

**TABLE 2.1
TRIBUTARY ONE SOUTH FLOW RATES**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Stream Location	Description	Date	Stream Width (ft)	Total Flow (cubic feet/second)	Total Flow (million gallons per day)
VP-1	Approximately 75 ft downstream of Main Street Bridge	11/22/2004	14.0	1.8	1.1
VP-2	Francis Street Bridge - North Side	11/22/2004	22.0	2.2	1.4
VP-3	Falls Railroad Bridge	11/22/2004	17.7	2.5	1.6
VP-4	Private Bridge - North of Railroad	11/22/2004	10.4	2.3	1.5
VP-5	Approximately 50 ft downstream of Sample Transect T4	11/22/2004	13.5	1.1	0.7
VP-6	Church Street	11/22/2004	13.8	1.9	1.2
VP-7	Rectangular weir at gauging station	11/22/2004	5.0	0.9	0.6
VP-8	Approximately 25 ft upstream of Canal	11/22/2004	9.0	2.1	1.4
VP-9	Mill Street Bridge - North of Canal	11/22/2004	17.0	29.9	19
VP-7	Rectangular weir at gauging station	1/4/2005	5.0	43.1	28
VP-8	Approximately 25 ft upstream of Canal	1/4/2005	22.5	59.6	39
VP-9	Mill Street Bridge - North of Canal	1/4/2005	17.0	48.8	32
VP-10	110 ft upstream of Sample Transect T9	1/4/2005	22.0	66.9	43
VP-11	Approximately 60 ft downstream of Sample Transect T10.7	1/4/2005	21.0	83.3	54
VP-12	Immediately North of Sherman Street	1/4/2005	22.0	68.3	44
VP-13	North edge of Chase Road	1/4/2005	16.0	70.8	46
VP-14	Approximately 75 ft upstream of Sample Transect T15.5	1/4/2005	36.0	84.4	55
VP-15	Approximately 110 ft upstream of Sample Transect T16	1/4/2005	30.0	59.7	39
VP-16	Approximately 30 ft downstream of Sample Transect T16.2	1/4/2005	25.0	72.0	47
VP-17	10 ft upstream of Fork	1/4/2005	42.0	72.3	47
VP-18a	West Channel	1/4/2005	21.0	42.5	27
VP-18b	East Channel	1/4/2005	23.0	37.3	24
VP-7	Rectangular Weir	1/5/2005	5.0	38.0	25
VP-9	North side of Mill Street	1/5/2005	17.0	41.7	27
VP-12	Immediately North of Sherman Street	1/5/2005	22.0	46.4	30
VP-19	Approximately 30 ft upstream of Sample Transect T17.5	1/5/2005	17.0	34.0	22
VP-20	North of Pearson Road	1/5/2005	29.5	28.7	19
VP-21	East side of North Hartland, near Middleport Wastewater Treatment Plant	1/5/2005	32.0	5.0	3.3
VP-22	North side of Pearson Road (Transect C-14)	1/5/2005	42.0	26.4	17
VP-23	Approximately 30 ft east of Sample Transect T20	1/5/2005	36.0	30.2	20
VP-24	Approximately 120 ft west of Sample Transect T22	1/5/2005	21.0	49.8	32
VP-25	East side of Stone Road	1/5/2005	18.0	38.5	25

General Notes:

1. Based on measurements of water depth and velocity at each of four to thirteen stations (number proportioned to width of stream), at each transect location, by Blasland, Bouck & Lee, Inc. on the dates indicated.
2. Stream locations are in order from upstream to downstream.
3. The flow through stream locations north of the Erie Canal is supplemented by the release of water from the canal.

Acronyms and Abbreviations:

ft = feet

**TABLE 2.2
SUMMARY OF TRIBUTARY ONE SOUTH STREAM PROFILE SURVEY**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Transect	Width of Stream (ft)	Stream Profile: (see notes)	25% Width	50% Width	75% Width
T1	19	Water Depth Velocity Sediment Depth Sediment Description	0.95 1.6 0.1 Gravel and sand	1.15 1.63 0.1 Gravel and sand	1.0 1.55 0 None - cobble
T2	17	Water Depth Velocity Sediment Depth Sediment Description	0.9 1.85 0 Trace gravel over bedrock	1.5 2 0 Trace gravel over bedrock	1.4 1.1 0 None - bedrock
T3	15	Water Depth Velocity Sediment Depth Sediment Description	0.8 4.45 0 None - bedrock	0.7 3.5 0 None - bedrock	0.7 2.35 0 None - bedrock
T4	13	Water Depth Velocity Sediment Depth Sediment Description	1.5 2.3 0 None - bedrock	1.55 2.2 0 None - bedrock	1.25 1.65 0.1 Sand and gravel over rock
T5	23	Water Depth Velocity Sediment Depth Sediment Description	1.1 2.15 0 None - bedrock	0.55 1.95 0.3 Sand and gravel over bedrock	0.6 1.48 0.2 Sand and gravel over bedrock
T6	15	Water Depth Velocity Sediment Depth Sediment Description	1.35 1.85 0 None - cobble over bedrock	1.9 3.1 0 None - bedrock	1.4 0.75 0.1 Sand and cobble over bedrock
T7	14	Water Depth Velocity Sediment Depth Sediment Description	1.5 0.9 0 No sediment - manmade bottom	1.6 1.5 0 No sediment - manmade bottom	1.5 1.75 0 No sediment - manmade bottom
T8	22	Water Depth Velocity Sediment Depth Sediment Description	3.7 1.7 0.2 Sand and gravel over bedrock	3.4 1.5 0 None - bedrock	2.2 0.75 0.3 Sand, gravel and trace cobble over bedrock
T9	19	Water Depth Velocity Sediment Depth Sediment Description	1.1 2.7 0 None - cobble over rock	0.9 2.8 0 None - cobble over rock	1.05 2.3 0 None - cobble over rock

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SUMMARY OF TRIBUTARY ONE SOUTH STREAM PROFILE SURVEY**

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Transect	Width of Stream (ft)	Stream Profile: (see notes)	25% Width	50% Width	75% Width
T9.5	28	Water Depth Velocity Sediment Depth Sediment Description	0.85 2.7 0 Cobble over rock/trace gravel	1.2 3.15 0 None - rock	1.15 1.35 0 Trace gravel over rock
T10	30	Water Depth Velocity Sediment Depth Sediment Description	1.2 2.65 0 Trace gravel over rock	0.9 2.25 0 Trace gravel over rock	0.7 0.7 0.8 Trace gravel over rock
T10.3	19	Water Depth Velocity Sediment Depth Sediment Description	0.5 1.15 0.5 Sand and gravel over bedrock	1 2.75 0 Gravel over bedrock	1.45 3 0 Gravel over bedrock
T10.7	22	Water Depth Velocity Sediment Depth Sediment Description	2.15 0.2 0 None - bedrock	1.9 1.63 0 None - bedrock	1.3 0.38 0 None - bedrock
T11	17	Water Depth Velocity Sediment Depth Sediment Description	1.3 0.3 0.5 Sandy silt over rock	2.1 5.05 0 None - bedrock	2 1.9 0 None - bedrock
T11.5	16	Water Depth Velocity Sediment Depth Sediment Description	1.1 1.39 0 None - bedrock	1.2 3.73 0 None - bedrock	0.8 2.2 0 None - bedrock
T12	27	Water Depth Velocity Sediment Depth Sediment Description	1.1 3.38 0.2 Silt and sand	0.9 2.59 0.1 Gravel	0.5 1.26 0.1 Gravel and sand
T13	38	Water Depth Velocity Sediment Depth Sediment Description	1.9 1.21 0.2 Gravel and sand	2.05 1.5 0.1 Gravel and sand	1.5 0.22 0.2 Sand and little gravel
T14	20	Water Depth Velocity Sediment Depth Sediment Description	2.5 0.62 0.4 Sand and gravel over bedrock	2.4 1.35 0.2 Sand and gravel over bedrock	2.55 1.16 0.1 Sand over bedrock

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SUMMARY OF TRIBUTARY ONE SOUTH STREAM PROFILE SURVEY**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
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Transect	Width of Stream (ft)	Stream Profile: (see notes)	25% Width	50% Width	75% Width
T15.5	23	Water Depth Velocity Sediment Depth Sediment Description	1.4 3.16 0 None - bedrock	1.6 3.26 0 None - bedrock	0.6 1.94 0 None - bedrock
T16	40	Water Depth Velocity Sediment Depth Sediment Description	1 2.2 0 None - bedrock	0.7 0.38 0.3 Silt over rock	1.5 2.5 0.5 Silt, small pockets of sand and large gravel over rock
T16.2	3	Water Depth Velocity Sediment Depth Sediment Description	2 1.55 0.2 Sand and gravel over rock	1.3 2.35 1.2 Sand and gravel over solid bottom	1.3 1.89 0.2 Sand and gravel over solid bottom
T16.4 East Branch	31	Water Depth Velocity Sediment Depth Sediment Description	0.6 1.89 1.3 Sand and finer gravel over bedrock	0.45 0.35 0.6 Silt and sand over bedrock	1.25 0.41 0.6 Silt and sand over bedrock
T16.4 West Branch	23	Water Depth Velocity Sediment Depth Sediment Description	0.8 1.6 1 Sand over rock	1.4 2.05 2 Sand over rock	1.3 0.05 0.5 Sand over rock
T16.6 East Branch	20	Water Depth Velocity Sediment Depth Sediment Description	1.55 0.91 0.1 Gravel over bedrock	1.6 1.53 0.4 Gravel and sand over bedrock	1.45 0.81 0.1 Gravel and sand over bedrock
T16.6 West Branch	20	Water Depth Velocity Sediment Depth Sediment Description	1.6 1.11 0 All rock	2.1 1.3 1 Silt and sand over solid bottom	0.8 0.75 2 Silt and sand over solid bottom
T16.8	30	Water Depth Velocity Sediment Depth Sediment Description	1.2 1.24 1.1 Sand and gravel over solid bottom	1.2 2.47 0.1 Sand and gravel over solid bottom	1.5 1.84 0.1 Sand and gravel over solid bottom
T17	26	Water Depth Velocity Sediment Depth Sediment Description	1 0.76 0.5 Gravel with little sand over solid bottom	2.3 3.22 0 Rock and small boulders, rounded	1.3 0.86 0.2 Silt and sand over rock

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Transect	Width of Stream (ft)	Stream Profile: (see notes)	25% Width	50% Width	75% Width
T17.5	14	Water Depth	0.9	3.2	3
		Velocity	0.47	2	1.64
		Sediment Depth	2.8	0.2	1.2
		Sediment Description	Silt over solid bottom	Sand and gravel over solid bottom	Sand and gravel over solid bottom
T18	54	Water Depth	1.6	1.5	1.55
		Velocity	0	0.34	0.47
		Sediment Depth	0.9	0.8	1
		Sediment Description	Silt over sand over bedrock	Silt over sand over bedrock	Silt over sand over bedrock
T19	28	Water Depth	2.8	2	2
		Velocity	1.2	0.08	0.1
		Sediment Depth	0.5	2	1.2
		Sediment Description	Gravel and rock with sand over solid bottom	Sand and little gravel over solid bottom	Sand and little gravel over solid bottom
T20	36.7	Water Depth	2.6	2.6	2
		Velocity	0.36	1.07	0.3
		Sediment Depth	0.3	0.3	2.4
		Sediment Description	Sand and gravel over solid bottom	Sand and gravel over solid bottom	Silt and little sand over solid bottom
T21	30	Water Depth	2.1	3	2.7
		Velocity	0.56	1.55	0.6
		Sediment Depth	1	0.2	0.4
		Sediment Description	Silt and sand over gravel bedrock	Sand and gravel over bedrock	Silt and sand over solid bottom
T22	22.5	Water Depth	1.6	1.9	1.4
		Velocity	1.5	4	2.35
		Sediment Depth	0.1	0.1	0.7
		Sediment Description	Sand and gravel over bedrock	Gravel	Sand and gravel over bedrock

General Notes:

1. Based on measurements and observations collected by Blasland, Bouck & Lee, Inc. during a survey conducted from March 25 to March 29, 2004.
2. 25% width, 50% width, and 75% width represent proportional width across the stream at the sampling transect.
3. Water depth in feet.
4. Velocity in feet per second.
5. Sediment depth in feet.
6. The flow through stream locations north of the Erie Canal is supplemented by the release of water from the canal.

Acronyms and Abbreviations:

% = percent
ft = feet

**TABLE 2.3
SEDIMENT COMPOSITION IN TRIBUTARY ONE SOUTH**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Sample Location	Sediment Composition				Total Organic Carbon %
	% Gravel	% Sand	% Silt	% Clay	
SD-1 ^a	15.7	73.6	5.1	5.6	1.1
SD-2 ^a	17.2	74.4	5.0	3.4	1.5
SD-3	14.8	83.8	1.4 ^b	1.4 ^b	7.8
SD-4	26.4	71.3	1.1	1.2	2.5
SD-5	18	79.9	0.7	1.4	2.5
SD-6	26	70.4	1.7	1.9	1.0
SD-7	17.7	73.2	4.8	4.3	1.0
SD-8	26.4	59.8	7.3	6.5	1.1
SD-9	0.0	21.7	62.9	15.4	4.9
SD-10	2.2	73.3	17.5	7.0	8.3
SD-11	26.1	64.8	5.1	4.0	0.2

General Notes:

1. Table replicated from Table 5 of the Ecological Assessment Report that appears in Appendix O of the Off-Site Investigation Report (CRA 1993).
2. See Figures 3.4 and 6.3 of this Volume V for sampling locations.

