U	190 U	220 U	230 U	190 U	NA	200 U	210 U	200 U	190 U	180 U	180 U											
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	2,200 UJ	2,400 UJ	2,200 UJ	2,100 UJ	2,100 UJ	2,100 UJ	2,200 UJ	2,300 UJ	**1,900 J**	NA	2,400 U	**2,100 J**	**2,900 J**	2,400 UJ	2,300 UJ	2,300 UJ											
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	**6.4**	5.9 U	5.5 U	5.5 U	5.3 UJ	5.6 UJ	**2.4 J**	**1.5 J**	5.9 UJ	NA	6.1 U	5.8 U	6.9 U	5.7 U	5.7 UJ	5.6 UJ											
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																														
Arsenic	mg/L	0.01	0.01	0.9	--	--	0.015 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.015 U	NA	NA	NA	NA	NA	NA											
Barium	mg/L	2	2	50	--	--	**0.45 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.27 J**	NA	NA	NA	NA	NA	NA											
Cadmium	mg/L	0.005	0.005	0.004	--	--	0.002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0037**	NA	NA	NA	NA	NA	NA											
Chromium	mg/L	0.1	0.1	0.3	--	--	**0.035**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.056**	NA	NA	NA	NA	NA	NA											
Lead	mg/L	0.015	0.015	0.01	--	--	0.02 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.015 J**	NA	NA	NA	NA	NA	NA											

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	SB-709		SB-710							SB-711							
						Depth Interval (ft)	16 - 17	32 - 33	0 - 10	2 - 4	4 - 6	6 - 8	8 - 10	23 - 24	36 - 37	0 - 10	0 - 2	2 - 4	4 - 6	6 - 8	8 - 10	18 - 19	35 - 36
						Sample Date	11/06/19	11/06/19	11/04/19	11/04/19	11/04/19	11/04/19	11/04/19	11/05/19	11/05/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19	11/12/19
						Sample ID	OC-SB-709-16/17-XXX-20191106	OC-SB-709-32/33-XXX-20191106	OC-SB-710-0.0/10XXX-20191104	OC-SB-710-2.0/4.0-XXX-20191104	OC-SB-710-4.0/6.0-XXX-20191104	OC-SB-710-6.0/8.0-XXX-20191104	OC-SB-710-8.0/10-XXX-20191104	OC-SB-710-23/24-XXX-20191105	OC-SB-710-36/37-XXX-20191105	OC-SB-711-0.0/10-XXX-20191112	OC-SB-711-0.0/2.0-XXX-20191112	OC-SB-711-2.0/4.0-XXX-20191112	OC-SB-711-4.0/6.0-XXX-20191112	OC-SB-711-6.0/8.0-XXX-20191112	OC-SB-711-8.0/10-XXX-20191112	OC-SB-711-18/19-XXX-20191112	OC-SB-711-35/36-XXX-20191112
Normal (N) or Field Duplicate (FD) Sample							N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemical	Units	11/2019 MCL-based SSL	MassDEP criteria S-1/ GW-1	S-1/ GW-3	S-3/ GW-1	S-3/ GW-3																	
Volatiles																							
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	**0.47 J**	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	**0.28 J**	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	4.4 U	4.2 U	NA	4.8 U	**0.35 J**	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	**1.2 J**	4.2 U	NA	**7.1**	**35**	**3.9**	**0.81 J**	4.6 U	3.7 U	NA	**1.7 J**	**3,200**	**8,000**	**4 J**	1,200 U	4 U	3.8 U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	4.4 U	4.2 U	NA	**1.4 J**	**18**	**1.8 J**	5.2 U	4.6 U	3.7 U	NA	**1.3 J**	**2,600**	**6,300**	**2 J**	1,200 U	4 U	3.8 U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	22 U	21 U	NA	24 U	**7 J+**	**18 J+**	26 U	23 U	19 U	NA	30 U	9,300 U	5,200 U	**5.7 J+**	6,100 U	20 U	19 U
2-Hexanone	ug/kg	0.88	NS	NS	--	--	22 U	21 U	NA	24 U	18 U	19 U	26 U	23 U	19 U	NA	30 U	9,300 U	5,200 U	24 U	6,100 U	20 U	19 U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	**420 J**	4.7 U	1,200 U	4 U	3.8 U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	**17 J**	**9.7 J**	NA	**15 J**	**30 J**	**30 J**	**8.3 J**	230 U	**14 J**	NA	300 U	93,000 U	52,000 U	240 UJ	61,000 U	200 U	190 U
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Carbon disulfide	ug/kg	24	NS	NS	--	--	4.4 U	4.2 U	NA	4.8 U	**5.7**	**2.7 J**	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	**3.3 J**	1,200 U	4 U	3.8 U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Diethyl ether	ug/kg	88	NS	NS	--	--	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	**0.54 J**	**0.38 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	**370 J**	4.7 U	1,200 U	4 U	3.8 U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	**200 J**	4.7 U	1,200 U	4 U	3.8 U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	**1.9 J**	**1.3 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Methyl acetate	ug/kg	410	NS	NS	--	--	44 U	42 U	NA	48 U	37 U	37 U	52 U	46 U	37 U	NA	59 U	19,000 U	**330 J**	47 U	12,000 U	40 U	38 U
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	26 U	1,900 U	1,000 U	10 U	1,200 U	30 U	17 U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	22 U	21 U	NA	24 U	18 U	19 U	26 U	23 U	19 U	NA	30 U	9,300 U	**150 J**	24 U	6,100 U	20 U	19 U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	4.4 U	4.2 U	NA	4.8 U	**0.29 J**	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	4.4 U	4.2 U	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-709**		**SB-710**							**SB-711**							
						Depth Interval (ft)	**16 - 17**	**32 - 33**	**0 - 10**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**23 - 24**	**36 - 37**	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**18 - 19**	**35 - 36**
						Sample Date	**11/06/19**	**11/06/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/05/19**	**11/05/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**
						Sample ID	**OC-SB-709-16/17-XXX-20191106**	**OC-SB-709-32/33-XXX-20191106**	**OC-SB-710-0.0/10XXX-20191104**	**OC-SB-710-2.0/4.0-XXX-20191104**	**OC-SB-710-4.0/6.0-XXX-20191104**	**OC-SB-710-6.0/8.0-XXX-20191104**	**OC-SB-710-8.0/10-XXX-20191104**	**OC-SB-710-23/24-XXX-20191105**	**OC-SB-710-36/37-XXX-20191105**	**OC-SB-711-0.0/10-XXX-20191112**	**OC-SB-711-0.0/2.0-XXX-20191112**	**OC-SB-711-2.0/4.0-XXX-20191112**	**OC-SB-711-4.0/6.0-XXX-20191112**	**OC-SB-711-6.0/8.0-XXX-20191112**	**OC-SB-711-8.0/10-XXX-20191112**	**OC-SB-711-18/19-XXX-20191112**	**OC-SB-711-35/36-XXX-20191112**