Specific Notes:

- a. Upstream (background) sample location.
- b. Value presented indicates total of both % silt and % clay.

Acronyms and Abbreviations:

% = percent

**TABLE 3.1
INVENTORY OF INVESTIGATIONS WITHIN THE TRIBUTARY ONE SOUTH STUDY AREA**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Vol. V Section	Sampling Dates	Off-Site Investigation Program Within Tributary One Study Area¹	Media Sampled & Sampling Locations²	No. of Locations	No. of Samples	Analyses Conducted and No. of Samples Analyzed³
3.2	Nov. 1986	NYSDEC Site Investigation	sediment Reaches T1, T3	2	2	arsenic (2), lead (2), chlorinated pesticides (2), manganese and zinc (2)
3.3	Jan. 1989	New York State Department of Health Study	soil Reach T1	8	8	arsenic (8), lead (8), 19 other metals (8)
3.4	Sep. 1990 - June 1993	Off-Site Investigation (OSI)	soil Reach T1	11	13	arsenic (13), lead (13), ten other metals (11), three other metals (2), chlorinated pesticides (13), other pesticides/herbicides (11), methyl carbamate pesticides (11), phenolic compounds (11), total organic carbon (2), and TCLP for arsenic, cadmium, copper, lead, mercury, and chlorinated pesticides (2)
			sediment Reaches T1, T2, T3, T4, T5, T7	14	15	arsenic (15), lead (15), ten other metals (6), three other metals (9), chlorinated pesticides (15), other pesticides/herbicides (6), methyl carbamate pesticides (6), phenolic compounds (6), and total organic carbon (11)
			surface water Reaches T1, T5, T7	5	5	arsenic (5), lead (5), ten other metals (5), chlorinated pesticides (5), organophosphate pesticides (5), methyl carbamate pesticides (5), phenolic compounds (5), and chlorinated herbicides (5)
3.5	Nov. 1995	NYSDEC Arsenic Sediment and Floodplain Sampling	soil Reach T2	2	2	arsenic (2), 22 other metals (2)
			sediment Reaches T2, T6, T7, T8	3	6	arsenic (6)
3.6	Nov. 1996	1996 RFI Additional Sampling	soil Reach T1	1	1	arsenic (1)
3.7	Sep. - Nov. 2002	2002 RFI Sampling Program	soil Reaches T1 through T8	181	820	arsenic (820), lead (40), chlorinated pesticides (22)
			sediment Reaches T1 through T8	27	32	arsenic (32), lead (2), chlorinated pesticides (1), total organic carbon(1)
3.8	Nov. 2003 - Jan. 2004	Biomonitoring Study Composite Samples	soil Reaches T1, T2, T3	15	17	arsenic (17)
3.9	Mar. - Apr. 2004	RFI Tributary One/Culvert 105 Phase I Sampling	soil Reaches T1 through T8	204	1,036	arsenic (1,036), lead (3), chlorinated pesticides (20)
			sediment Reaches T1, T3	4	16	arsenic (16)

**TABLE 3.1
INVENTORY OF INVESTIGATIONS WITHIN THE TRIBUTARY ONE SOUTH STUDY AREA**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Vol. V Section	Sampling Dates	Off-Site Investigation Program Within Tributary One Study Area¹	Media Sampled & Sampling Locations²	No. of Locations	No. of Samples	Analyses Conducted and No. of Samples Analyzed³
3.10	Sep. - Dec. 2004	RFI Tributary One/Culvert 105 Phase II Sampling	soil Reaches T1 through T8	57	320	arsenic (320)
			sediment Reaches T1, T3	4	7	arsenic (7)
3.11	Nov. - Dec. 2005	RFI Tributary One/Culvert 105 Phase III Sampling	soil Reaches T1, T8	13	69	arsenic (69), lead (14), chlorinated pesticides (13)

Soil Totals	492	2,286
Sediment Totals	54	78
Surface Water Totals	5	5

Specific Notes:

1. This table only describes the sampling and analysis activities of each investigation that were conducted within the Tributary One South Study Area; other sampling activities were conducted in other study areas concurrently, as described in Volume I of this RFI Report.
2. Specific sampling locations within each Reach are shown on Figures 3.3 through 3.7.
3. Number of samples reflects number of combined results for that event (refer to Section 4.1 of this Volume V). Analytical data are summarized in Appendix B for arsenic in soil and sediment, in Appendix C for other compounds in soil and sediment, and in Table 3.2 for all compounds in surface water.

**TABLE 3.2
SUMMARY OF TRIBUTARY ONE SOUTH SURFACE WATER ANALYTICAL DATA**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Location ID: Date Collected:	Upstream/Background Locations			NYSDEC Class C Surface Water Quality Standards	Units	Tributary One Sample Locations				
	E1 09/04/90	T1 08/29/90	T2 08/29/90			T3 08/29/90	T4 08/29/90	T5 08/28/90	T6 08/28/90	T7 08/28/90
Arsenic										
Arsenic	5.0 U	5.0 U	5.0 U	150	µg/L	5.0 U	16.0	5.0 U	5.0 U	5.0 U [5.0 U]
Metals										
Aluminum	730	230	100	100	µg/L	100 U	520	200	180	160 [150]
Cadmium	5.0 U	5.0 U	5.0 U	--	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U [5.0 U]
Copper	20.0 U	20.0 U	2.0 U	--	µg/L	20.0 U	20.0 U	33.0 U	33.0 U	33.0 U [33.0 U]
Iron	1,200	400	220	300	µg/L	210	950	440 UB	310 UB	310 UB [320 UB]
Lead	10.0 U	5.0 U	18	5.9	µg/L	5.0 U	10.0 U	5.0 U	5.0 U	5.0 U [5.0 U]
Manganese	47.0	130	33.0	NV	µg/L	40.0	240	21.0	24.0	23.0 [23.0]
Mercury	0.20 U	2.0 U	0.20 U	--	µg/L	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U [0.20 U]
Selenium	10.0 U	10.0 U	10.0 U	--	µg/L	10.0 U	10.0 U	5.0 U	10.0 U	10.0 U [10.0 U]
Sodium	16,200	25,900	23,300	NV	µg/L	26,600	28,500	12,600	17,300	17,300 [17,700]
Thallium	10.0 U	10.0 U	100 U	--	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	5.0 U [100 U]
Zinc	36.0	20.0 U	20.0 U	117	µg/L	22.0	31.0	20.0 U	20.0 U	26.0 [22.0]
Chlorinated Pesticides										
4,4'-DDD	0.10 U	0.10 U	0.10 U	--	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U [0.10 U]
4,4'-DDE	0.10 U	0.10 U	0.10 U	--	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U [0.10 U]
4,4'-DDT	0.10 U	0.10 U	0.10 U	--	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U [0.10 U]
Aldrin	0.050 U	0.050 U	0.050 U	--	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U [0.050 U]
alpha-BHC	0.050 U	0.050 U	0.050 U	--	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U [0.050 U]
beta-BHC	0.050 U	0.050 U	0.050 U	--	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U [0.050 U]
gamma-BHC (Lindane)	0.050 U	0.050 U	0.050 U	--	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U [0.050 U]
delta-BHC	0.050 U	0.050 U	0.050 U	--	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U [0.050 U]
alpha-Chlordane	0.50 U	0.50 U	0.50 U	--	µg/L	0.50 U	0.50 U	0.050 U	0.50 U	0.050 U [0.050 U]
gamma-Chlordane	0.50 U	0.50 U	0.50 U	--	µg/L	0.50 U	0.50 U	0.050 U	0.50 U	0.050 U [0.050 U]
Dieldrin	0.10 U	0.10 U	0.10 U	--	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U [0.10 U]
Endosulfan I	0.050 U	0.050 U	0.050 U	--	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U [0.050 U]
Endosulfan II	0.10 U	0.10 U	0.10 U	--	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U [0.10 U]
Endosulfan sulfate	0.10 U	0.10 U	0.10 U	--	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U [0.10 U]
Endrin	0.10 U	0.10 U	0.10 U	--	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U [0.10 U]
Endrin aldehyde	0.10 U	0.10 U	0.10 U	--	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U [0.10 U]
Heptachlor	0.050 U	0.050 U	0.050 U	--	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U [0.050 U]
Heptachlor epoxide	0.050 U	0.050 U	0.050 U	--	µg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U [0.050 U]
Isodrin	0.10 U	0.10 U	0.10 U	--	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U [0.10 U]
Methoxychlor	0.50 U	0.50 U	0.50 U	--	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U [0.50 U]
Toxaphene	5.0 U	5.0 U	5.0 U	--	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U [5.0 U]

**TABLE 3.2
SUMMARY OF TRIBUTARY ONE SOUTH SURFACE WATER ANALYTICAL DATA**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Location ID: Date Collected:	Upstream/Background Locations			NYSDEC Class C Surface Water Quality Standards	Units	Tributary One Sample Locations				
	E1 09/04/90	T1 08/29/90	T2 08/29/90			T3 08/29/90	T4 08/29/90	T5 08/28/90	T6 08/28/90	T7 08/28/90
Other Pesticides/Herbicides										
2,4,5-T	0.10 U	0.10 U	0.10 U	--	µg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U [0.10 U]
2,4-D	0.50 U	0.50 U	0.50 U	--	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U [0.50 U]
Chlorpyrifos	--	1.0 U	1.0 U	--	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]
Diazinon	--	1.0 U	1.0 U	--	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]
Dinocap	10.0 U	10.0 U	10.0 U	--	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U [10.0 U]
Dinoseb	0.25 U	0.25 U	0.25 U	--	µg/L	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U [0.25 U]
Ethion	--	1.0 U	1.0 U	--	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]
Malathion	--	1.0 U	1.0 U	--	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]
Parathion, ethyl	--	1.0 U	1.0 U	--	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]
Parathion, methyl	--	1.0 U	1.0 U	--	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]
Phorate	--	1.0 U	1.0 U	--	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]
Ronnel	--	1.0 U	1.0 U	--	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]
Methyl Carbamates										
7-Hydroxybenzofuran	30.0 U	30.0 U	30.0 U	--	µg/L	30.0 U [30.0 U]	30.0 U [30.0 U]	30.0 U	30.0 U	30.0 U
Carbaryl	5.0 U	5.0 U	5.0 U	--	µg/L	5.0 U [5.0 U]	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]
Carbofuran	10.0 U	10.0 U	10.0 U	--	µg/L	10.0 U [10.0 U]	10.0 U [10.0 U]	10.0 U	10.0 U	10.0 U [10.0 U]
Chlorpropham	5.0 U	5.0 U	5.0 U	--	µg/L	5.0 U [5.0 U]	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]
Propoxur	10.0 U	10.0 U	10.0 U	--	µg/L	10.0 U [10.0 U]	10.0 U [10.0 U]	10.0 U	10.0 U	10.0 U [10.0 U]
Semi-Volatile Organics										
2-Methylphenol	10.0 U	10.0 U	10.0 U	--	µg/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U [10.0 U]
4,6-Dinitro-2-methylphenol	50.0 U	50.0 U	50.0 U	--	µg/L	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U [50.0 U]

General Notes:

1. Concentrations are presented in µg/L or ppb.
2. Methyl carbamate analyses were conducted on additional samples collected from November 26 through 29, 1990.
3. NYSDEC Class C Surface Water Quality Standards and Guidance Values, NYSDEC Division of Water TOGs 1.1.1, dated October 22, 1993 (revised June 1998) are presented only for constituents with detectable levels in the samples.
4. Multiple results reported for the same sample are duplicates or splits analyzed for quality assurance/quality control purposes.
5. The Class C Surface Water Quality Standards for lead and zinc were calculated using a hardness of 150 milligrams per liter.

Data Qualifiers:

U = Analyte not detected at the associated detection level.
UB = Elevated detection limit due to potential laboratory contamination.

Acronyms and Abbreviations:

-- = Not available
NV = no value available.
NYSDEC = New York State Department of Environmental Conservation

**TABLE 3.3
OFF-SITE INVESTIGATION PARAMETER LIST**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Parameter Group	Parameters / Constituents
Metals	Arsenic Lead Aluminum Cadmium Copper Iron Manganese Mercury Selenium Sodium Thallium Zinc
Chlorinated Pesticides	Aldrin BHC (Lindane) (alpha, beta, delta, gamma isomers) Chlordane (alpha, gamma isomers) DDD DDE DDT Dieldrin Endosulfan I Endosulfan II Endosulfan Sulfate Endrin Endrin Aldehyde Heptachlor Heptachlor Epoxide Isodrin Methoxychlor Toxaphene
Chlorinated Herbicides	2,4-Dichlorophenoxyacetic Acid (2,4-D) 2,4,5-Trichlorophenoxyacetic Acid (2,4,5-T)
Organophosphate Pesticides	Dursban (Chlorpyrifos) Diazinon Ethion Malathion Ethyl Parathion Methyl Parathion Phorate Ronnell
Phenolic Compounds	o-Cresol (2-methyl phenol) Dinitro-o-cresol (DNOC) Karathane (Dinocap) ^a Dinitro-butylphenol (DNBP, Dinoseb) ^b
Furans and Methyl Carbamates	7-Hydroxybenzofuran Carbaryl Carbofuran Chlorpropham Propoxur

General Note:

1. This table was replicated from Table 4.2 of the Off-Site Investigation Report (CRA 1993).

Specific Notes:

- a. Analyzed by same method as chlorinated pesticides.
- b. Analyzed by same method as chlorinated herbicides.