Normal (N) or Field Duplicate (FD) Sample		**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	**1.9 J**	**1.3 J**	NA	4.8 U	3.7 U	3.7 U	5.2 U	4.6 U	3.7 U	NA	5.9 U	1,900 U	1,000 U	4.7 U	1,200 U	4 U	3.8 U
Semivolatiles																							
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	35 U	36 U	NA	42 U	**4.4 J**	37 U	36 U	40 U	35 U	NA	**7.1 J**	**75**	**14,000**	38 U	43 U	35 U	36 U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	**2.8 J**	71 U	920 U	38 U	43 U	35 U	36 U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	40 U	**12 J**	920 U	38 U	43 U	35 U	36 U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U	NA	8 U	15 U	190 U	7.6 U	**2.7 J**	7.2 U	7.3 U
2-Methylphenol	ug/kg	75	NS	NS	--	--	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U	NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U	NA	**1.8 J**	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U
Acetophenone	ug/kg	58	NS	NS	--	--	72 U	72 U	NA	85 U	75 U	75 U	73 U	82 U	72 U	NA	80 U	150 U	1,900 U	76 U	87 U	72 U	73 U
Aniline	ug/kg	4.6	NS	NS	--	--	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U	NA	**6.3 J**	**4.3 J**	**60 J**	7.6 U	8.7 U	**2 J**	**2.3 J**
Azobenzene	ug/kg	0.93	NS	NS	--	--	360 U	350 U	NA	420 U	370 U	370 U	350 U	400 U	360 U	NA	400 U	1,800 U	7,500 U	1,900 U	420 U	350 U	350 U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	R	R	NA	R	R	R	R	R	R	NA	R	150 U	1,900 U	76 U	87 U	72 U	73 U
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	7.2 U	7.2 U	NA	**3.8 J**	**5.7 J**	7.5 U	7.3 U	8.2 U	7.2 U	NA	**22**	**9.9 J**	190 U	7.6 U	**2.2 J**	**9.7**	**10**
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	7.2 U	7.2 U	NA	**4.4 J**	**4.7 J**	7.5 U	7.3 U	8.2 U	7.2 U	NA	**17**	15 U	190 U	7.6 U	8.7 U	**4.9 J**	**6 J**
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	7.2 U	7.2 U	NA	**6.3 J**	**5.8 J**	7.5 U	7.3 U	8.2 U	7.2 U	NA	**25**	**19**	190 U	7.6 U	8.7 U	**5.7 J**	**7.9**
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	7.2 U	7.2 U	NA	**4.1 J**	**3.2 J**	7.5 U	7.3 U	8.2 U	7.2 U	NA	**11**	15 U	190 U	7.6 U	8.7 U	**2.1 J**	**3.2 J**
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U	NA	**8.8**	**8.3 J**	190 U	7.6 U	8.7 U	7.2 U	7.3 U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	180 U	180 U	NA	220 U	190 U	190 U	190 U	210 U	180 U	NA	R	370 U	4,700 U	190 U	220 U	180 U	180 U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	40 U	71 U	920 U	**59**	43 U	35 U	36 U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	**50 J**	360 U	NA	**300 J**	**1,000**	370 U	**120 J**	400 U	350 U	NA	**4,900**	**19,000**	**420,000**	**56 J**	**210 J**	**48 J**	360 U
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U
Carbazole	ug/kg	NS	NS	NS	--	--	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U	NA	**3.5 J**	15 U	190 U	7.6 U	8.7 U	7.2 U	**1.9 J**
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	7.2 U	7.2 U	NA	**5.9 J**	**5.8 J**	7.5 U	7.3 U	8.2 U	7.2 U	NA	**27**	**20**	190 U	7.6 U	**2.6 J**	**9.3**	**9.9**
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U	NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U
Dibenzofuran	ug/kg	15	NS	NS	--	--	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	**21 J**	71 U	920 U	38 U	43 U	35 U	36 U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	35 U	36 U	NA	42 U	37 U	37 U	36 U	40 U	35 U	NA	40 U	71 U	920 U	38 U	43 U	35 U	36 U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	7.2 U	7.2 U	NA	**6.7 J**	**10**	7.5 U	7.3 U	8.2 U	7.2 U	NA	**46**	**23**	**160 J**	7.6 U	**4.8 J**	**8.5**	**13**
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U	NA	8 U	15 U	190 U	7.6 U	8.7 U	7.2 U	7.3 U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	7.2 U	7.2 U	NA	**3.8 J**	**2.9 J**	7.5 U	7.3 U	8.2 U	7.2 U	NA	**11**	15 U	190 U	7.6 U	8.7 U	**1.7 J**	**2.7 J**
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U	NA	**4.4 J**	**22**	**79 J**	7.6 U	**3.2 J**	7.2 U	7.3 U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	7.2 U	7.2 U	NA	8.5 U	7.5 U	7.5 U	7.3 U	8.2 U	7.2 U	NA	8 U	15 U	**53 J**	7.6 U	8.7 U	7.2 U	7.3 U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-709**		**SB-710**							**SB-711**							
						Depth Interval (ft)	**16 - 17**	**32 - 33**	**0 - 10**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**23 - 24**	**36 - 37**	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**18 - 19**	**35 - 36**
						Sample Date	**11/06/19**	**11/06/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/05/19**	**11/05/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**
						Sample ID	**OC-SB-709-16/17-XXX-20191106**	**OC-SB-709-32/33-XXX-20191106**	**OC-SB-710-0.0/10XXX-20191104**	**OC-SB-710-2.0/4.0-XXX-20191104**	**OC-SB-710-4.0/6.0-XXX-20191104**	**OC-SB-710-6.0/8.0-XXX-20191104**	**OC-SB-710-8.0/10-XXX-20191104**	**OC-SB-710-23/24-XXX-20191105**	**OC-SB-710-36/37-XXX-20191105**	**OC-SB-711-0.0/10-XXX-20191112**	**OC-SB-711-0.0/2.0-XXX-20191112**	**OC-SB-711-2.0/4.0-XXX-20191112**	**OC-SB-711-4.0/6.0-XXX-20191112**	**OC-SB-711-6.0/8.0-XXX-20191112**	**OC-SB-711-8.0/10-XXX-20191112**	**OC-SB-711-18/19-XXX-20191112**	**OC-SB-711-35/36-XXX-20191112**
Normal (N) or Field Duplicate (FD) Sample							**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**																				
			S-1/ GW-1	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	35 U	36 U	NA	**35 J**	**62**	37 U	36 U	40 U	35 U	NA	40 U	**1,700**	**54,000**	**31 J**	43 U	35 U	36 U
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	7.2 U	7.2 U	NA	**3.9 J**	**7.9**	7.5 U	**2.2 J**	8.2 U	7.2 U	NA	**21**	**15**	**660**	7.6 U	**8.1 J**	**7.1 J**	**8.5**
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	35 U	36 U	NA	42 U	**11 J**	37 U	36 U	40 U	35 U	NA	40 U	**8,800**	920 U	**120**	43 U	35 U	36 U
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	7.2 U	7.2 U	NA	**6.6 J**	**8.9**	7.5 U	7.3 U	8.2 U	7.2 U	NA	**40**	**20**	190 U	7.6 U	**4.8 J**	**9.2**	**12**
Pesticides/PCBs																							
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	ug/kg	0.15	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	ug/kg	0.042	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	ug/kg	0.15	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																							
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																							
Aluminum	mg/kg	3,000	NS	NS	--	--	**9,700**	**12,000**	NA	**7,300**	**5,800**	**2,100**	**6,500**	**3,900**	**12,000**	NA	**8,200**	**8,100 J**	**4,000**	**3,100**	**3,000**	**6,900**	**13,000**
Antimony	mg/kg	0.035	20	20	30	30	16 U	17 U	NA	19 U	**0.56 J**	17 U	17 U	19 U	**1.2 J**	NA	**0.64 J**	**0.45 J-**	17 U	17 U	20 U	16 U	**0.52 J**
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	**4.2**	**0.97 J**	NA	**10**	**9.2**	**2.1 J**	**2 J**	**8.9**	**8.4**	NA	**8.1**	**12**	**3.9**	**0.91 J**	**1.5 J**	**2.8**	**1.6 J**
Barium	mg/kg	16	1,000	1,000	5,000	5,000	**81 J**	**53 J**	NA	**43**	**24**	**14**	**14**	**26**	**46**	NA	**73**	**32**	**18**	**6.6**	**11**	**21**	**110**
Beryllium	mg/kg	1.9	90	90	200	200	**0.28 J**	2.2 U	NA	**0.32**	**0.21 J**	**0.08 J**	**0.27**	**0.17 J**	**0.35**	NA	**0.34**	**0.36**	**0.16 J**	**0.11 J**	**0.12 J**	**0.38**	**0.29**
Cadmium	mg/kg	0.069	70	70	100	100	0.22 U	0.22 U	NA	**0.1 J**	**0.05 J**	**0.04 J**	**1.9**	0.25 U	0.21 U	NA	**0.34**	**2.5**	**9.3**	**0.79**	**0.054 J**	0.21 U	0.21 U
Calcium	mg/kg	NS	NS	NS	--	--	**2,800**	**8,700**	NA	**11,000**	**2,800**	**1,100**	**950**	**1,500**	**6,400**	NA	**30,000**	**4,100 J-**	**1,200**	**1,000**	**1,300**	**1,400**	**3,000**
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	**44**	**420**	NA	**140**	**41**	**10**	**12**	**310**	**740**	NA	**95**	**63 J+**	**28**	**5.9**	**5.3**	**250**	**260**
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	**3.9**	**6.7**	NA	**2**	**1.2**	**0.79**	**0.61**	**8.5**	**7.3**	NA	**5.1**	**0.74**	**0.49**	**0.18 J**	**0.37 J**	**5.7**	**10.1**
Cobalt	mg/kg	0.027	NS	NS	--	--	**6.8**	**13**	NA	**4.6**	**3.7**	**0.79**	**3.2**	**2.1**	**15**	NA	**3.9**	**5.4**	**1.5**	**0.92**	**1**	**3.3**	**8.4**
Copper	mg/kg	2.8	NS	NS	--	--	**9**	**29**	NA	**14**	**7.5**	**3.8**	**8.6**	**7**	**25**	NA	**8.6**	**12**	**4.3**	**2.8**	**3.6**	**14**	**28**
Iron	mg/kg	35	NS	NS	--	--	**15,000**	**21,000**	NA	**9,900**	**8,700**	**3,200**	**5,300**	**11,000**	**26,000**	NA	**9,300**	**11,000**	**5,300**	**2,800**	**2,700**	**7,900**	**16,000**
Lead	mg/kg	NS	200	200	600	600	**4.7**	**5.7**	NA	**7.4**	**4.4**	**1.9**	**4.8**	**4.9**	**5.6**	NA	**8.1**	**13**	**5.7**	**1.7**	**1.7**	**4**	**2.5**

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-709**		**SB-710**							**SB-711**							
						Depth Interval (ft)	**16 - 17**	**32 - 33**	**0 - 10**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**23 - 24**	**36 - 37**	**0 - 10**	**0 - 2**	**2 - 4**	**4 - 6**	**6 - 8**	**8 - 10**	**18 - 19**	**35 - 36**
						Sample Date	**11/06/19**	**11/06/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/04/19**	**11/05/19**	**11/05/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**	**11/12/19**
						Sample ID	**OC-SB-709-16/17-XXX-20191106**	**OC-SB-709-32/33-XXX-20191106**	**OC-SB-710-0.0/10XXX-20191104**	**OC-SB-710-2.0/4.0-XXX-20191104**	**OC-SB-710-4.0/6.0-XXX-20191104**	**OC-SB-710-6.0/8.0-XXX-20191104**	**OC-SB-710-8.0/10-XXX-20191104**	**OC-SB-710-23/24-XXX-20191105**	**OC-SB-710-36/37-XXX-20191105**	**OC-SB-711-0.0/10-XXX-20191112**	**OC-SB-711-0.0/2.0-XXX-20191112**	**OC-SB-711-2.0/4.0-XXX-20191112**	**OC-SB-711-4.0/6.0-XXX-20191112**	**OC-SB-711-6.0/8.0-XXX-20191112**	**OC-SB-711-8.0/10-XXX-20191112**	**OC-SB-711-18/19-XXX-20191112**	**OC-SB-711-35/36-XXX-20191112**
Normal (N) or Field Duplicate (FD) Sample							**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**																				
			S-1/ GW-1	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																	
Magnesium	mg/kg	NS	NS	NS	--	--	**4,500**	**10,000**	NA	**3,000**	**3,000**	**840**	**1,900**	**1,400**	**11,000**	NA	**3,400**	**2,800**	**940**	**860**	**900**	**2,100**	**11,000**
Manganese	mg/kg	2.8	NS	NS	--	--	**200**	**270**	NA	**170**	**130**	**47**	**69**	**72**	**290**	NA	**160**	**140 J+**	**45**	**42**	**45**	**110**	**270**
Mercury	mg/kg	0.0033	20	20	30	30	0.022 U	0.021 U	NA	**0.021 J**	**0.01 J**	0.022 U	0.02 U	0.025 U	**0.0093 J**	NA	**0.035**	**0.19**	**0.029**	0.024 U	0.025 U	0.021 U	0.022 U
Nickel	mg/kg	2.6	600	600	1000	1000	**14**	**60**	NA	**14**	**14**	**2.5 J**	**10**	**7.1**	**39**	NA	**9.2**	**16**	**6.4**	**4.6 J**	**4.5 J**	**9.8**	**17**
Potassium	mg/kg	NS	NS	NS	--	--	**3,500**	**2,700**	NA	**1,700**	**1,200**	**650**	**810**	**1,900**	**2,300**	NA	**1,200**	**1,500**	**460**	**440**	**620**	**970**	**7,100**
Selenium	mg/kg	0.052	400	400	700	700	4.3 U	4.4 U	NA	5.2 U	4.7 U	4.5 U	**0.57 J**	5.1 U	**0.58 J**	NA	**1.1 J**	**0.58 J**	**0.5 J**	4.5 U	**0.7 J**	**0.46 J**	4.1 U
Silver	mg/kg	0.08	100	100	200	200	0.65 U	0.67 U	NA	0.78 U	0.7 U	0.67 U	0.67 U	0.76 U	0.62 U	NA	0.76 U	0.65 U	0.7 U	0.68 U	0.81 U	0.64 U	0.62 U
Sodium	mg/kg	NS	NS	NS	--	--	**160**	**870**	NA	**250**	**130 J**	**81 J**	**110 J**	**380**	**1,300**	NA	**140 J**	**180 J**	**87 J**	**81 J**	**95 J**	**82 J**	**350**
Thallium	mg/kg	0.0014	8	8	80	80	6.5 U	6.7 U	NA	7.8 U	7 U	6.7 U	6.7 U	7.6 U	6.2 U	NA	7.6 U	6.5 U	7 U	6.8 U	8.1 U	6.4 U	6.2 U