**TABLE 4.1
INVENTORY OF USABLE SOIL, SEDIMENT, AND SURFACE WATER SAMPLES IN
THE TRIBUTARY ONE SOUTH STUDY AREA**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Parameter Group	FMC Primary Samples	FMC Duplicate Samples	Agency Primary Samples	Agency Duplicate Samples	Combined Samples	
Arsenic	Soil:	2,021	105	469	28	2,286
	Sediment:	67	5	32	1	78
	Surface Water:	5	1	0	0	5
Lead	Soil:	73	2	6	0	78
	Sediment:	17	3	2	0	19
	Surface Water:	5	1	0	0	5
Chlorinated Pesticides	Soil:	70	2	2	0	70
	Sediment:	18	3	0	0	18
	Surface Water:	5	1	0	0	5
Other Metals	Soil:	13	0	10	1	23
	Sediment:	15	3	2	0	17
	Surface Water:	5	1	0	0	5
Chlorinated Herbicides and Organophosphate Pesticides	Soil:	11	0	0	0	11
	Sediment:	6	2	0	0	6
	Surface Water:	5	1	0	0	5
Phenolic Compounds ^a	Soil:	11	0	0	0	11
	Sediment:	6	2	0	0	6
	Surface Water:	5	1	0	0	5
Furans and Methyl Carbamates	Soil:	11	0	0	0	11
	Sediment:	6	1	0	0	6
	Surface Water:	5	1	0	0	5

General Notes:

Refer to Section 4.1 of this Volume V for description of "combined" samples.
 "Agency Primary Samples" count includes split samples.
 For arsenic in soil data, refer to Tables B.1 through B.4 in Appendix B.
 For arsenic in sediment data, refer to Table B.3 in Appendix B.
 For lead in soil data, refer to Tables C.1 through C.4 in Appendix C.
 For lead in sediment data, refer to Table C.4 in Appendix C.
 For other soil data, refer to Tables C.1 through C.6 in Appendix C.
 For other sediment data, refer to Tables C.4 through C.6 in Appendix C.
 For surface water data, refer to Table 3.2.

Specific Note:

- a. Some phenolic compounds analyzed by other methods:
 Dinocap as chlorinated pesticide and Dinoseb as chlorinated herbicide.

**TABLE 4.2
INVENTORY OF USABLE ARSENIC SAMPLES BY PROGRAM**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Sampling Event	Number of Locations	Total Number of Combined Samples	Number of Samples Collected					
			FMC			Agency		
			Field Samples	Field Duplicates	Split Samples	Split Duplicates	Field Samples	Field Duplicates
Soil Samples:								
1989 New York State Department of Health Study	8	8	0	0	0	0	8	1
1990-1993 Off-Site Investigation	11	13	13	0	0	0	0	0
1995 NYSDEC Sediment and Floodplain Sampling	2	2	0	0	0	0	2	0
1996 RFI Additional Sampling	1	1	1	0	1	0	0	0
2002 RFI Sampling Program	181	820	820	43	71	4	0	0
2003-2004 Biomonitoring Study	15	17	17	0	0	0	0	0
2004 RFI Tributary One & Culvert 105 – Phase I	204	1,036	842	43	99	16	199	3
2004 RFI Tributary One & Culvert 105 – Phase II	57	320	272	17	19	0	52	2
2005 RFI Tributary One & Culvert 105 – Phase III	13	69	56	2	5	2	13	0
Soil Totals:	492	2,286	2,021	105	195	22	274	6
Sediment Samples:								
1986 NYSDEC Investigation	2	2	0	0	0	0	2	0
1990-1993 Off-Site Investigation	14	15	15	3	0	0	0	0
1995 NYSDEC Sediment and Floodplain Sampling	3	6	0	0	0	0	6	0
2002 RFI Sampling Program	27	32	32	1	18	0	0	0
2004 RFI Tributary One & Culvert 105 – Phase I	4	16	13	1	0	0	3	1
2004 RFI Tributary One & Culvert 105 – Phase II	4	7	7	0	3	0	0	0
Sediment Totals:	54	78	67	5	21	0	11	1
Surface Water Samples:								
1990-1993 Off-Site Investigation	5	5	5	1	0	0	0	0

General Notes:

1. This table only describes the sampling and analysis activities of the investigations that were conducted within the Tributary One South Study Area; other sampling activities were conducted in other study areas concurrently, as described in Volume I of this RFI Report.
2. For description of "Combined" results, refer to Section 4.1 of Volume V. Analytical data are summarized in Appendix B.
3. For upstream (background) sediment and surface water results, refer to Table B.3 and Table 3.2, respectively.

Acronyms and Abbreviations:

NYSDEC = New York State Department of Environmental Conservation
RFI = RCRA Facility Investigation

TABLE 6.1a
SOIL ARSENIC DATA FROM 2001-2003 GASPORT BACKGROUND STUDY

RCRA FACILITY INVESTIGATION REPORT - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Property Group	Land Use Type	Property ID	Sample Location	Depth (inches)	Arsenic Concentration (mg/kg)				
					Primary	Duplicate	Agency Split	Other	Combined
Wooded-Agricultural	Crop Field	Ca	CA-1A	0-3	56.7				56.7
Wooded-Agricultural	Crop Field	Ca	CA-1B	0-3	4.9				4.9
Wooded-Agricultural	Crop Field	Ca	CA-2A	0-3	5.2				5.2
Wooded-Agricultural	Crop Field	Ca	CA-2B	0-3	4.1				4.1
Wooded-Agricultural	Crop Field	Ca	CA-3A	0-3	5	4.6			4.8
Wooded-Agricultural	Crop Field	Ca	CA-3B	0-3	3.5				3.5
Wooded-Agricultural	Crop Field	Ca	CA-4A	0-3	33.5		31.1		32.3
Wooded-Agricultural	Crop Field	Ca	CA-4B	0-3	7.1				7.1
Wooded-Agricultural	Crop Field	Cc	CC-1A	0-3	3.2				3.2
Wooded-Agricultural	Crop Field	Cc	CC-1B	0-3	3 J				3
Wooded-Agricultural	Crop Field	Cc	CC-2A	0-3	3.3		3.1		3.2
Wooded-Agricultural	Crop Field	Cc	CC-2B	0-3	2.9 J				2.9
Wooded-Agricultural	Crop Field	Cc	CC-3A	0-3	3.2				3.2
Wooded-Agricultural	Crop Field	Cc	CC-3B	0-3	2.3 J				2.3
Wooded-Agricultural	Crop Field	Cc	CC-4A	0-3	3.2				3.2
Wooded-Agricultural	Crop Field	Cc	CC-4B	0-3	4.4 J				4.4
Wooded-Agricultural	Crop Field	Cd	CD-1A	0-3	4.1		3.5		3.8
Wooded-Agricultural	Crop Field	Cd	CD-1B	0-3	5.1 J				5.1
Wooded-Agricultural	Crop Field	Cd	CD-2A	0-3	9.8				9.8
Wooded-Agricultural	Crop Field	Cd	CD-2B	0-3	11.9 J				11.9
Wooded-Agricultural	Crop Field	Cd	CD-3A	0-3	3.7				3.7
Wooded-Agricultural	Crop Field	Cd	CD-3B	0-3	4.4 J				4.4
Wooded-Agricultural	Crop Field	Cd	CD-4A	0-3	9.4				9.4
Wooded-Agricultural	Crop Field	Cd	CD-4B	0-3	8.4 J				8.4
Wooded-Agricultural	Crop Field	Ce	CE-1A	0-3	3.4				3.4
Wooded-Agricultural	Crop Field	Ce	CE-1B	0-3	4.7 J				4.7
Wooded-Agricultural	Crop Field	Ce	CE-2A	0-3	4.6				4.6
Wooded-Agricultural	Crop Field	Ce	CE-2B	0-3	3.4 J				3.4
Wooded-Agricultural	Crop Field	Ce	CE-3A	0-3	4.2				4.2
Wooded-Agricultural	Crop Field	Ce	CE-3B	0-3	4.1 J				4.1
Wooded-Agricultural	Crop Field	Ce	CE-4A	0-3	3.7		2.8		3.3
Wooded-Agricultural	Crop Field	Ce	CE-4B	0-3	4 J				4
Wooded-Agricultural	Crop Field	Ch	CH-1A	0-3	3.3				3.3
Wooded-Agricultural	Crop Field	Ch	CH-1B	0-3	5.3 J				5.3
Wooded-Agricultural	Crop Field	Ch	CH-2A	0-3	5.5				5.5
Wooded-Agricultural	Crop Field	Ch	CH-2B	0-3	36.9 J				36.9
Wooded-Agricultural	Crop Field	Ch	CH-3A	0-3	54.4		52.6		53.5
Wooded-Agricultural	Crop Field	Ch	CH-3B	0-3	5.3 J				5.3
Wooded-Agricultural	Crop Field	Ch	CH-4A	0-3	7.7				7.7
Wooded-Agricultural	Crop Field	Ch	CH-4B	0-3	3.3 J				3.3
Wooded-Agricultural	Wooded	Wd	WD-1A	0-3	6.9	6.9			6.9
Wooded-Agricultural	Wooded	Wd	WD-1B	0-3	3.3 J				3.3
Wooded-Agricultural	Wooded	Wd	WD-2A	0-3	7.9		7.3		7.6
Wooded-Agricultural	Wooded	Wd	WD-2B	0-3	6.7 J				6.7
Wooded-Agricultural	Wooded	Wd	WD-3A	0-3	8.8				8.8
Wooded-Agricultural	Wooded	Wd	WD-3B	0-3	8.1 J				8.1
Wooded-Agricultural	Wooded	Wd	WD-4A	0-3	5.1				5.1
Wooded-Agricultural	Wooded	Wd	WD-4B	0-3	7.2 J				7.2
Wooded-Agricultural	Wooded	We	WE-1A	0-3	4.2				4.2
Wooded-Agricultural	Wooded	We	WE-1B	0-3	4.7				4.7
Wooded-Agricultural	Wooded	We	WE-2A	0-3	5.2				5.2
Wooded-Agricultural	Wooded	We	WE-2B	0-3	3.2				3.2
Wooded-Agricultural	Wooded	We	WE-3A	0-3	4.7		3.8		4.3
Wooded-Agricultural	Wooded	We	WE-3B	0-3	4				4
Wooded-Agricultural	Wooded	We	WE-4A	0-3	3.7				3.7
Wooded-Agricultural	Wooded	We	WE-4B	0-3	3.4				3.4

TABLE 6.1a
SOIL ARSENIC DATA FROM 2001-2003 GASPORT BACKGROUND STUDY

RCRA FACILITY INVESTIGATION REPORT - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Property Group	Land Use Type	Property ID	Sample Location	Depth (inches)	Arsenic Concentration (mg/kg)				
					Primary	Duplicate	Agency Split	Other	Combined
Commercial-Industrial	Commercial	Bb	BB-1A	0-3	2.4 J	6.1 J	2.3	2.2	3.3
Commercial-Industrial	Commercial	Bb	BB-2A	0-3	4.6				4.6
Commercial-Industrial	Commercial	Bb	BB-3A	0-3	5.2				5.2
Commercial-Industrial	Commercial	Bf	BF-1A	0-3	7.5				7.5
Commercial-Industrial	Commercial	Bf	BF-2A	0-3	9.9		2.9		6.4
Commercial-Industrial	Commercial	Bf	BF-3A	0-3	13.2				13.2
Commercial-Industrial	Industrial	la	IA-1A	0-3	33.5	32.1			32.8
Commercial-Industrial	Industrial	la	IA-2A	0-3	26.1				26.1
Commercial-Industrial	Industrial	la	IA-3A	0-3	3.5		3.1		3.3
Commercial-Industrial	Industrial	lb	IB-1A	0-3	12.5				12.5
Commercial-Industrial	Industrial	lb	IB-2A	0-3	20.4		20.8		20.6
Commercial-Industrial	Industrial	lb	IB-3A	0-3	4.9				4.9
Residential-Public	Residential	Ra	RA-1A	0-3	6.3				6.3
Residential-Public	Residential	Ra	RA-2A	0-3	17.4		12.5		15
Residential-Public	Residential	Ra	RA-3A	0-3	4.5				4.5
Residential-Public	Residential	Rb	RB-1A	0-3	16.7		3.5		10.1
Residential-Public	Residential	Rb	RB-2A	0-3	11.6				11.6
Residential-Public	Residential	Rb	RB-3A	0-3	12.8				12.8
Residential-Public	Residential	Rc	RC-1A	0-3	8.7		7.2		8
Residential-Public	Residential	Rc	RC-2A	0-3	9.5				9.5
Residential-Public	Residential	Rc	RC-3A	0-3	9.9				9.9
Residential-Public	Residential	Re	RE-1A	0-3	5.7				5.7
Residential-Public	Residential	Re	RE-2A	0-3	7.7				7.7
Residential-Public	Residential	Re	RE-3A	0-3	18.6		20.3		19.5
Residential-Public	Residential	Rf	RF-1A	0-3	14.7		14.3		14.5
Residential-Public	Residential	Rf	RF-2A	0-3	21.2				21.2
Residential-Public	Residential	Rf	RF-3A	0-3	14.5				14.5
Residential-Public	Residential	Rg	RG-1A	0-3	7.3				7.3
Residential-Public	Residential	Rg	RG-2A	0-3	5.6				5.6
Residential-Public	Residential	Rg	RG-3A	0-3	8		7.3		7.7
Residential-Public	Residential	Rh	RH-1A	0-3	4.6	3.9	4.2		4.2
Residential-Public	Residential	Rh	RH-2A	0-3	20.3 J				20.3
Residential-Public	Residential	Rh	RH-3A	0-3	9.1				9.1
Residential-Public	School	Sa	SA-1A	0-3	4.2	4.3	3.3	3.5	3.8
Residential-Public	School	Sa	SA-2A	0-3	3.3				3.3
Orchard	Orchard	Oa	OA-1A	0-3	14.7				14.7
Orchard	Orchard	Oa	OA-2A	0-3	8.8		8		8.4
Orchard	Orchard	Oa	OA-3A	0-3	27.8				27.8
Orchard	Orchard	Oa	OA-4A	0-3	10.4				10.4
Orchard	Orchard	Ob	OB-1A	0-3	3.8	3.7			3.8
Orchard	Orchard	Ob	OB-2A	0-3	40.4		45.9		43.2
Orchard	Orchard	Ob	OB-3A	0-3	4.6				4.6
Orchard	Orchard	Ob	OB-4A	0-3	3.1				3.1
Orchard	Orchard	Od	OD-1A	0-3	130	129	105		121
Orchard	Orchard	Od	OD-2A	0-3	81.9				81.9
Orchard	Orchard	Od	OD-3A	0-3	24.5				24.5
Orchard	Orchard	Od	OD-4A	0-3	56.3				56.3

Notes:

1. All samples collected May 2002 during the Gasport Background Study.
2. Approximate locations of properties sampled shown on Figure 6.1 of this RFI Report Volume V.
3. Results reported in *Development of Arsenic Background in Middleport Soil* (CRA 2003).
4. The combined result is the arithmetic average of all values reported for any primary field sample, field duplicate sample, Agency split sample, and additional other samples collected.
5. J = Associated value is estimated.

**TABLE 6.1b
SUMMARY OF SOIL ARSENIC CONCENTRATIONS BY PROPERTY TYPE/USAGE FROM 2001-2003 GASPORT BACKGROUND STUDY**

**RCRA FACILITY INVESTIGATION REPORT - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK**

Major Property Type/Usage	Number of Samples	Arsenic Concentrations (mg/kg)				
		Range	Mean	95% UCL	95th Percentile	98th Percentile
Orchard Land (3 Orchards)	12	3.1 to 121.3	33.3	63.5	99.6	112.6
Wooded or Overgrown Land and Agricultural Crop Field Land (2 Wooded, 5 Crop Fields) Including 4 potential statistical outliers	56	3.1 to 56.7	7.9	14.2	33.5	51.8
Excluding 4 potential statistical outliers	52	3.1 to 11.9	5.0	5.5	9.1	9.8
Commercial and Industrial Land (2 Business and 2 Industrial Properties)	12	2.2 to 32.8	11.7	18.4	29.1	31.3
Residential and Public Land (7 Residential Properties, 1 School)	23	3.3 to 21.1	10.1	12.0	20.2	20.7

Note: 95% UCL = 95% Upper Confidence Limit on the Mean

The 2001-2003 Gasport Background Study generated total arsenic data for 103 surface soil samples (0 - 3-inch depth interval) collected from four major property type/usage groups. An analysis for potential statistical outliers identified four points in the wooded/overgrown/agricultural crop field land group.

TABLE 6.2a
CONCENTRATIONS OF METALS OBSERVED IN BACKGROUND SOIL SAMPLES

RCRA FACILITY INVESTIGATION REPORT - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID:		S 16	S 17	SS-9-85	SS-10-85	SB-JA-01	SB-JA-01	SB-JA-08	SB-JA-08	DOH-SS 19	DOH-SS 20	DOH-SS 21	DOH-SS 22	DOH-SS 23
Sample Depth:		0 - 6"	0 - 6"	0 - 6"	0 - 6"	0 - 6"	6 - 12"	0 - 6"	6 - 12"	0 - 3"	0 - 3"	0 - 3"	0 - 3"	0 - 3"
Date Collected:	Units	11/90	11/90	11/85	11/85	2/89	2/89	2/89	2/89	1/89	1/89	1/89	1/89	1/89
Arsenic														
Arsenic	mg/kg	5.8	19.7	34.3	22	31.6	41.2	56.1	55.9	24.0	25.0	4.4	5.5	5.7
Lead														
Lead	mg/kg	39.3	47.6	--	--	53.5	9.43	114	49.2	107	91.0	23.0	22.0	44.0
Other Metals														
Aluminum	mg/kg	13,700	8,360	--	--	--	--	--	--	20,900	21,500	21,700	25,400	23,400
Antimony	mg/kg	--	--	--	--	--	--	--	--	20 U	20 U	20 U	20 U	20 U
Barium	mg/kg	--	--	--	--	--	--	--	--	181	94.0	93.0	116	74.0
Beryllium	mg/kg	--	--	--	--	--	--	--	--	2.0	1.5	1.5	1.7	1.3
Cadmium	mg/kg	0.92 U	0.63 U	--	--	--	--	--	--	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Chromium	mg/kg	--	--	--	--	--	--	--	--	23.0	20.0	23.0	27.0	20.0
Cobalt	mg/kg	--	--	--	--	--	--	--	--	6.1	8.1	6.7	6.7	6.4
Copper	mg/kg	38.3	37.0	--	--	--	--	--	--	63.0	116	28.0	23.0	27.0
Iron	mg/kg	26,400	17,100	--	--	--	--	--	--	32,500	21,500	21,700	26,100	21,300
Manganese	mg/kg	1,370	785	--	--	--	--	--	--	3,140	1,090	633	469	341
Mercury	mg/kg	0.18 U	0.13 U	0.07	0.10 U	--	--	--	--	0.06	0.06	0.05	0.04	0.05
Molybdenum	mg/kg	--	--	--	--	--	--	--	--	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U
Nickel	mg/kg	--	--	--	--	--	--	--	--	19.0	16.0	21.0	21.0	17.0
Selenium	mg/kg	0.92 U	0.63 U	--	--	--	--	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Silver	mg/kg	--	--	--	--	--	--	--	--	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Sodium	mg/kg	917 U	632 U	--	--	--	--	--	--	--	--	--	--	--
Strontium	mg/kg	--	--	--	--	--	--	--	--	24	32	26	20 U	20 U
Thallium	mg/kg	0.92 U	0.63 U	--	--	--	--	--	--	10 U	10 U	10 U	10 U	10 U
Tin	mg/kg	--	--	--	--	--	--	--	--	20 U	20 U	20 U	20 U	20 U
Titanium	mg/kg	--	--	--	--	--	--	--	--	321	332	383	525	313
Vanadium	mg/kg	--	--	--	--	--	--	--	--	37.0	34.0	36.0	44.0	34.0
Zinc	mg/kg	191	81.2	--	--	--	--	--	--	112	143	81.0	85.0	81.0

Notes:

1. milligrams per kilogram (mg/kg), equivalent to parts-per-million (ppm)
2. Results for arsenic and lead are "combined" results (refer to Section 4.1 of this RFI Report Volume V for description)
3. Sampling locations are depicted on Figure 6.2 of this RFI Report Volume V
4. These 11 sampling locations (13 samples) were identified by the Agencies by letter dated January 24, 1996.

For arsenic, the background data in this table was replaced by the data resulting from the 2003 Gasport Background Study (see Table 6.1a of this RFI Report Volume V).

5. U = not detected at concentration indicated
6. -- = not analyzed

TABLE 6.2b - NON-ARSENIC CONCENTRATIONS IN TRIBUTARY ONE SOUTH BACKGROUND SEDIMENT SAMPLES

RCRA FACILITY INVESTIGATION REPORT – VOLUME V
 FMC CORPORATION – MIDDLEPORT, NEW YORK

Location ID: Sample Depth(Inches): Date Collected: Reach:	Units	E1 0 - 6 11/26/90 Canal	E1 6 - 12 11/26/90 Canal	S7 0 - 6 11/15/90 Upstream	T1 0 - 6 09/05/90 Upstream	T2 0 - 6 09/06/90 Upstream	SD1 0 - 6 04/14/93 Upstream	SD2 0 - 6 04/14/93 Upstream	TB1S 0 - 3 11/01/02 Upstream
Chlorinated Pesticides									
4,4'-DDD	µg/kg	31.0 U	24.0 U	23.0 U	24.0 U	30.0 U	21.0 U	21.0 U	9.0 J
4,4'-DDE	µg/kg	31.0 U	24.0 U	310	24.0 U	30.0 U	21.0 U	21.0 U	20.0 J
4,4'-DDT	µg/kg	31.0 U	24.0 U	150	24.0 U	30.0 U	21.0 U	3.9 J	10.0 UJ
Aldrin	µg/kg	15.0 U	12.0 U	11.0 U	31.0	15.0 U	11.0 U	10.0 U	5.2 UJ
alpha-BHC	µg/kg	15.0 U	12.0 U	11.0 U	12.0 U	15.0 U	11.0 U	10.0 U	5.2 UJ
beta-BHC	µg/kg	15.0 U	12.0 U	11.0 U	12.0 U	15.0 U	11.0 U	10.0 U	5.2 UJ
gamma-BHC (Lindane)	µg/kg	15.0 U	12.0 U	11.0 U	12.0 U	15.0 U	11.0 U	10.0 U	5.2 UJ
delta-BHC	µg/kg	15.0 U	12.0 U	11.0 U	12.0 U	15.0 U	11.0 U	10.0 U	5.2 UJ
alpha-Chlordane	µg/kg	150 U	240 U	230 U	120 U	150 U	110 U	100 U	5.2 UJ
gamma-Chlordane	µg/kg	150 U	240 U	230 U	120 U	150 U	110 U	100 U	5.2 UJ
Dieldrin	µg/kg	31.0 U	24.0 U	91.0	24.0 U	30.0 U	21.0 U	21.0 U	15.0 J
Endosulfan I	µg/kg	15.0 U	12.0 U	11.0 U	12.0 U	15.0 U	11.0 U	10.0 U	5.2 UJ
Endosulfan II	µg/kg	31.0 U	24.0 U	23.0 U	24.0 U	30.0 U	21.0 U	21.0 U	10.0 UJ
Endosulfan sulfate	µg/kg	31.0 U	24.0 U	23.0 U	24.0 U	30.0 U	21.0 U	21.0 U	10.0 UJ
Endrin	µg/kg	31.0 U	24.0 U	23.0 U	24.0 U	30.0 U	21.0 U	21.0 U	10.0 UJ
Endrin aldehyde	µg/kg	31.0 U	24.0 U	23.0 U	24.0 U	30.0 U	21.0 U	21.0 U	10.0 UJ
Endrin ketone	µg/kg	--	--	--	--	--	--	--	10.0 UJ
Heptachlor	µg/kg	15.0 U	12.0 U	11.0 U	12.0 U	15.0 U	11.0 U	10.0 U	5.2 UJ
Heptachlor epoxide	µg/kg	15.0 U	12.0 U	11.0 U	12.0 U	15.0 U	11.0 U	10.0 U	5.2 UJ
Isodrin	µg/kg	15.0 U	24.0 U	23.0 U	12.0 U	15.0 U	21.0 U	21.0 U	10.0 UJ
Methoxychlor	µg/kg	150 U	120 U	110 U	120 U	150 U	110 U	100 U	52.0 UJ
Toxaphene	µg/kg	310 U	240 U	230 U	240 U	300 U	210 U	210 U	520 UJ
Other Pesticides/Herbicides									
2,4,5-T	mg/kg	0.0038 U	0.0030 U	0.0028 U	0.0030 U	0.0038 U	--	--	--
2,4-D	mg/kg	0.019 U	0.015 U	0.014 U	0.015 U	0.019 U	--	--	--
Chlorpyrifos	mg/kg	0.016 U	0.013 U	0.012 U	0.15 U	0.19 U	--	--	--
Diazinon	mg/kg	0.016 U	0.013 U	0.012 U	0.15 U	0.19 U	--	--	--
Dinocap	mg/kg	3.1 U	4.9 U	4.5 U	2.4 U	3.0 U	--	--	--
Dinoseb	mg/kg	0.0096 U	0.0076 U	0.0070 U	0.0074 U	0.0095 U	--	--	--
Ethion	mg/kg	0.016 U	0.013 U	0.012 U	0.15 U	0.19 U	--	--	--
Malathion	mg/kg	0.080 U	0.064 U	0.059 U	0.15 U	0.19 U	--	--	--
Parathion, ethyl	mg/kg	0.016 U	0.013 U	0.012 U	0.15 U	0.19 U	--	--	--
Parathion, methyl	mg/kg	0.016 U	0.013 U	0.012 U	0.15 U	0.19 U	--	--	--
Phorate	mg/kg	0.016 U	0.013 U	0.012 U	0.15 U	0.19 U	--	--	--
Ronnel	mg/kg	0.016 U	0.013 U	0.012 U	0.15 U	0.19 U	--	--	--
Semi-Volatile Organics									
2-Methylphenol	mg/kg	0.63 U	0.50 U	0.46 U	0.49 U	3.1 U	--	--	--
4,6-Dinitro-2-methylphenol	mg/kg	3.1 U	2.4 U	2.3 U	2.4 U	15.0 U	--	--	--