Tin	mg/kg	300	NS	NS	--	--	**0.47 J**	**0.57 J**	NA	**0.74 J**	**0.51 J**	2.2 U	2.2 U	**0.55 J**	**0.75 J**	NA	**0.76 J**	**0.86 J**	2.3 U	2.3 U	2.7 U	2.1 U	**0.76 J**
Vanadium	mg/kg	8.6	400	400	700	700	**28**	**53**	NA	**18**	**13**	**5.2**	**9.9**	**16**	**60**	NA	**16**	**19**	**7.4**	**5.2**	**5.4**	**12**	**38**
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	**35**	**39**	NA	**28**	**19**	**6.4**	**21**	**12**	**46**	NA	**25**	**78 J+**	**63**	**8.8**	**9.2**	**21**	**37**
General Chemistry																							
Ammonia	mg/kg	NS	NS	NS	--	--	**8.6**	**150**	NA	**15**	**12**	**18**	**14**	**52**	**58**	NA	**14**	**8.8**	**42**	**58**	**50**	**9.2**	**42**
Chloride	mg/kg	NS	NS	NS	--	--	11 U	11 U	NA	**19 J**	**6.9 J**	11 UJ	11 UJ	**57 J**	**670 J**	NA	12 UJ	11 UJ	11 UJ	12 UJ	**7.2 J**	11 UJ	**42 J**
pH	S.U.	NS	NS	NS	--	--	NA	NA	**5.5 J**	NA	NA	NA	NA	NA	NA	**8.5 J**	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/kg	NS	NS	NS	--	--	**890**	**320**	NA	**3,900 J**	**6,400 J**	**170 J**	**71 J**	**1,100 J**	**3,700 J**	NA	**1,800 J**	**2,400 J**	**290 J**	**12 J**	**43 J**	**13 J**	**500 J**
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Analyses																							
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	180 U	200 U	NA	230 U	210 U	200 U	220 U	230 U	200 U	NA	200 U	190 U	170 U	170 U	160 U	160 U	130 U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	**3,300 J**	**2,300 J**	NA	**2,000 J**	**4,000 J**	**11,000 J**	2,200 UJ	2,500 UJ	**3,700 J**	NA	2,500 UJ	**1,500 J**	**2,900 J**	2,300 UJ	2,600 UJ	2,200 UJ	**4,700 J**
Hydrazine	ug/kg	0.00022	NS	NS	--	--	**4.9 J**	5.4 U	NA	5.7 UJ	**1.8 J**	**1.6 J**	**1.8 J**	**1.7 J**	**1.9 J**	NA	**1.9 J**	**5.7**	**13**	5.9 U	6 U	5.3 U	5.5 U
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																			
Arsenic	mg/L	0.01	0.01	0.9	--	--	NA	NA	**0.015**	NA	NA	NA	NA	NA	NA	**0.012 J**	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	2	2	50	--	--	NA	NA	**0.23 J**	NA	NA	NA	NA	NA	NA	**0.28 J**	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.005	0.005	0.004	--	--	NA	NA	**0.0016 J**	NA	NA	NA	NA	NA	NA	**0.0025**	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.1	0.1	0.3	--	--	NA	NA	**0.045**	NA	NA	NA	NA	NA	NA	**0.1**	NA	NA	NA	NA	NA	NA	NA
Lead	mg/L	0.015	0.015	0.01	--	--	NA	NA	**0.0068 J**	NA	NA	NA	NA	NA	NA	**0.011 J**	NA	NA	NA	NA	NA	NA	NA

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-712**													
						Depth Interval (ft)	**0 - 10**		**0 - 2**		**2 - 4**		**4 - 6**		**6 - 8**		**8 - 10**		**23 - 24**		**37 - 38**	
						Sample Date	**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**	
						Sample ID	**OC-SB-712-0.0/10-XXX-20191111**	**OC-SB-712-0.0/10-DUP-20191111**	**OC-SB-712-0.0/2.0-XXX-20191111**		**OC-SB-712-2.0/4.0-XXX-20191111**		**OC-SB-712-4.0/6.0-XXX-20191111**		**OC-SB-712-6.0/8.0-XXX-20191111**		**OC-SB-712-8.0/10-XXX-20191111**		**OC-SB-712-23/24-XXX-20191111**		**OC-SB-712-37/38-XXX-20191111**	
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**FD**	**N**		**N**		**N**		**N**		**N**		**N**		**N**	
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																
Volatiles																						
1,1,1-Trichloroethane	ug/kg	280	30,000	500,000	30,000	3,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
1,1-Dichloroethane	ug/kg	0.78	400	500,000	400	1,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
1,1-Dichloroethene	ug/kg	10	3,000	500,000	3,000	3,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
1,2,3-Trichlorobenzene	ug/kg	2.1	NS	NS	--	--	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
1,2,4-Trimethylbenzene	ug/kg	8.1	NS	NS	--	--	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
1,2-Dichlorobenzene	ug/kg	30	9,000	300,000	9,000	300,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
1,2-Dichloroethane	ug/kg	0.048	100	20,000	100	300,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
1,3,5-Trimethylbenzene	ug/kg	8.7	NS	NS	--	--	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
1,3-Dichlorobenzene	ug/kg	NS	3,000	100,000	3,000	500,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
1,4-Dichlorobenzene	ug/kg	0.46	700	80,000	700	2,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
2,4,4-Trimethyl-1-Pentene	ug/kg	NS	NS	NS	--	--	NA	NA	4.6	U	**2**	**J**	**4**	**J**	**8.6**		**2.4**	**J**	4.2	U	4.3	U
2,4,4-Trimethyl-2-Pentene	ug/kg	NS	NS	NS	--	--	NA	NA	4.6	U	**0.67**	**J**	**1.5**	**J**	**3.3**	**J**	**0.59**	**J**	4.2	U	4.3	U
2-Butanone	ug/kg	120	4,000	400,000	4,000	400,000	NA	NA	23	U	**6.9**	**J+**	26	U	22	U	21	U	21	U	21	U
2-Hexanone	ug/kg	0.88	NS	NS	--	--	NA	NA	23	U	22	U	26	U	22	U	21	U	21	U	21	U
4-Isopropyltoluene	ug/kg	NS	NS	NS	--	--	NA	NA	4.6	U	4.3	U	**0.45**	**J**	4.4	U	4.2	U	4.2	U	4.3	U
Acetone	ug/kg	290	6,000	400,000	6,000	400,000	NA	NA	230	U	220	U	260	U	220	U	210	U	210	U	210	U
Benzene	ug/kg	0.23	2,000	40,000	2,000	1,000,000	NA	NA	4.6	U	4.3	U	5.3	U	**0.49**	**J**	4.2	U	4.2	U	4.3	U
Bromochloromethane	ug/kg	2.1	NS	NS	--	--	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Bromodichloromethane	ug/kg	0.036	100	30,000	100	500,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Carbon disulfide	ug/kg	24	NS	NS	--	--	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Chlorobenzene	ug/kg	5.3	1,000	100,000	1,000	100,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Chloroform	ug/kg	0.061	400	500,000	400	1,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Dibromomethane	ug/kg	0.21	NS	NS	--	--	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Diethyl ether	ug/kg	88	NS	NS	--	--	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Ethylbenzene	ug/kg	1.7	40,000	500,000	40,000	3,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Isopropylbenzene	ug/kg	74	NS	NS	--	--	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