TABLE 6.2b - NON-ARSENIC CONCENTRATIONS IN TRIBUTARY ONE SOUTH BACKGROUND SEDIMENT SAMPLES

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Location ID: Sample Depth(Inches): Date Collected: Reach:	Units	E1 0 - 6 11/26/90 Canal	E1 6 - 12 11/26/90 Canal	S7 0 - 6 11/15/90 Upstream	T1 0 - 6 09/05/90 Upstream	T2 0 - 6 09/06/90 Upstream	SD1 0 - 6 04/14/93 Upstream	SD2 0 - 6 04/14/93 Upstream	TB1S 0 - 3 11/01/02 Upstream
Metals									
Lead	mg/kg	19.1 U	38.5	64.8	26.6	128	15.0	18.3	50.1 J
Aluminum	mg/kg	11,500	10,300	10,900	5,780	6,240	--	--	--
Cadmium	mg/kg	1.3	2.1	2.2	0.74 U	0.95 U	1.0	1.1	--
Copper	mg/kg	43.4	52.4	29.5	23.5	27.2	30.7	16.9	--
Iron	mg/kg	24,100	27,000	22,800	16,100	12,400	--	--	--
Manganese	mg/kg	800	643	1,680	472	502	--	--	--
Mercury	mg/kg	0.30	0.41	0.14 U	0.15 U	0.19 U	0.070 U	0.050 U	--
Selenium	mg/kg	1.9 U	0.76 U	1.4 U	7.4 U	9.5 U	--	--	--
Sodium	mg/kg	956 U	759 U	704 U	740 U	945 U	--	--	--
Thallium	mg/kg	1.9 U	1.5 U	1.4 U	0.74 U	0.95 U	--	--	--
Zinc	mg/kg	273	302	202	98.1	107	--	--	--
Miscellaneous									
Percent Solids	%	--	--	--	--	--	75.8	77.5	--
Total Organic Carbon	mg/kg	--	--	--	--	--	10,600	15,300	--
Methyl Carbamates									
7-Hydroxybenzofuran	mg/kg	3.0 U	3.0 U	2.8 U	4.2 U	6.4 U	--	--	--
Carbaryl	mg/kg	0.74 U	0.76 U	0.70 U	1.1 U	1.6 U	--	--	--
Carbofuran	mg/kg	1.5 U	1.5 U	1.4 U	2.1 U	3.2 U	--	--	--
Chlorpropham	mg/kg	0.74 U	0.76 U	0.70 U	--	--	--	--	--
Propoxur	mg/kg	1.5 U	1.5 U	1.4 U	2.1 U	3.2 U	--	--	--

General Notes:

1. Samples T1 and T2 were collected from the stream banks to represent sediment because insufficient sediment was available at these locations. Samples SD1 and SD2 were later collected in these locations by forming composites of sediment collected over an approximate 50-foot length of the stream bed.
2. Concentrations are presented in dry-weight ($\mu\text{g}/\text{kg}$ or parts per billion) for chlorinated pesticides and mg/kg or parts per million for all other constituents.
3. Methyl carbamate analyses for T1 and T2 were conducted on additional samples collected from 11/26/1990 - 11/29/1990.
4. For arsenic results, refer to Figure 6.3.

Data Qualifiers:

J = The analyte was positively identified; however, the associated numerical value is an estimated concentration.

U = Analyte not detected at the associated detection level.

UJ = The analyte was not detected; however, the associated detection limit was higher due to data validation quantification.

Acronyms and Abbreviations:

-- = No data were collected

% = percent

$\mu\text{g}/\text{kg}$ = micrograms per kilogram

mg/kg = milligrams per kilogram

TABLE 6.3a

IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO SOIL AND SEDIMENT SAMPLES - REACH T1

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
Transect T1							
T1E1	Soil						X
T1E2	Soil	X		X			
T1E3	Soil	X		X			
T1E4	Soil	X		X			
T1E5	Soil	X		X			
T1W1	Soil						X
T1W2	Soil	X		X			
T1W3	Soil	X		X			
T1W4	Soil	X		X			
Transect T2							
T2E1	Soil						X
T2S	Sediment						X
T2W1	Soil						X
T2W2	Soil	X		X			
T2W3	Soil	X		X			
T2W4	Soil	X		X			
T2W5	Soil	X		X			
T2W6	Soil	X		X			
T2W7	Soil	X		X			
T2W8	Soil	X		X			
T2W9	Soil	X		X			
T2W10	Soil	X		X			
T2W11	Soil	X		X			
T2W12	Soil	X		X			
Transect T3							
T3E1	Soil						X
T3E2	Soil	X	X	X	X		
T3E3	Soil	X	X	X	X		
T3E4	Soil	X	X	X	X		
T3E5	Soil	X	X	X	X		
T3E6	Soil	X		X			
T3E7	Soil	X		X			
T3S	Sediment						X
T3W1	Soil						X
T3W2	Soil	X	X	X	X		
T3W3	Soil	X	X	X	X		
T3W4	Soil	X	X	X	X		
T3W5	Soil	X	X	X	X		
T3W6	Soil	X	X	X	X		
Transect T4							
T4E1	Soil					X	
T4E2	Soil					X	
T4E3	Soil					X	
T4E4	Soil					X	
T4E5	Soil	X		X			

TABLE 6.3a
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACH T1

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
T4E6	Soil	X		X			
T4E7	Soil	X		X			
T4-SR	Sediment						X
T4W1	Soil					X	
T4W2	Soil					X	
T4W3	Soil	X		X			
Transect T5							
T5E1	Soil						X
T5E2	Soil					X	
T5E3	Soil					X	
T5E4	Soil					X	
T5E5	Soil					X	
T5E6	Soil					X	
T5E7	Soil	X		X			
T5S	Sediment						X
Transect T6							
T6S	Sediment						X
T6W1	Soil						X
T6W2	Soil	X		X			
T6W3	Soil	X		X			
T6W4	Soil	X		X			
T6W5	Soil	X		X			
T6W6	Soil	X		X			
Transect T7							
T7E1	Soil	X		X			
T7E2	Soil	X		X			
T7E3	Soil	X		X			
T7E4	Soil	X		X			
T7E5	Soil	X		X			
T7E6	Soil	X		X			
T7E7	Soil	X		X			
T7E8	Soil	X		X			
T7S	Sediment						X
T7W1	Soil	X		X			
T7W2	Soil	X		X			
T7W3	Soil	X		X			
T7W4	Soil	X		X			
Transect T8							
T8E1	Soil	X		X			
T8E2	Soil	X		X			
T8E3	Soil	X		X			
T8E4	Soil	X		X			
T8E5	Soil	X		X			
T8E6	Soil	X		X			
T8E7	Soil	X		X			
T8E8	Soil	X		X			

TABLE 6.3a
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACH T1

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
T8S	Sediment						X
T8W1	Soil	X		X			
T8W2	Soil	X		X			
T8W3	Soil	X		X			
T8W4	Soil	X	X	X	X		
Remote Borehole Locations							
BB1-1	Soil	X		X			
BB1-2	Soil	X		X			
BB1-3	Soil	X		X			
BB2-1	Soil	X		X			
BB2-2	Soil	X		X			
BB2-3	Soil	X		X			
BB8-1	Soil	X		X			
BB8-2	Soil	X		X			
BB8-3	Soil	X		X			
BB8-4	Soil	X		X			
TSASB1	Soil	X		X			
TSASB2	Soil	X		X			
TSASB3	Soil	X		X			
TSASB4	Soil	X		X			
TSASB5	Soil	X		X			
TSBSB1	Soil	X		X			
TSBSB2	Soil	X		X			
TSCSB1	Soil	X		X			
TSCSB2	Soil	X		X			
TSCSB3	Soil	X		X			
TSDSB1	Soil	X		X			
TSDSB2	Soil	X		X			
TSDSB3	Soil	X		X			
TSDSB4	Soil	X		X			
TSESB1	Soil	X		X			
TSESB2	Soil	X		X			
TSESB3	Soil	X		X			
TSESB4	Soil	X		X			
TSFSB1	Soil	X		X			
TSFSB2	Soil	X		X			
TSFSB3	Soil	X		X			
TSFSB4	Soil	X		X			
TSGSB1	Soil	X		X			
TSGSB2	Soil	X		X			
TSGSB3	Soil	X		X			
TSGSB4	Soil	X		X			
TSHSB1	Soil	X		X			
TSHSB2	Soil	X		X			
TSHSB3	Soil	X		X			
TSISB1	Soil					X	
TSISB2	Soil					X	

TABLE 6.3a
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACH T1

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
TSISB3	Soil					X	
TSJSB1	Soil	X		X			
TSKSB1	Soil	X		X			
TSKSB2	Soil	X		X			
TLSB1	Soil	X		X			
TLSB2	Soil	X		X			
TLSB3	Soil	X		X			
TMSB1	Soil	X		X			
TMSB2	Soil	X		X			
TMSB3	Soil	X		X			
TSNSB1	Soil	X		X			
TSNSB2	Soil	X		X			
TSOSB1	Soil	X		X			
TSPSB1	Soil	X		X			
Other Sample Locations							
DEC25	Sediment						X
DOHSS11	Soil	X		X			
DOHSS12	Soil					X	
DOHSS13	Soil	X		X			
DOHSS14	Soil	X		X			
DOHSS15	Soil	X		X			
DOHSS16	Soil	X		X			
DOHSS17	Soil	X		X			
DOHSS18	Soil					X	
S8	Soil	X		X			
S9	Soil						X
S10	Soil	X		X			
S11	Soil					X	
S12	Soil					X	
S13 (1990)	Soil					X	
S13 (1993)	Soil					X	
S14	Soil						X
S15	Soil	X		X			
SD3	Sediment						X
SD4	Sediment						X
WSS18	Soil	X		X			
T3	Soil						X
T4	Soil						X

Notes:

1. Soil Screening Levels (SSLs) for residential and industrial use listed in Table 7.2 of the 1999 Draft RFI Report (CRA 1999).
2. Remedial Program Soil Cleanup Objectives (SCOs) for residential use, industrial use and protection of ecological resources listed in Table 375-6.8(b): Restricted Use Soil Cleanup Objectives, of 6 NYCRR Subpart 375-6.
3. Sediment Screening Criteria listed in NYSDEC "Technical Guidance for Screening Contaminated Sediments," as updated through January 1999.

TABLE 6.3b
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACH T2

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
Transect T9							
T9E1	Soil						X
T9E2	Soil						X
T9E3	Soil	X		X			
T9E4	Soil	X		X			
T9S	Sediment						X
T9W1	Soil						X
T9W2	Soil					X	
T9W3	Soil					X	
T9W4	Soil					X	
T9W5	Soil					X	
T9W6	Soil					X	
T9W7	Soil					X	
Transect T9.5							
T9.5E1	Soil						X
T9.5E2	Soil	X		X			
T9.5W1	Soil						X
T9.5W2	Soil					X	
T9.5W3	Soil					X	
T9.5W4	Soil					X	
T9.5W5	Soil					X	
T9.5W6	Soil					X	
Transect T10							
T10E1	Soil						X
T10E2	Soil	X		X			
T10E3	Soil	X		X			
T10E4	Soil	X		X			
T10S	Sediment						X
T10W1	Soil						X
T10W2	Soil					X	
T10W3	Soil					X	
T10W4	Soil					X	
T10W5	Soil					X	
T10W6	Soil					X	
T10W7	Soil					X	
T10W8	Soil					X	
Transect T10.3							
T10.3E1	Soil						X
T10.3E2	Soil					X	
T10.3E3	Soil					X	
T10.3W1	Soil						X
T10.3W2	Soil	X	X	X	X		
T10.3W3	Soil	X	X	X	X		
T10.3W4	Soil	X	X	X	X		
T10.3W5	Soil	X	X	X	X		
T10.3W6	Soil	X	X	X	X		
T10.3W7	Soil	X	X	X	X		

TABLE 6.3b
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACH T2

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
T10.3W8	Soil					X	
Transect T10.7							
T10.7E1	Soil						X
T10.7E2	Soil					X	
T10.7E3	Soil					X	
T10.7E4	Soil					X	
T10.7W1	Soil						X
T10.7W2	Soil	X	X	X	X		
T10.7W3	Soil	X	X	X	X		
T10.7W4	Soil	X	X	X	X		
T10.7W5	Soil	X	X	X	X		
T10.7W6	Soil	X	X	X	X		
T10.7W7	Soil	X	X	X	X		
T10.7W8	Soil	X	X	X	X		
T10.7W10	Soil					X	
T10.7W11	Soil					X	
Transect T11							
T11E1	Soil						X
T11E2	Soil					X	
T11E3	Soil					X	
T11E4	Soil					X	
T11E5	Soil					X	
T11E6	Soil					X	
T11S	Sediment						X
T11W1	Soil						X
T11W2	Soil	X	X	X	X		
T11W3	Soil	X	X	X	X		
T11W4	Soil	X	X	X	X		
T11W5	Soil	X	X	X	X		
T11W6	Soil	X	X	X	X		
T11W7	Soil	X	X	X	X		
T11W8	Soil	X	X	X	X		
T11W9	Soil	X	X	X	X		
T11W10	Soil	X	X	X	X		
T11W11	Soil	X	X	X	X		
T11W12	Soil					X	
T11W13	Soil					X	
Transect T11.5							
T11.5E1	Soil						X
T11.5E2	Soil					X	
T11.5W1	Soil						X
T11.5W2	Soil	X	X	X	X		
T11.5W3	Soil	X	X	X	X		
T11.5W4	Soil	X	X	X	X		
T11.5W5	Soil	X	X	X	X		
T11.5W6	Soil	X	X	X	X		

**TABLE 6.3b
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACH T2**

**RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK**

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
Other Sample Locations							
SD5	Sediment						X
901433	Soil	X	X	X	X		
901434	Soil					X	

Notes:

1. Soil Screening Levels (SSLs) for residential and industrial use listed in Table 7.2 of the 1999 Draft RFI Report (CRA 1999).
2. Remedial Program Soil Cleanup Objectives (SCOs) for residential use, industrial use and protection of ecological resources listed in Table 375-6.8(b): Restricted Use Soil Cleanup Objectives, of 6 NYCRR Subpart 375-6.
3. Sediment Screening Criteria listed in NYSDEC "Technical Guidance for Screening Contaminated Sediments," as updated through January 1999.

TABLE 6.3c
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACH T3

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
Transect T12							
T12E1	Soil						X
T12E2	Soil					X	
T12E3	Soil					X	
T12E4	Soil					X	
T12E5	Soil					X	
T12E6	Soil	X		X			
T12S	Sediment						X
T12W1	Soil						X
T12W2	Soil					X	
T12W3	Soil					X	
T12W4	Soil					X	
T12W5	Soil					X	
T12W6	Soil	X		X			
Transect T12.3							
T12.3E1	Soil						X
T12.3E2	Soil					X	
T12.3E3	Soil					X	
T12.3E4	Soil					X	
T12.3E5	Soil					X	
T12.3E6	Soil					X	
T12.3E7	Soil	X		X			
T12.3E8	Soil	X		X			
T12.3W1	Soil						X
T12.3W2	Soil					X	
T12.3W3	Soil					X	
Transect T13							
T13E1	Soil						X
T13E2	Soil						X
T13E3	Soil						X
T13E4	Soil						X
T13E5	Soil					X	
T13E6	Soil					X	
T13E7	Soil					X	
T13E8	Soil					X	
T13E9	Soil					X	
T13E10	Soil					X	
T13E11	Soil	X		X			
T13S	Sediment						X
T13W1	Soil						X
T13W2	Soil						X
T13W3	Soil						X
T13W4	Soil					X	
T13W5	Soil					X	
T13W6	Soil					X	

TABLE 6.3c
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACH T3

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
Transect T14							
T14E1	Soil						X
T14E2	Soil					X	
T14E3	Soil					X	
T14E4	Soil					X	
T14E5	Soil					X	
T14E6	Soil					X	
T14E7	Soil					X	
T14E8	Soil	X		X			
T14S	Sediment						X
T14W1	Soil						X
T14W2	Soil					X	
T14W3	Soil					X	
T14W4	Soil					X	
T14W5	Soil					X	
T14W6	Soil	X		X			
T14W9	Soil	X		X			
Transect T14.2							
T14.2W1	Soil					X	
T14.2W2	Soil					X	
T14.2W3	Soil					X	
Transect T14.3							
T14.3S1	Sediment						X
T14.3S2	Sediment						X
T14.3S3	Sediment						X
Other Sample Locations							
DEC30	Sediment						X
SD6	Sediment						X
SD7	Sediment						X
TNDD01	Soil					X	
TNDD02	Soil					X	
TNDD03	Soil	X		X			
TNDD04	Soil	X		X			

Notes:

1. Soil Screening Levels (SSLs) for residential and industrial use listed in Table 7.2 of the 1999 Draft RFI Report (CRA 1999).
2. Remedial Program Soil Cleanup Objectives (SCOs) for residential use, industrial use and protection of ecological resources listed in Table 375-6.8(b): Restricted Use Soil Cleanup Objectives, of 6 NYCRR Subpart 375-6.
3. Sediment Screening Criteria listed in NYSDEC "Technical Guidance for Screening Contaminated Sediments," as updated through January 1999.

TABLE 6.3d
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACHES T4 AND T5

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
Reach T4							
Transect T14.5							
T14.5E1	Soil						X
T14.5E2	Soil	X		X			
T14.5E3	Soil	X		X			
T14.5E4	Soil	X		X			
T14.5S	Sediment						X
T14.5W1	Soil						X
T14.5W2	Soil					X	
Transect T15							
T15E1	Soil						X
T15E2	Soil	X		X			
T15E3	Soil	X		X			
T15E4	Soil	X		X			
T15E5	Soil	X		X			
T15E6	Soil	X		X			
T15S	Sediment						X
T15W1	Soil						X
T15W2	Soil					X	
T15W3	Soil					X	
T15W4	Soil					X	
Transect T15.5							
T15.5E1	Soil						X
T15.5E2	Soil						X
T15.5E3	Soil					X	
T15.5W1	Soil					X	
T15.5W2	Soil					X	
Transect T16							
T16E1	Soil						X
T16E2	Soil					X	
T16E3	Soil					X	
T16E4	Soil					X	
T16E5	Soil					X	
T16E6	Soil					X	
T16E7	Soil					X	
T16E8	Soil					X	
T16E9	Soil					X	
T16E10	Soil					X	
T16E11	Soil					X	
T16S	Sediment						X
T16W1	Soil						X
T16W2	Soil					X	
T16W3	Soil					X	
T16W4	Soil					X	
T16W5	Soil					X	
T16W6	Soil					X	
T16W7	Soil					X	

TABLE 6.3d
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACHES T4 AND T5

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
Transect T16.2							
T16.2E1	Soil						X
T16.2E2	Soil					X	
T16.2E3	Soil					X	
T16.2E4	Soil					X	
T16.2E5	Soil					X	
T16.2E6	Soil					X	
T16.2E7	Soil					X	
T16.2E8	Soil					X	
T16.2E9	Soil					X	
T16.2W1	Soil						X
Other Sample Locations							
SD8	Sediment						X
Reach T5							
Transect T16.4							
T16.4E1	Soil						X
T16.4E2	Soil						X
T16.4E3	Soil						X
T16.4E4	Soil					X	
T16.4E5	Soil					X	
T16.4W1	Soil						X
T16.4W2	Soil					X	
Transect T16.6							
T16.6E1	Soil						X
T16.6E2	Soil					X	
T16.6E3	Soil					X	
T16.6W1	Soil						X
T16.6W2	Soil						X
T16.6W3	Soil					X	
T16.6W4	Soil					X	
Transect T16.8							
T16.8E1	Soil						X
T16.8E2	Soil					X	
T16.8E3	Soil					X	
T16.8E4	Soil					X	
T16.8E5	Soil					X	
T16.8E6	Soil					X	
T16.8W1	Soil						X
T16.8W2	Soil						X
T16.8W3	Soil					X	
T16.8W4	Soil					X	

TABLE 6.3d
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACHES T4 AND T5

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
Transect T18							
T18E1	Soil						X
T18E2	Soil					X	
T18E3	Soil					X	
T18E4	Soil					X	
T18E5	Soil					X	
T18E6	Soil					X	
T18E7	Soil					X	
T18E8	Soil					X	
T18S	Soil						X
T18W1	Soil						X
T18W2	Soil					X	
T18W3	Soil					X	
T18W4	Soil					X	
T18W5	Soil					X	
Other Sample Locations							
SD9	Sediment						X
T5	Sediment						X

Notes:

1. Soil Screening Levels (SSLs) for residential and industrial use listed in Table 7.2 of the 1999 Draft RFI Report (CRA 1999).
2. Remedial Program Soil Cleanup Objectives (SCOs) for residential use, industrial use and protection of ecological resources listed in Table 375-6.8(b): Restricted Use Soil Cleanup Objectives, of 6 NYCRR Subpart 375-6.
3. Sediment Screening Criteria listed in NYSDEC "Technical Guidance for Screening Contaminated Sediments," as updated through January 1999.

TABLE 6.3e
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACHES T6, T7 AND T8

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
Reach T6							
Transect T17							
T17E1	Soil						X
T17E2	Soil					X	
T17E3	Soil					X	
T17E4	Soil					X	
T17S	Sediment						X
T17W1	Soil						X
T17W2	Soil					X	
T17W3	Soil					X	
T17W4	Soil					X	
Transect T17.5							
T17.5E1	Soil						X
T17.5E2	Soil					X	
T17.5E3	Soil					X	
T17.5W1	Soil						X
T17.5W2	Soil					X	
T17.5W3	Soil					X	
Transect T19							
T19E1	Soil						X
T19E2	Soil					X	
T19E3	Soil					X	
T19E4	Soil					X	
T19S	Sediment						X
T19W1	Soil						X
T19W2	Soil					X	
T19W3	Soil					X	
T19W4	Soil					X	
Transect T20							
T20E1	Soil						X
T20E2	Soil					X	
T20E3	Soil					X	
T20E4	Soil					X	
T20S	Sediment						X
T20W1	Soil						X
T20W2	Soil					X	
T20W3	Soil					X	
T20W4	Soil					X	

TABLE 6.3e
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACHES T6, T7 AND T8

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
Other Sample Locations							
901429/901430	Sediment						X
Reach T7							
Transect C11							
C11E1	Soil						X
C11E2	Soil					X	
C11E3	Soil					X	
C11E4	Soil					X	
C11S	Sediment						X
C11W1	Soil						X
C11W2	Soil					X	
C11W3	Soil					X	
C11W4	Soil					X	
Transect C12							
C12E1	Soil						X
C12E2	Soil					X	
C12E3	Soil					X	
C12E4	Soil					X	
C12S	Sediment						X
C12W1	Soil						X
C12W2	Soil					X	
C12W3	Soil					X	
C12W4	Soil					X	
Transect C13							
C13E1	Soil						X
C13E2	Soil					X	
C13E3	Soil					X	
C13E4	Soil					X	
C13S	Sediment						X
C13W1	Soil						X
C13W2	Soil						X
C13W3	Soil					X	
C13W4	Soil					X	
Transect C13.5							
C13.5E1	Soil					X	
C13.5E2	Soil					X	
C13.5S	Sediment						X
C13.5W1	Soil						X
C13.5W2	Soil					X	
C13.5W3	Soil					X	
C13.5W4	Soil					X	
C13.5W5	Soil					X	

TABLE 6.3e
IDENTIFICATION OF CATEGORIES OF SCREENING VALUES TO APPLY TO
SOIL AND SEDIMENT SAMPLES - REACHES T6, T7 AND T8

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Matrix	Residential SSLs	Industrial SSLs	Residential SCOs	Industrial SCOs	Ecological SCOs	NYSDEC Sediment Screening Criteria
Other Sample Locations							
SD10	Sediment						X
SD11	Sediment						X
T6	Sediment						X
T7	Sediment						X
901427/901428	Sediment						X
Reach T8							
Transect C14							
C14E1	Soil						X
C14E2	Soil					X	
C14E3	Soil					X	
C14E4	Soil					X	
C14S	Sediment						X
C14W1	Soil						X
C14W2	Soil					X	
C14W3	Soil					X	
C14W4	Soil					X	
C14W5	Soil					X	
C14W6	Soil					X	
Transect T21							
T21E1	Soil						X
T21E2	Soil						X
T21E3	Soil					X	
T21E4	Soil					X	
T21S	Sediment						X
T21W1	Soil						X
T21W2	Soil					X	
Transect T22							
T22E1	Soil					X	
T22E2	Soil					X	
T22W1	Soil						X
T22W2	Soil					X	
T22W3	Soil					X	
T22W4	Soil					X	
Other Sample Locations							
901425/9012426	Sediment						X

Notes:

1. Soil Screening Levels (SSLs) for residential and industrial use listed in Table 7.2 of the 1999 Draft RFI Report (CRA 1999).
2. Remedial Program Soil Cleanup Objectives (SCOs) for residential use, industrial use and protection of ecological resources listed in Table 375-6.8(b): Restricted Use Soil Cleanup Objectives, of 6 NYCRR Subpart 375-6.
3. Sediment Screening Criteria listed in NYSDEC "Technical Guidance for Screening Contaminated Sediments," as updated through January 1999.