m,p-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Methyl acetate	ug/kg	410	NS	NS	--	--	NA	NA	46	U	43	U	53	U	44	U	42	U	42	U	43	U
Methylene chloride	ug/kg	2.7	**100**	400,000	**100**	700,000	NA	NA	27	U	20	U	22	U	21	U	24	U	23	U	20	U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	NA	23	U	22	U	**0.9**	**J**	22	U	21	U	21	U	21	U
n-Butylbenzene	ug/kg	320	NS	NS	--	--	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
n-Propylbenzene	ug/kg	120	NS	NS	--	--	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
o-Xylene	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
sec-Butylbenzene	ug/kg	590	NS	NS	--	--	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Styrene	ug/kg	130	3,000	70,000	3,000	2,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Tetrachloroethene	ug/kg	1.8	1,000	30,000	1,000	1,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Toluene	ug/kg	76	30,000	500,000	30,000	3,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Trichloroethene	ug/kg	0.1	300	30,000	300	60,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-712**															
						Depth Interval (ft)	**0 - 10**		**0 - 2**		**2 - 4**		**4 - 6**		**6 - 8**		**8 - 10**		**23 - 24**		**37 - 38**	
						Sample Date	**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**	
						Sample ID	**OC-SB-712-0.0/10-XXX-20191111**	**OC-SB-712-0.0/10-DUP-20191111**	**OC-SB-712-0.0/2.0-XXX-20191111**		**OC-SB-712-2.0/4.0-XXX-20191111**		**OC-SB-712-4.0/6.0-XXX-20191111**		**OC-SB-712-6.0/8.0-XXX-20191111**		**OC-SB-712-8.0/10-XXX-20191111**		**OC-SB-712-23/24-XXX-20191111**		**OC-SB-712-37/38-XXX-20191111**	
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**FD**	**N**		**N**		**N**		**N**		**N**		**N**		**N**	
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																
Xylene (total)	ug/kg	19	400,000	500,000	400,000	3,000,000	NA	NA	4.6	U	4.3	U	5.3	U	4.4	U	4.2	U	4.2	U	4.3	U
Semivolatiles																						
1,1'-Biphenyl	ug/kg	0.87	**50**	1,000,000	**50**	5,000,000	NA	NA	**9.7**	**J**	**1.7**	**J**	**3.4**	**J**	110	U	36	U	36	U	35	U
1,2,4-Trichlorobenzene	ug/kg	1.2	2,000	700,000	2,000	5,000,000	NA	NA	200	U	36	U	37	U	**5.2**	**J**	36	U	36	U	35	U
2,4-Dimethylphenol	ug/kg	42	700	500,000	700	1,000,000	NA	NA	200	U	36	U	37	U	110	U	36	U	36	U	35	U
2-Methylnaphthalene	ug/kg	19	700	300,000	1,000	500,000	NA	NA	40	U	7.3	U	**2.3**	**J**	22	U	7.4	U	7.3	U	7.2	U
2-Methylphenol	ug/kg	75	NS	NS	--	--	NA	NA	200	U	36	U	37	U	110	U	36	U	36	U	35	U
4-Bromophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	200	U	36	U	37	U	110	U	36	U	36	U	35	U
4-Chlorophenyl-phenylether	ug/kg	NS	NS	NS	--	--	NA	NA	200	U	36	U	37	U	110	U	36	U	36	U	35	U
4-Methylphenol	ug/kg	150	NS	NS	--	--	NA	NA		NA		NA		NA		NA		NA		NA		NA
Acenaphthene	ug/kg	550	4,000	1,000,000	4,000	5,000,000	NA	NA	40	U	7.3	U	7.5	U	**17**	**J**	7.4	U	7.3	U	7.2	U
Acenaphthylene	ug/kg	NS	1,000	10,000	1,000	10,000	NA	NA	40	U	7.3	U	**4.7**	**J**	**6.3**	**J**	7.4	U	7.3	U	7.2	U
Acetophenone	ug/kg	58	NS	NS	--	--	NA	NA	400	U	73	U	**4.4**	**J**	220	U	74	U	73	U	72	U
Aniline	ug/kg	4.6	NS	NS	--	--	NA	NA	200	U	36	U	37	U	110	U	36	U	36	U	35	U
Anthracene	ug/kg	5,800	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	40	U	**2.6**	**J**	**4.3**	**J**	**36**		7.4	U	7.3	U	7.2	U
Azobenzene	ug/kg	0.93	NS	NS	--	--	NA	NA	390	U	360	U	370	U	1,800	U	360	U	360	U	360	U
Benzaldehyde	ug/kg	4.1	NS	NS	--	--	NA	NA	400	U	73	U	**6.7**	**J**	220	U	74	U	73	U	72	U
Benzo(a)anthracene	ug/kg	11	7,000	7,000	300,000	300,000	NA	NA	**11**	**J**	**7.6**		**20**		**72**		7.4	U	7.3	U	7.2	U
Benzo(a)pyrene	ug/kg	29	2,000	2,000	30,000	30,000	NA	NA	40	U	**9.5**		**23**		**67**		7.4	U	7.3	U	7.2	U
Benzo(b)fluoranthene	ug/kg	300	7,000	7,000	300,000	300,000	NA	NA	**14**	**J**	**12**		**39**		**68**		7.4	U	7.3	U	7.2	U
Benzo(g,h,i)perylene	ug/kg	NS	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	40	U	**8.2**		**24**		**56**		7.4	U	7.3	U	7.2	U
Benzo(k)fluoranthene	ug/kg	2,900	70,000	70,000	3,000,000	3,000,000	NA	NA	40	U	**3.7**	**J**	**13**		**32**		7.4	U	7.3	U	7.2	U
Benzoic Acid	ug/kg	1,500	NS	NS	--	--	NA	NA	1,000	U	190	U	190	U	570	U	190	U	190	U	180	U
Benzyl Alcohol	ug/kg	48	NS	NS	--	--	NA	NA	200	U	36	U	37	U	110	U	36	U	36	U	35	U
Bis(2-ethylhexyl)phthalate	ug/kg	1,300	**90,000**	**90,000**	**2,000,000**	**2,000,000**	NA	NA	**2,100**		**43**	**J**	**570**		**1,200**		**140**	**J**	360	U	350	U
Butylbenzylphthalate	ug/kg	240	NS	NS	--	--	NA	NA	200	U	36	U	37	U	110	U	36	U	36	U	35	U
Carbazole	ug/kg	NS	NS	NS	--	--	NA	NA	40	U	**1.7**	**J**	**2.4**	**J**	**8.1**	**J**	7.4	U	7.3	U	7.2	U
Chrysene	ug/kg	9,000	70,000	70,000	3,000,000	3,000,000	NA	NA	**12**	**J**	**8.6**		**27**		**75**		7.4	U	7.3	U	7.2	U
Dibenz(a,h)anthracene	ug/kg	96	700	700	30,000	30,000	NA	NA	40	U	7.3	U	**6.1**	**J**	**12**	**J**	7.4	U	7.3	U	7.2	U
Dibenzofuran	ug/kg	15	NS	NS	--	--	NA	NA	200	U	36	U	37	U	**9.4**	**J**	36	U	36	U	35	U
Diethylphthalate	ug/kg	610	10,000	300,000	10,000	300,000	NA	NA	200	U	36	U	37	U	110	U	36	U	36	U	35	U
Dimethylphthalate	ug/kg	NS	700	600,000	700	600,000	NA	NA	200	U	36	U	37	U	110	U	36	U	36	U	35	U
Di-N-Butylphthalate	ug/kg	230	NS	NS	--	--	NA	NA	200	U	36	U	37	U	110	U	36	U	36	U	35	U
Di-N-Octyl Phthalate	ug/kg	5,700	NS	NS	--	--	NA	NA	200	U	36	U	37	U	110	U	36	U	36	U	35	U
Diphenyl ether	ug/kg	0.34	NS	NS	--	--	NA	NA		NA		NA		NA		NA		NA		NA		NA
Diphenylamine	ug/kg	230	NS	NS	--	--	NA	NA		NA		NA		NA		NA		NA		NA		NA
Fluoranthene	ug/kg	8,900	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	**19**	**J**	**18**		**30**		**120**		7.4	U	7.3	U	7.2	U
Fluorene	ug/kg	540	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	40	U	7.3	U	**2**	**J**	**12**	**J**	7.4	U	7.3	U	7.2	U