**TABLE 6.4
SUMMARY OF RESIDENTIAL SOIL SCREENING VALUES**

**RCRA FACILITY INVESTIGATION REPORT - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK**

Constituent	Units	Residential Soil Cleanup Objective (SCO) ¹	Residential Soil Screening Level (SSL) ²	Values Used to Derive SSL ³		
				Ingestion Pathway Screening Level	Inhalation Pathway Screening Level	Soil Saturation Concentration (Csat)
Chlorinated Pesticides						
4,4'-DDD	ug/kg	2,600	2,670	2,670	NV	2,610,000
4,4'-DDE	ug/kg	1,800	1,880	1,880	NV	15,600,000
4,4'-DDT	ug/kg	1,700	1,880	1,880	1,700,000	1,910,000
Aldrin	ug/kg	19.0	37.7	37.7	7,730	12,800,000
alpha-BHC	ug/kg	97.0	102	102	1,690	71,500
beta-BHC	ug/kg	72.0	356	356	14,000	8,790
delta-BHC	ug/kg	100,000	102	102	NV	n.a.
gamma-BHC (Lindane)	ug/kg	280	493	493	NV	212,000
alpha-Chlordane	ug/kg	910	493	493	44,100	195,000
gamma-Chlordane	ug/kg	NV	493	493	44,100	195,000
Chlordane (total)	ug/kg	NV	493	493	44,100	195,000
Dieldrin	ug/kg	39.0	40.0	40.0	2,560	121,000
Endosulfan I	ug/kg	4,800	31,700	469,000	NV	31,700
Endosulfan II	ug/kg	4,800	31,700	469,000	NV	31,700
Endosulfan sulfate	ug/kg	4,800	31,700	469,000	NV	31,700
Endrin	ug/kg	2,200	23,500	23,500	NV	89,200
Endrin aldehyde	ug/kg	NV	23,500	23,500	NV	89,200
Endrin ketone	ug/kg	NV	23,500	23,500	NV	89,200
Heptachlor	ug/kg	420	142	142	258	7,360,000
Heptachlor Epoxide	ug/kg	NV	70.4	70.4	10,700	483,000
Isodrin	ug/kg	NV	38.0	38.0	7,700	n.a.
Methoxychlor	ug/kg	NV	128,000	391,000	NV	128,000
Toxaphene	ug/kg	NV	582	582	202,000	5,520,000
Metals						
Lead	mg/kg	400	400	400	NV	n.a.
Aluminum	mg/kg	NV	78,000	78,000	NV	n.a.
Barium	mg/kg	350	5,500	5,500	690,000	n.a.
Beryllium ³	mg/kg	14	2	0	1,300	n.a.
Cadmium	mg/kg	2.5	78.0	78.0	1,780	n.a.
Calcium	mg/kg	NV	NV	NV	NV	n.a.
Chromium	mg/kg	36	270	390	270	n.a.
Cobalt	mg/kg	NV	4,700	4,700	NV	n.a.
Copper	mg/kg	270	2,890	2,890	48,200,000	n.a.
Iron	mg/kg	NV	23,000	23,000	NV	n.a.
Magnesium	mg/kg	NV	NV	NV	NV	n.a.
Manganese	mg/kg	2,000	1,800	1,800	69,000	n.a.
Mercury	mg/kg	0.81	10.5	23.5	10.5	n.a.
Nickel	mg/kg	140.00	1,600	1,600	NV	n.a.
Potassium	mg/kg	NV	NV	NV	NV	n.a.
Selenium	mg/kg	36	391	391	NV	n.a.
Sodium	mg/kg	NV	NV	NV	NV	n.a.
Thallium	mg/kg	NV	5.48	5.48	NV	n.a.
Titanium	mg/kg	NV	NV	NV	NV	n.a.
Zinc	mg/kg	2,200	23,500	23,500	48,200,000	n.a.

**TABLE 6.4
SUMMARY OF RESIDENTIAL SOIL SCREENING VALUES**

**RCRA FACILITY INVESTIGATION REPORT - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK**

Constituent	Units	Residential Soil Cleanup Objective (SCO) ¹	Residential Soil Screening Level (SSL) ²	Values Used to Derive SSL ³		
				Ingestion Pathway Screening Level	Inhalation Pathway Screening Level	Soil Saturation Concentration (Csat)
Phenolic Compounds						
2-Methylphenol (o-Cresol)	mg/kg	100	3,910	3,910	NV	71,400
4,6-Dinitro-2-methylphenol	mg/kg	NV	7.8	7.8	NV	n.a.
Furans and Methyl Carbamates						
7-Hydroxybenzofuran	mg/kg	NV	NV	NV	NV	--
Baygon (propoxur)	mg/kg	NV	313	313	NV	--
Carbofuran	mg/kg	NV	391	391	NV	--
Carbaryl (Sevin)	mg/kg	NV	7,820	7,820	NV	--
Chloropropham	mg/kg	NV	15,600	15,600	NV	--
Chlorinated Herbicides						
2,4-D	mg/kg	NV	782	782	NV	--
2,4,5-T	mg/kg	NV	782	782	NV	--
Organophosphate Pesticides						
Chlorpyrifos (Dursban)	mg/kg	NV	235	235	NV	--
Ethion	mg/kg	NV	39.1	39.1	NV	--
Diazinon	mg/kg	NV	70.4	70.4	NV	--
Dinocap	mg/kg	NV	NV	NV	NV	--
Dinoseb	mg/kg	NV	78.2	78.2	NV	--
Malathion	mg/kg	NV	1,560	1,560	NV	--
Methyl Parathion	mg/kg	NV	19.6	19.6	NV	--
Phorate (Thimet)	mg/kg	NV	15.6	15.6	NV	--
Ronnel	mg/kg	NV	3,910	3,910	NV	--
Ethyl Parathion	mg/kg	NV	469	469	NV	--

Notes:

1. Residential Remedial Program Soil Cleanup Objectives (SCOs) listed in Table 375-6.8(b) of 6 NYCRR Subpart 375-6.
2. Residential Soil Screening Levels (SSLs) listed in Table 7.2 of the 1999 Draft RFI Report.
3. The SSL is the lowest of three values: the ingestion pathway screening level, the inhalation pathway screening level, and the saturation concentration, if applicable. (n.a. = not applicable). Note that for beryllium, the background concentration of 2.0 mg/kg was used as the SSL.
4. NV = no SCO available in 6 NYCRR Subpart 375-6 or no SSL available in the 1999 Draft RFI Report.
5. -- = not available

**TABLE 6.5
SUMMARY OF INDUSTRIAL SOIL SCREENING VALUES**

**RCRA FACILITY INVESTIGATION REPORT - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK**

Constituent	Units	Industrial Soil Cleanup Objective (SCO) ¹	Industrial Soil Screening Level (SSL) ²	Values Used to Derive SSL ³		
				Ingestion Pathway Screening Level	Inhalation Pathway Screening Level	Soil Saturation Concentration (C _{sat})
Chlorinated Pesticides						
4,4'-DDD	ug/kg	180,000	238,000	238,000	NV	2,610,000
4,4'-DDE	ug/kg	120,000	168,000	168,000	NV	15,600,000
4,4'-DDT	ug/kg	94,000	168,000	168,000	28,500,000	1,910,000
Aldrin	ug/kg	1,400	3,370	3,370	130,000	12,800,000
alpha-BHC	ug/kg	6,800	9,080	9,080	28,400	71,500
beta-BHC	ug/kg	14,000	8,790	31,800	235,000	8,790
delta-BHC	ug/kg	1,000,000	9,080	9,080	NV	n.a.
gamma-BHC (Lindane)	ug/kg	23,000	44,000	44,000	NV	212,000
alpha-Chlordane	ug/kg	47,000	44,000	44,000	741,000	195,000
gamma-Chlordane	ug/kg	NV	44,000	44,000	741,000	195,000
Dieldrin	ug/kg	2,800	3,580	3,580	43,000	121,000
Endosulfan I	ug/kg	920,000	31,700	12,300,000	NV	31,700
Endosulfan II	ug/kg	920,000	31,700	12,300,000	NV	31,700
Endosulfan sulfate	ug/kg	920,000	31,700	12,300,000	NV	31,700
Endrin	ug/kg	410,000	89,200	613,000	NV	89,200
Endrin aldehyde	ug/kg	NV	89,200	613,000	NV	89,200
Endrin ketone	ug/kg	NV	89,200	613,000	NV	89,200
Heptachlor	ug/kg	29,000	4,330	12,700	4,330	7,360,000
Heptachlor Epoxide	ug/kg	NV	6,290	6,290	181,000	483,000
Isodrin	ug/kg	NV	3,400	3,400	130,000	n.a.
Methoxychlor	ug/kg	NV	128,000	10,200,000	NV	128,000
Toxaphene	ug/kg	NV	52,000	52,000	3,390,000	5,520,000
Metals						
Lead	mg/kg	3,900	NV	NV	NV	n.a.
Aluminum	mg/kg	NV	1,000,000	1,000,000	NV	n.a.
Barium	mg/kg	1.00E+04	140,000	140,000	960,000	n.a.
Beryllium	mg/kg	2.70E+03	13	13	22,000	n.a.
Cadmium	mg/kg	60	2,040	2,040	30,000	n.a.
Calcium	mg/kg	NV	NV	NV	NV	n.a.
Chromium	mg/kg	6,800	4,500	10,000	4,500	n.a.
Cobalt	mg/kg	NV	120,000	120,000	NV	n.a.
Copper	mg/kg	10,000	75,600	75,600	67,500,000	n.a.
Iron	mg/kg	NV	610,000	610,000	NV	n.a.
Magnesium	mg/kg	NV	NV	NV	NV	n.a.
Manganese	mg/kg	10,000	47,000	47,000	96,000	n.a.
Mercury	mg/kg	5.7	14.7	613	14.7	n.a.
Nickel	mg/kg	10,000.0	41000.0	41,000	NV	n.a.
Potassium	mg/kg	NV	NV	NV	NV	n.a.
Selenium	mg/kg	6,800	10,200	10,200	NV	n.a.
Sodium	mg/kg	NV	NV	NV	NV	n.a.
Thallium	mg/kg	NV	143	143	NV	n.a.
Titanium	mg/kg	NV	NV	NV	NV	n.a.
Zinc	mg/kg	10,000	613,000	613,000	67,500,000	n.a.
Phenolic Compounds						
2-Methylphenol (o-Cresol)	mg/kg	1,000	71,400	102,000	NV	71,400
4,6-Dinitro-2-methylphenol	mg/kg	NV	200	200	NV	n.a.
Furans and Methyl Carbamates						
7-Hydroxybenzofuran	mg/kg	NV	NV	NV	NV	n.a.
Baygon (propoxur)	mg/kg	NV	8,180	8,180	NV	n.a.
Carbofuran	mg/kg	NV	10,200	10,200	NV	n.a.
Carbaryl (Sevin)	mg/kg	NV	204,000	204,000	NV	n.a.
Chlorpropham	mg/kg	NV	409,000	409,000	NV	n.a.

**TABLE 6.5
SUMMARY OF INDUSTRIAL SOIL SCREENING VALUES**

**RCRA FACILITY INVESTIGATION REPORT - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK**

Constituent	Units	Industrial Soil Cleanup Objective (SCO) ¹	Industrial Soil Screening Level (SSL) ²	Values Used to Derive SSL ³		
				Ingestion Pathway Screening Level	Inhalation Pathway Screening Level	Soil Saturation Concentration (C _{sat})
Chlorinated Herbicides						
2,4-D	mg/kg	NV	20,400	20,400	NV	n.a.
2,4,5-T	mg/kg	NV	20,400	20,400	NV	n.a.
Organophosphate Pesticides						
Chlorpyrifos (Dursban)	mg/kg	NV	6,130	6,130	NV	n.a.
Ethion	mg/kg	NV	1,020	1,020	NV	n.a.
Diazinon	mg/kg	NV	1,840	1,840	NV	n.a.
Dinocap (Karathane)	mg/kg	NV	NV	NV	NV	n.a.
Dinoseb (dinitro-butylphenol)	mg/kg	NV	2,040	2,040	NV	n.a.
Malathion	mg/kg	NV	40,900	40,900	NV	n.a.
Methyl Parathion	mg/kg	NV	511	511	NV	n.a.
Phorate (Thimet)	mg/kg	NV	409	409	NV	n.a.
Ronnel	mg/kg	NV	102,000	102,000	NV	n.a.
Ethyl Parathion	mg/kg	NV	12,300	12,300	NV	n.a.

Notes:

1. Industrial Remedial Program Soil Cleanup Objectives (SCOs) listed in Table 375-6.8(b) of 6 NYCRR Subpart 375-6.
2. Industrial Soil Screening Levels (SSLs) listed in Table 7.2 of the 1999 Draft RFI Report.
3. The SSL is the lowest of three values: the ingestion pathway screening level, the inhalation pathway screening level, and the saturation concentration, if applicable. (n.a. = not applicable)
4. NV = no SCO available in 6 NYCRR Subpart 375-6 or no SSL available in the 1999 Draft RFI Report.