Indeno(1,2,3-cd)pyrene	ug/kg	980	7,000	7,000	300,000	300,000	NA	NA	40	U	**6.5**	**J**	**21**		**38**		7.4	U	7.3	U	7.2	U
Naphthalene	ug/kg	0.54	4,000	500,000	4,000	3,000,000	NA	NA	40	U	**2.1**	**J**	**5.7**	**J**	**11**	**J**	7.4	U	7.3	U	7.2	U
Naphthalene, 1-methyl-	ug/kg	6	NS	NS	--	--	NA	NA	40	U	7.3	U	**2.1**	**J**	22	U	7.4	U	7.3	U	7.2	U

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-712**																	
						Depth Interval (ft)	**0 - 10**		**0 - 2**		**2 - 4**		**4 - 6**		**6 - 8**		**8 - 10**		**23 - 24**		**37 - 38**			
						Sample Date	**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**			
						Sample ID	**OC-SB-712-0.0/10-XXX-20191111**	**OC-SB-712-0.0/10-DUP-20191111**	**OC-SB-712-0.0/2.0-XXX-20191111**		**OC-SB-712-2.0/4.0-XXX-20191111**		**OC-SB-712-4.0/6.0-XXX-20191111**		**OC-SB-712-6.0/8.0-XXX-20191111**		**OC-SB-712-8.0/10-XXX-20191111**		**OC-SB-712-23/24-XXX-20191111**		**OC-SB-712-37/38-XXX-20191111**			
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**FD**	**N**		**N**		**N**		**N**		**N**		**N**		**N**			
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																		
N-Nitrosodiphenylamine	ug/kg	67	NS	NS	--	--	NA	NA	200	U	36	U	**72**		**130**		36	U	36	U	35	U		
Phenanthrene	ug/kg	NS	10,000	500,000	20,000	3,000,000	NA	NA	40	U	**10**		**17**		**93**		7.4	U	**2.1**	**J**	7.2	U		
Phenol	ug/kg	330	**1,000**	20,000	**1,000**	20,000	NA	NA	200	U	36	U	**14**	**J**	110	U	36	U	36	U	35	U		
Pyrene	ug/kg	1,300	1,000,000	1,000,000	5,000,000	5,000,000	NA	NA	**17**	**J**	**15**		**26**		**150**		7.4	U	7.3	U	7.2	U		
Pesticides/PCBs																								
4,4'-DDD	ug/kg	1.5	8,000	8,000	60,000	60,000	NA	NA	NA		NA		NA		NA		NA		NA		NA			
4,4'-DDE	ug/kg	11	6,000	6,000	60,000	60,000	NA	NA	NA		NA		NA		NA		NA		NA		NA			
4,4'-DDT	ug/kg	77	6,000	6,000	60,000	60,000	NA	NA	NA		NA		NA		NA		NA		NA		NA			
Aldrin	ug/kg	0.15	80	80	3,000	3,000	NA	NA	NA		NA		NA		NA		NA		NA		NA			
alpha-BHC	ug/kg	0.042	NS	NS	--	--	NA	NA	NA		NA		NA		NA		NA		NA		NA			
beta-BHC	ug/kg	0.15	NS	NS	--	--	NA	NA	NA		NA		NA		NA		NA		NA		NA			
cis-Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA		NA		NA		NA		NA		NA		NA			
Dieldrin	ug/kg	0.071	80	80	3,000	3,000	NA	NA	NA		NA		NA		NA		NA		NA		NA			
Endosulfan I	ug/kg	NS	500	1,000	500	1,000	NA	NA	NA		NA		NA		NA		NA		NA		NA			
Endrin	ug/kg	9.2	10,000	10,000	20,000	20,000	NA	NA	NA		NA		NA		NA		NA		NA		NA			
Endrin Aldehyde	ug/kg	NS	NS	NS	--	--	NA	NA	NA		NA		NA		NA		NA		NA		NA			
Endrin Ketone	ug/kg	NS	NS	NS	--	--	NA	NA	NA		NA		NA		NA		NA		NA		NA			
gamma-BHC (Lindane)	ug/kg	0.24	**3**	**500**	**3**	**500**	NA	NA	NA		NA		NA		NA		NA		NA		NA			
Heptachlor	ug/kg	0.12	300	300	10,000	10,000	NA	NA	NA		NA		NA		NA		NA		NA		NA			
Heptachlor Epoxide	ug/kg	0.028	100	100	1,000	1,000	NA	NA	NA		NA		NA		NA		NA		NA		NA			
Technical Chlordane	ug/kg	NS	NS	NS	--	--	NA	NA	NA		NA		NA		NA		NA		NA		NA			
EPH																								
C11-C22 Aromatics	ug/kg	NS	1,000,000	1,000,000	1,000,000	5,000,000	NA	NA	NA		NA		NA		NA		NA		NA		NA			
C11-C22 Aromatics (unadjusted)	ug/kg	NS	NS	NS	--	--	NA	NA	NA		NA		NA		NA		NA		NA		NA			
C19-C36 Aliphatics	ug/kg	NS	3,000,000	3,000,000	5,000,000	5,000,000	NA	NA	NA		NA		NA		NA		NA		NA		NA			
Total EPH	ug/kg	NS	NS	NS	--	--	NA	NA	NA		NA		NA		NA		NA		NA		NA			
Metals																								
Aluminum	mg/kg	3,000	NS	NS	--	--	NA	NA	**8,100**		**10,000**		**8,400**		**10,000**		**4,500**		**2,500**		**10,000**			
Antimony	mg/kg	0.035	20	20	30	30	NA	NA	18	U	16	U	16	U	**0.86**	**J**	**0.53**	**J**	16	U	**1.5**	**J**		
Arsenic	mg/kg	0.0015	**20**	**20**	50	50	NA	NA	**7.7**		**8.9**		**7.5**		**13**		**5.5**		**4.5**		**4.1**			
Barium	mg/kg	16	1,000	1,000	5,000	5,000	NA	NA	**61**		**43**		**34**		**41**		**15**		**18**		**71**			
Beryllium	mg/kg	1.9	90	90	200	200	NA	NA	**0.36**		**0.54**		**0.37**		**0.5**		**0.16**	**J**	**0.097**	**J**	**0.27**			
Cadmium	mg/kg	0.069	70	70	100	100	NA	NA	**0.16**	**J**	**0.062**	**J**	**0.067**	**J**	**0.098**	**J**	0.22	U	0.21	U	0.22	U		
Calcium	mg/kg	NS	NS	NS	--	--	NA	NA	**22,000**		**4,100**		**15,000**		**3,300**		**1,500**		**850**		**12,000**			
Chromium	mg/kg	4,000,000	**100**	**100**	**200**	**200**	NA	NA	**78**		**35**		**38**		**38**		**130**		**32**		**250**			
Chromium-Hexavalent	mg/kg	0.00067	100	100	200	200	NA	NA	**5.5**		**0.71**		**0.56**		**1.4**		**2.8**		**1**		**16.8**			
Cobalt	mg/kg	0.027	NS	NS	--	--	NA	NA	**4.2**		**5.8**		**3.7**		**7.1**		**2.5**		**1.4**		**18**			
Copper	mg/kg	2.8	NS	NS	--	--	NA	NA	**11**		**11**		**11**		**23**		**4.8**		**2.2**		**64**			
Iron	mg/kg	35	NS	NS	--	--	NA	NA	**9,800**		**11,000**		**8,900**		**13,000**		**7,700**		**5,000**		**28,000**			
Lead	mg/kg	NS	200	200	600	600	NA	NA	**12**		**6.3**		**20**		**19**		**2.8**		**2**		**2.8**			

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 4
All Non-Removed Soils - Containment Area - Direct Contact Comparison
Olin Chemical Site
Wilmington, Massachusetts

						Sample Location	**SB-712**																	
						Depth Interval (ft)	**0 - 10**		**0 - 2**		**2 - 4**		**4 - 6**		**6 - 8**		**8 - 10**		**23 - 24**		**37 - 38**	
						Sample Date	**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**		**11/11/19**	
						Sample ID	**OC-SB-712-0.0/10-XXX-20191111**		**OC-SB-712-0.0/2.0-XXX-20191111**		**OC-SB-712-2.0/4.0-XXX-20191111**		**OC-SB-712-4.0/6.0-XXX-20191111**		**OC-SB-712-6.0/8.0-XXX-20191111**		**OC-SB-712-8.0/10-XXX-20191111**		**OC-SB-712-23/24-XXX-20191111**		**OC-SB-712-37/38-XXX-20191111**	
Normal (N) or Field Duplicate (FD) Sample	**Units**	**11/2019 MCL-based SSL**	**MassDEP criteria**				**N**	**FD**	**N**		**N**		**N**		**N**		**N**		**N**		**N**	
Chemical			**S-1/ GW-1**	**S-1/ GW-3**	**S-3/ GW-1**	**S-3/ GW-3**																
Magnesium	mg/kg	NS	NS	NS	--	--	NA	NA	**3,300**		**3,800**		**2,200**		**4,000**		**2,600**		**1,300**		**5,700**	
Manganese	mg/kg	2.8	NS	NS	--	--	NA	NA	**160**		**190**		**130**		**210**		**120**		**58**		**310**	
Mercury	mg/kg	0.0033	20	20	30	30	NA	NA	**0.048**		0.021	U	**0.069**		**0.087**		0.021	U	0.021	U	0.02	U
Nickel	mg/kg	2.6	600	600	1000	1000	NA	NA	**10**		**24**		**9.3**		**21**		**11**		**4.7**	**J**	**15**	
Potassium	mg/kg	NS	NS	NS	--	--	NA	NA	**1,500**		**2,100**		**1,500**		**1,800**		**1,200**		**940**		**3,300**	
Selenium	mg/kg	0.052	400	400	700	700	NA	NA	4.8	U	**0.55**	**J**	4.3	U	4.4	U	4.4	U	4.2	U	**0.58**	**J**
Silver	mg/kg	0.08	100	100	200	200	NA	NA	0.73	U	0.65	U	0.65	U	0.66	U	0.66	U	0.63	U	0.65	U
Sodium	mg/kg	NS	NS	NS	--	--	NA	NA	**170**		**200**		**170**		**220**		**110**	**J**	**92**	**J**	**1,500**	
Thallium	mg/kg	0.0014	8	8	80	80	NA	NA	7.3	U	6.5	U	6.5	U	6.6	U	6.6	U	6.3	U	6.5	U
Tin	mg/kg	300	NS	NS	--	--	NA	NA	**0.69**	**J**	**0.84**	**J**	**0.72**	**J**	**1.6**	**J**	2.2	U	2.1	U	**0.87**	**J**
Vanadium	mg/kg	8.6	400	400	700	700	NA	NA	**19**		**22**		**17**		**25**		**12**		**7.9**		**110**	
Zinc	mg/kg	37	1,000	1,000	5,000	5,000	NA	NA	**25**		**24**		**24**		**41**		**15**		**7.4**		**48**	
General Chemistry																						
Ammonia	mg/kg	NS	NS	NS	--	--	NA	NA	**4.4**	**J**	**3.6**	**J**	**18**		**11**		**9.9**		**5.9**		**140**	
Chloride	mg/kg	NS	NS	NS	--	--	NA	NA	12	UJ	**6.8**	**J**	11	UJ	**12**	**J**	**6.7**	**J**	11	UJ	**250**	**J**
pH	S.U.	NS	NS	NS	--	--	**8.9**	**J**	**8.9**	**J**	NA		NA		NA		NA		NA		NA	
Sulfate	mg/kg	NS	NS	NS	--	--	NA	NA	**4,000**	**J**	**520**	**J**	**12,000**	**J**	**1,500**	**J**	**180**	**J**	**43**	**J**	**3,700**	**J**
Total Organic Carbon	mg/kg	NS	NS	NS	--	--	NA	NA	NA		NA		NA		NA		NA		NA		NA	
Other Analyses																						
Dimethylformamide	ug/kg	1.2	NS	NS	--	--	NA	NA	190	U	190	U	180	U	210	U	220	U	**780**		150	U
Formaldehyde	ug/kg	0.078	NS	NS	--	--	NA	NA	2,400	UJ	**2,100**	**J**	**2,000**	**J**	**2,600**	**J**	2,200	UJ	2,200	UJ	**6,100**	**J**
Hydrazine	ug/kg	0.00022	NS	NS	--	--	NA	NA	**3.8**	**J**	**7.7**		5.5	U	5.6	U	5.6	U	5.5	U	5.4	U
Metals (TCLP)		**11/2019 MCL**	**GW-1**	**GW-3**																		
Arsenic	mg/L	0.01	0.01	0.9	--	--	**0.013**	**J**	**0.011**	**J**	NA		NA		NA		NA		NA		NA	
Barium	mg/L	2	2	50	--	--	**0.29**	**J**	**0.26**	**J**	NA		NA		NA		NA		NA		NA	
Cadmium	mg/L	0.005	0.005	0.004	--	--	**0.0012**	**J**	**0.0015**	**J**	NA		NA		NA		NA		NA		NA	
Chromium	mg/L	0.1	0.1	0.3	--	--	**0.12**		**0.15**		NA		NA		NA		NA		NA		NA	
Lead	mg/L	0.015	0.015	0.01	--	--					NA		NA		NA		NA		NA		NA	

Bold - Detected; Shading - Criterion exceeded; U - Not Detected; J - Estimated; R - Rejected; NA - Not Analyzed

Table 5
Summary Statistics and Criteria Comparisons
Olin Chemical, Wilmington, Massachusetts

Chemical	Units	Min Detect	Max Detect	Avg Detect	Detect Freq	Max Location	11-2019 Resid. RSL		11-2019 Ind./ Comm RSL		11-2019 MCL-based SSL		2014 MassDEP S-1/GW-1		2014 MassDEP S-1/GW-3		2014 MassDEP S-3/GW-1		2014 MassDEP S-3/GW-3	
							Value	No. Exceed	Value	No. Exceed	Value	No. Exceed	Value	No. Exceed	Value	No. Exceed	Value	No. Exceed	Value	No. Exceed
Volatiles																				
1,1-Dichloroethane	ug/kg	0.7	0.83	0.765	2/95	SB-707	3,600	0	16,000	0	0.78	1	400	0	500,000	0	400	0	1,000,000	0
1,1-Dichloroethene	ug/kg	18	18	18	1/219	AREA 1-4	23,000	0	100,000	0	10	1	3,000	0	500,000	0	3,000	0	3,000,000	0
1,2,3-Trichlorobenzene	ug/kg	0.85	160	106	5/185	DB-C13	6,300	0	93,000	0	2.1	4	NS	--	NS	--	NS	--	NS	--
1,2,4-Trichlorobenzene	ug/kg	0.36	790	159	19/185	DB-C13	5,800	0	26,000	0	1.2	12	2,000	0	700,000	0	2,000	0	5,000,000	0
1,2,4-Trimethylbenzene	ug/kg	1.6	4600	738	16/185	DB-C6	30,000	0	180,000	0	8.1	12	NS	--	NS	--	NS	--	NS	--
1,2-Dichloroethane	ug/kg	0.47	1.1	0.785	2/95	SB-703	460	0	2,000	0	0.048	2	100	0	20,000	0	100	0	300,000	0
1,3,5-Trimethylbenzene	ug/kg	0.28	2900	412	19/185	DB-C6	27,000	0	150,000	0	8.7	11	NS	--	NS	--	NS	--	NS	--
1,4-Dichlorobenzene	ug/kg	0.68	0.68	0.68	1/95	SB-706	2,600	0	11,000	0	0.46	1	700	0	80,000	0	700	0	2,000,000	0
2-Butanone	ug/kg	1	560	42.2	36/219	SB-705	2,700,000	0	19,000,000	0	120	2	4,000	0	400,000	0	4,000	0	400,000	0
2-Hexanone	ug/kg	61	61	61	1/219	BH9	20,000	0	130,000	0	0.88	1	NS	--	NS	--	NS	--	NS	--
Acetone	ug/kg	4.2	17000	265	75/219	BH1	6,100,000	0	67,000,000	0	290	3	6,000	1	400,000	0	6,000	1	400,000	0
Benzene	ug/kg	0.2	100	11.8	9/219	BH1	1,200	0	5,100	0	0.23	8	2,000	0	40,000	0	2,000	0	1,000,000	0
Bromodichloromethane	ug/kg	2.6	2.6	2.6	1/95	SB-706	290	0	1,300	0	0.036	1	100	0	30,000	0	100	0	500,000	0
Chloroform	ug/kg	2	2	2	1/219	BH9	320	0	1,400	0	0.061	1	400	0	500,000	0	400	0	1,000,000	0
Dibromomethane	ug/kg	1	4.6	2.8	2/95	SB-703	2,400	0	9,900	0	0.21	2	NS	--	NS	--	NS	--	NS	--
Ethylbenzene	ug/kg	0.27	620	119	15/219	DA-C35	5,800	0	25,000	0	1.7	7	40,000	0	500,000	0	40,000	0	3,000,000	0
Isopropylbenzene	ug/kg	1.2	650	199	11/185	DB-C6	190,000	0	990,000	0	74	7	NS	--	NS	--	NS	--	NS	--
m,p-Xylene	ug/kg	0.75	1400	152	16/185	STOCKPILE	58,000	0	250,000	0	19	7	400,000	0	500,000	0	400,000	0	3,000,000	0
Methylene chloride	ug/kg	4	2000	293	47/219	BH1	35,000	0	320,000	0	2.7	47	100	45	400,000	0	100	45	700,000	0
n-Propylbenzene	ug/kg	0.49	590	177	8/185	DB-C6	380,000	0	2,400,000	0	120	3	NS	--	NS	--	NS	--	NS	--
Naphthalene	ug/kg	0.53	620	97.4	10/185	DB-C13	3,800	0	17,000	0	0.54	9	4,000	0	500,000	0	4,000	0	3,000,000	0
o-Xylene	ug/kg	0.75	530	208	8/185	DB-C6	65,000	0	280,000	0	19	6	400,000	0	500,000	0	400,000	0	3,000,000	0
Styrene	ug/kg	0.34	810	293	6/219	STOCKPILE	600,000	0	3,500,000	0	130	3	3,000	0	70,000	0	3,000	0	2,000,000	0
Toluene	ug/kg	0.29	14,000	1,280	41/219	STOCKPILE	490,000	0	4,700,000	0	76	18	30,000	0	500,000	0	30,000	0	3,000,000	0
Trichloroethene	ug/kg	9	80	44.5	2/219	BH1	410	0	1,900	0	0.1	2	300	0	30,000	0	300	0	60,000	0
Xylene (total)	ug/kg	0.75	880	136	13/193	DB-C6	58,000	0	250,000	0	19	4	400,000	0	500,000	0	400,000	0	3000000	0
Semivolatiles																				
1,1'-Biphenyl	ug/kg	1.7	14,000	899	23/95	SB-711	4,700	2	20,000	0	0.87	23	50	4	1,000,000	0	50	4	5,000,000	0
1,2,4-Trichlorobenzene	ug/kg	1.7	610	104	22/255	STOCKPILE	5,800	0	26,000	0	1.2	22	2,000	0	700,000	0	2,000	0	5,000,000	0
2-Methylnaphthalene	ug/kg	1.9	100	27.9	8/255	SB-705	24,000	0	300,000	0	19	3	700	0	300,000	0	1,000	0	500,000	0
4-Methylphenol	ug/kg	340	340	340	1/45	DRMB-COMP	630,000	0	8,200,000	0	150	1	NS	--	NS	--	NS	--	NS	--
Aniline	ug/kg	17	17	17	1/95	SB-708	44,000	0	400,000	0	4.6	1	NS	--	NS	--	NS	--	NS	--
Azobenzene	ug/kg	62	62	62	1/95	SB-701	5,600	0	26,000	0	0.93	1	NS	--	NS	--	NS	--	NS	--
Benzaldehyde	ug/kg	5.8	230	44.3	8/45	SB-705	170,000	0	820,000	0	4.1	8	NS	--	NS	--	NS	--	NS	--
Benzo(a)anthracene	ug/kg	1.4	99	19.1	39/239	AREA-1	1,100	0	21,000	0	11	14	7,000	0	7,000	0	300,000	0	300,000	0
Benzo(a)pyrene	ug/kg	2.6	67	18.9	29/218	SB-712	110	0	2,100	0	29	6	2,000	0	2,000	0	30,000	0	30,000	0
Benzyl Alcohol	ug/kg	2.9	59	31	2/95	SB-711	630,000	0	8,200,000	0	48	1	NS	--	NS	--	NS	--	NS	--
Bis(2-ethylhexyl)phthalate	ug/kg	43	2,356,000	96,500	187/255	STOCKPILE	39,000	34	160,000	25	1300	118	90,000	28	90,000	28	2,000,000	1	2,000,000	1
Di-N-Butylphthalate	ug/kg	14	109,000	18,200	28/255	DA-C14	630,000	0	8,200,000	0	230	16	NS	--	NS	--	NS	--	NS	--
Dibenzofuran	ug/kg	4.6	29	13	4/95	SB-706	7,300	0	100,000	0	15	1	NS	--	NS	--	NS	--	NS	--
Diphenyl ether	ug/kg	15	15	15	2/10	SS-421; SS-425	3,400	0	14,000	0	0.34	2	NS	--	NS	--	NS	--	NS	--
N-Nitrosodiphenylamine	ug/kg	12	473,000	10,900	94/255	STOCKPILE	110,000	1	470,000	1	67	74	NS	--	NS	--	NS	--	NS	--

Color - Standard Exceeded; NS - No Standard; -- Not Applicable

Table 5
Summary Statistics and Criteria Comparisons
Olin Chemical, Wilmington, Massachusetts

Chemical	Units	Min Detect	Max Detect	Avg Detect	Detect Freq	Max Location	11-2019 Resid. RSL		11-2019 Ind./ Comm RSL		11-2019 MCL-based SSL		2014 MassDEP S-1/GW-1		2014 MassDEP S-1/GW-3		2014 MassDEP S-3/GW-1		2014 MassDEP S-3/GW-3	
							Value	No. Exceed	Value	No. Exceed	Value	No. Exceed	Value	No. Exceed	Value	No. Exceed	Value	No. Exceed	Value	No. Exceed
Naphthalene, 1-methyl-	ug/kg	2	60	24.8	6/95	SB-705	18,000	0	73,000	0	6	4	NS	--	NS	--	NS	--	NS	--
Naphthalene	ug/kg	1.4	630	58.6	31/254	BH10	3,800	0	17,000	0	0.54	31	4,000	0	500,000	0	4,000	0	3,000,000	0
Phenol	ug/kg	11	8,800	682	19/255	SB-711	1,900,000	0	25,000,000	0	330	4	1,000	2	20,000	0	1,000	2	20,000	0
Pesticides/PCBs																				
4,4'-DDD	ug/kg	0.19	17	4.2	6/110	DRMB-COMP	190	0	2,500	0	1.5	4	8,000	0	8,000	0	60,000	0	60,000	0
Aldrin	ug/kg	0.11	59	13.1	8/110	STOCKPILE	39	1	180	0	0.15	7	80	0	80	0	3,000	0	3,000	0
alpha-BHC	ug/kg	0.56	430	82.1	11/110	STOCKPILE	86	3	360	1	0.042	11	NS	--	NS	--	NS	--	NS	--
beta-BHC	ug/kg	8.3	150	76.9	5/110	STOCKPILE	300	0	1,300	0	0.15	5	NS	--	NS	--	NS	--	NS	--
Dieldrin	ug/kg	0.4	6.9	3.92	6/110	DRMA-COMP-B	34	0	140	0	0.071	6	80	0	80	0	3,000	0	3,000	0
Endrin	ug/kg	22	22	22	1/110	DA-C30	1,900	0	25,000	0	9.2	1	10,000	0	10,000	0	20,000	0	20,000	0
gamma-BHC (Lindane)	ug/kg	0.73	1,200	166	34/110	STOCKPILE	570	3	2,500	0	0.24	34	3	32	500	3	3	32	500	3
Heptachlor Epoxide	ug/kg	2.8	2.8	2.8	1/110	DRMA-COMP-B	70	0	330	0	0.028	1	100	0	100	0	1,000	0	1,000	0
Heptachlor	ug/kg	0.4	0.87	0.635	2/110	DRMA-COMP-B	130	0	630	0	0.12	2	300	0	300	0	10,000	0	10,000	0
Metals																				
Aluminum	mg/kg	460	15,000	6,740	136/136	SB-704	7,700	50	110,000	0	3,000	124	NS	--	NS	--	NS	--	NS	--
Antimony	mg/kg	0.45	1.5	0.826	28/95	SB-712	3.1	0	47	0	0.035	28	20	0	20	0	30	0	30	0
Arsenic	mg/kg	0.75	89	8.3	124/134	CP-C69	0.68	124	3	101	0.0015	124	20	9	20	9	50	1	50	1
Barium	mg/kg	5.8	110	32.5	116/116	SB-711	1500	0	22,000	0	16	77	1,000	0	1,000	0	5,000	0	5,000	0
Beryllium	mg/kg	0.059	5.9	0.361	98/115	SB-702	16	0	230	0	1.9	1	90	0	90	0	200	0	200	0
Cadmium	mg/kg	0.035	54	1.82	77/206	STOCKPILE	7.1	5	98	0	0.069	65	70	0	70	0	100	0	100	0
Chromium-Hexavalent	mg/kg	0.18	22.6	4.08	81/85	SB-701	0.3	79	6.3	17	0.00067	81	100	0	100	0	200	0	200	0
Chromium	mg/kg	3.6	3,010	163	256/256	CPDA-1	12,000	0	180,000	0	4,000,000	0	100	82	100	82	200	61	200	61
Cobalt	mg/kg	0.62	18	4.59	112/115	SB-712	2.3	87	35	0	0.027	112	NS	--	NS	--	NS	--	NS	--
Copper	mg/kg	0.5	64	11	111/115	SB-712	310	0	4,700	0	2.8	103	NS	--	NS	--	NS	--	NS	--
Iron	mg/kg	840	28,000	9,580	135/135	SB-712	5,500	96	82,000	0	35	135	NS	--	NS	--	NS	--	NS	--
Manganese	mg/kg	7.6	530	135	115/115	AREA-1	180	25	2,600	0	2.8	115	NS	--	NS	--	NS	--	NS	--
Mercury	mg/kg	0.008	0.91	0.0706	46/134	TP-21	1.1	0	4.6	0	0.0033	46	20	0	20	0	30	0	30	0
Nickel	mg/kg	0.9	60	11.8	113/115	SB-709	150	0	2,200	0	2.6	110	600	0	600	0	1,000	0	1,000	0
Selenium	mg/kg	0.46	1.3	0.676	16/95	SB-708	39	0	580	0	0.052	16	400	0	400	0	700	0	700	0
Silver	mg/kg	0.13	1.2	0.647	10/95	SS-429	39	0	580	0	0.08	10	100	0	100	0	200	0	200	0
Thallium	mg/kg	1.8	1.8	1.8	2/114	DRMA-COMP-A; DRMA-COMP-B	0.078	2	1.2	2	0.0014	2	8	0	8	0	80	0	80	0
Vanadium	mg/kg	3.6	110	18.9	114/115	SB-712	39	6	580	0	8.6	95	400	0	400	0	700	0	700	0
Zinc	mg/kg	2.9	84	24	114/115	BH4	2,300	0	35,000	0	37	15	1,000	0	1,000	0	5,000	0	5,000	0
Other Analyses																				
Dimethylformamide	ug/kg	780	780	780	1/90	SB-712	260,000	0	1,500,000	0	1.2	1	NS	--	NS	--	NS	--	NS	--
Formaldehyde	ug/kg	96	11,000	2,720	36/90	SB-710	11,000	0	50,000	0	0.078	36	NS	--	NS	--	NS	--	NS	--
Hydrazine	ug/kg	0.62	86	6.31	39/90	SB-704	32	1	140	0	0.00022	39	NS	--	NS	--	NS	--	NS	--

Color - Standard Exceeded; NS - No Standard; -- Not Applicable

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