**TABLE 6.6
SUMMARY OF ECOLOGICAL SOIL SCREENING VALUES**

**RCRA FACILITY INVESTIGATION REPORT - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK**

Constituent	Units	Ecological Soil Cleanup Objective (SCO) ¹
Chlorinated Pesticides		
4,4'-DDD	ug/kg	3.3
4,4'-DDE	ug/kg	3.3
4,4'-DDT	ug/kg	3.3
Aldrin	ug/kg	140
alpha-BHC	ug/kg	40
beta-BHC	ug/kg	600
delta-BHC	ug/kg	40
gamma-BHC (Lindane)	ug/kg	6,000
alpha-Chlordane	ug/kg	1,300
gamma-Chlordane	ug/kg	NV
Dieldrin	ug/kg	6
Endosulfan I	ug/kg	NV
Endosulfan II	ug/kg	NV
Endosulfan sulfate	ug/kg	NV
Endrin	ug/kg	14
Endrin aldehyde	ug/kg	NV
Endrin ketone	ug/kg	NV
Heptachlor	ug/kg	140
Heptachlor Epoxide	ug/kg	NV
Isodrin	ug/kg	NV
Methoxychlor	ug/kg	NV
Toxaphene	ug/kg	NV
Metals		
Arsenic	mg/kg	13
Lead	mg/kg	63
Aluminum	mg/kg	NV
Barium	mg/kg	433
Beryllium	mg/kg	10
Cadmium	mg/kg	4
Calcium	mg/kg	NV
Chromium	mg/kg	1
Cobalt	mg/kg	NV
Copper	mg/kg	50
Iron	mg/kg	NV
Magnesium	mg/kg	NV
Manganese	mg/kg	1,600
Mercury	mg/kg	0.2
Nickel	mg/kg	30
Potassium	mg/kg	NV
Selenium	mg/kg	3.90
Sodium	mg/kg	NV
Thallium	mg/kg	NV
Titanium	mg/kg	NV
Zinc	mg/kg	109
Phenolic Compounds		
2-Methylphenol (o-Cresol)	mg/kg	NV
4,6-Dinitro-2-methylphenol	mg/kg	NV
Furans and Methyl Carbamates		
7-Hydroxybenzofuran	mg/kg	NV
Baygon (propoxur)	mg/kg	NV
Carbofuran	mg/kg	NV
Carbaryl (Sevin)	mg/kg	NV
Chloroprotham	mg/kg	NV
Chlorinated Herbicides		
2,4-D	mg/kg	NV
2,4,5-T	mg/kg	NV

**TABLE 6.6
SUMMARY OF ECOLOGICAL SOIL SCREENING VALUES**

**RCRA FACILITY INVESTIGATION REPORT - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK**

Constituent	Units	Ecological Soil Cleanup Objective (SCO) ¹
Organophosphate Pesticides		
Chlorpyrifos (Dursban)	mg/kg	NV
Ethion	mg/kg	NV
Diazinon	mg/kg	NV
Dinocap (Karathane)	mg/kg	NV
Dinoseb (dinitro-butylphenol)	mg/kg	NV
Malathion	mg/kg	NV
Methyl Parathion	mg/kg	NV
Phorate (Thimet)	mg/kg	NV
Ronnal	mg/kg	NV
Ethyl Parathion	mg/kg	NV

Notes:

1. Ecological Soil Cleanup Objectives (SCOs) listed in 6 NYCRR Subpart 375-6 Table 375-3.6(b).
2. NV = no SCO available in 6 NYCRR Subpart 375-6.
3. Concentrations are presented in dry-weight milligrams per kilogram (mg/kg).

**TABLE 6.7
SUMMARY OF SEDIMENT SCREENING CRITERIA**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

	Sediment Criteria for Non-Polar Organics ^a				Sediment Criteria for Metals ^a	
	Human Health Bioaccumulation µg/gOC	Benthic Aquatic Life		Wildlife Bioaccumulation µg/gOC	Lowest Effect Level (ppm)	Severe Effect Level (ppm)
		Acute Toxicity µg/gOC	Chronic Toxicity µg/gOC			
Metals						
Arsenic	--	--	--	--	6.0	33.0
Lead	--	--	--	--	31.0	110
Aluminum	--	--	--	--	NV	NV
Cadmium	--	--	--	--	0.6	9.0
Copper	--	--	--	--	16.0	110
Iron	--	--	--	--	20,000	40,000
Manganese	--	--	--	--	460	1,100
Mercury	--	--	--	--	0.15	1.3
Zinc	--	--	--	--	120	270
Chlorinated Pesticides						
4,4'-DDT	use total below	1,100	1.0	use total below	--	--
total DDT, DDD, DDE	0.01 ^e	NV	NV	1 ^e	--	--
BHC Isomers	0.06 ^c	12.6 ^c	0.06 ^c	1.5 ^c	--	--
Chlordane	0.001 ^d	1.4 ^d	0.03 ^d	0.006 ^d	--	--
Dieldrin	0.1	NV	9.0	NV	--	--
total Aldrin & Dieldrin	0.1 ^b	NV	NV	0.77 ^b	--	--
Endosulfan I	NV	0.78	0.03	NV	--	--
Endrin	0.8	NV	4.0	0.8	--	--
Heptachlor	0.0008 ^f	13.1 ^f	0.1 ^f	0.03 ^f	--	--
Heptachlor epoxide	0.0008 ^f	13.1 ^f	0.1 ^f	0.03 ^f	--	--
Methoxychlor	NV	NV	0.6	NV	--	--
Toxaphene	0.02	3.2	0.01	NV	--	--
Other Pesticides/Herbicides						
Chlorpyrifos	NV	10.7	5.3	NV	--	--
Diazinon	NV	NV	0.007	NV	--	--
Malathion	NV	NV	0.02	NV	--	--
Parathion, ethyl	NV	0.02 ^g	0.003 ^g	NV	--	--
Parathion, methyl	NV	0.02 ^g	0.003 ^g	NV	--	--
Methyl Carbamates						
Carbofuran	NV	1.82	0.2	NV	--	--

Specific Notes:

- a. As presented in the New York State Department of Environmental Conservation's "Technical Guidance for Screening Contaminated Sediments," dated November 1993 and updated through 1999.
- b. Applies to sum of aldrin and dieldrin.
- c. Applies to sum of BHC isomers (alpha, beta, delta, and gamma).
- d. Applies to sum of alpha-Chlordane and gamma-Chlordane.
- e. Applies to sum of DDD, DDE, and DDT.
- f. Applies to sum of Heptachlor and Heptachlor Epoxide.
- g. Applies to the sum of ethyl Parathion and methyl Parathion.

Acronyms and Abbreviations:

-- = not applicable
 ug/gOC = micrograms of constituent per gram of organic carbon in the sample
 NV = no value
 ppm = parts per million (milligrams of constituent per total weight of sample in kilograms)

**TABLE 7.1
STATISTICAL SUMMARY OF NON-ARSENIC SOIL ANALYTICAL DATA AND COMPARISON TO RESIDENTIAL
SOIL SCREENING LEVELS**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Analyte	Units	Residential Soil Screening Level (SSL)	Frequency Detected	Range of Detections	No. Samples Exceeding SSL	Frequency of Non-Detect Exceeding SSL
Chlorinated Pesticides						
4,4'-DDD	µg/kg	2,670	16/36	1.1 - 7,400	1	0/20
4,4'-DDE	µg/kg	1,880	35/36	1 - 8,900	1	0/1
4,4'-DDT	µg/kg	1,880	35/36	0.37 - 70,000	1	0/1
Aldrin	µg/kg	37.7	1/36	0.75 - 0.75	0	12/35
alpha-BHC	µg/kg	102	0/36	ND - ND	0	3/36
beta-BHC	µg/kg	356	0/36	ND - ND	0	1/36
gamma-BHC (Lindane)	µg/kg	493	0/36	ND - ND	0	1/36
delta-BHC	µg/kg	102	0/36	ND - ND	0	3/36
alpha-Chlordane	µg/kg	493	6/36	1.7 - 2,300	1	1/30
gamma-Chlordane	µg/kg	493	4/36	1.7 - 940	1	1/32
Dieldrin	µg/kg	40	5/36	10 - 39	0	9/31
Endosulfan I	µg/kg	31,700	0/36	ND - ND	0	0/36
Endosulfan II	µg/kg	31,700	5/36	0.83 - 780	0	0/31
Endosulfan sulfate	µg/kg	31,700	1/36	3 - 3	0	0/35
Endrin	µg/kg	23,500	2/36	0.83 - 21	0	0/34
Endrin aldehyde	µg/kg	23,500	0/36	ND - ND	0	0/36
Endrin ketone	µg/kg	23,500	0/33	ND - ND	0	0/33
Heptachlor	µg/kg	142	0/36	ND - ND	0	2/36
Heptachlor Epoxide	µg/kg	70.4	3/36	1 - 180	1	2/33
Isodrin	µg/kg	38	0/36	ND - ND	0	15/36
Methoxychlor	µg/kg	128,000	0/36	ND - ND	0	0/36
Toxaphene	µg/kg	582	0/36	ND - ND	0	17/36
Other Pesticides/Herbicides						
2,4,5-T	mg/kg	782	0/3	ND - ND	0	0/3
2,4-D	mg/kg	782	0/3	ND - ND	0	0/3
Chlorpyrifos (Dursban)	mg/kg	235	0/3	ND - ND	0	0/3
Diazinon	mg/kg	70.4	0/3	ND - ND	0	0/3
Dinocap	mg/kg	NV	0/3	ND - ND	0	0/3
Dinoseb	mg/kg	78.2	0/3	ND - ND	0	0/3
Ethion	mg/kg	39.1	0/3	ND - ND	0	0/3
Malathion	mg/kg	1,560	0/3	ND - ND	0	0/3
Ethyl Parathion	mg/kg	469	0/3	ND - ND	0	0/3
Methyl Parathion	mg/kg	19.6	0/3	ND - ND	0	0/3
Phorate (Thimet)	mg/kg	15.6	0/3	ND - ND	0	0/3
Ronnel	mg/kg	3,910	0/3	ND - ND	0	0/3
Furans and Methyl Carbamates						
7-Hydroxybenzofuran	mg/kg	NV	0/3	ND - ND	0	0/3
Carbaryl (Sevin)	mg/kg	7,820	0/3	ND - ND	0	0/3
Carbofuran	mg/kg	391	0/3	ND - ND	0	0/3
Chloropropham	mg/kg	15,600	0/3	ND - ND	0	0/3
Baygon (propoxur)	mg/kg	313	0/3	ND - ND	0	0/3

**TABLE 7.1
STATISTICAL SUMMARY OF NON-ARSENIC SOIL ANALYTICAL DATA AND COMPARISON TO RESIDENTIAL
SOIL SCREENING LEVELS**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Analyte	Units	Residential Soil Screening Level (SSL)	Frequency Detected	Range of Detections	No. Samples Exceeding SSL	Frequency of Non-Detect Exceeding SSL
Phenolic Compounds						
2-Methylphenol (o-Cresol)	mg/kg	3,910	0/3	ND - ND	0	0/3
4,6-Dinitro-2-methylphenol	mg/kg	7.8	0/3	ND - ND	0	0/3
Metals						
Lead	mg/kg	400	36/36	7.6 - 720	2	0/0
Aluminum	mg/kg	NV	10/10	7,900 - 22,600	0	0/0
Antimony	mg/kg	NV	0/7	ND - ND	0	0/7
Barium	mg/kg	NV	7/7	86.5 - 370	0	0/0
Beryllium	mg/kg	78	7/7	0.53 - 2	0	0/0
Cadmium	mg/kg	NV	3/10	0.3 - 2	0	0/7
Calcium	mg/kg	NV	1/1	4,560 - 4,560	0	0/0
Chromium	mg/kg	NV	7/7	19.9 - 52	0	0/0
Cobalt	mg/kg	2,890	7/7	5.3 - 8.7	0	0/0
Copper	mg/kg	23,000	10/10	16.5 - 154	0	0/0
Iron	mg/kg	NV	10/10	15,800 - 32,000	4	0/0
Magnesium	mg/kg	1,800	1/1	4,370 - 4,370	0	0/0
Manganese	mg/kg	10.5	10/10	552 - 2,170	1	0/0
Mercury	mg/kg	NV	8/10	0.08 - 0.4	0	0/2
Molybdenum	mg/kg	NV	0/6	ND - ND	0	0/6
Nickel	mg/kg	NV	7/7	17 - 27	0	0/0
Potassium	mg/kg	391	1/1	1,780 - 1,780	0	0/0
Selenium	mg/kg	NV	2/10	0.5 - 0.6	0	0/8
Silver	mg/kg	NV	0/7	ND - ND	0	0/7
Sodium	mg/kg	NV	1/4	338 - 338	0	0/3
Thallium	mg/kg	5.48	0/10	ND - ND	0	7/10
Titanium	mg/kg	NV	6/6	133 - 322	0	0/0
Vanadium	mg/kg	23,500	7/7	21.7 - 34	0	0/0
Zinc	mg/kg	23,500	10/10	57.3 - 538	0	0/0

General Notes:

1. The analytical results included are for those locations identified as applied to Residential Screening Values in Tables 6.3a to 6.3e.
2. The Residential Soil Screening Levels (SSL) are the lowest values for each constituent from Table 6.4 (values derived in the 1999 Draft RFI Report [CRA 1999]).

Acronyms and Abbreviations:

µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
ND = not detected
NV = no value available
RFI = RCRA Facility Investigation
SSL = Soil Screening Level

**TABLE 7.2
STATISTICAL SUMMARY OF NON-ARSENIC SOIL ANALYTICAL DATA AND COMPARISON TO
RESIDENTIAL SOIL CLEANUP OBJECTIVES**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Analyte	Units	Residential Soil Cleanup Objective (SCO)	Frequency Detected	Range of Detections	No. Samples Exceeding SCO	Frequency of Non-Detect Exceeding SCO
Chlorinated Pesticides						
4,4'-DDD	µg/kg	2,600	16/36	1.1 - 7,400	1	0/20
4,4'-DDE	µg/kg	1,800	35/36	1 - 8,900	1	1/1
4,4'-DDT	µg/kg	1,700	35/36	0.37 - 70,000	1	1/1
Aldrin	µg/kg	19	1/36	0.75 - 0.75	0	15/35
alpha-BHC	µg/kg	97	0/36	ND - ND	0	3/36
beta-BHC	µg/kg	72	0/36	ND - ND	0	3/36
gamma-BHC (Lindane)	µg/kg	280	0/36	ND - ND	0	1/36
delta-BHC	µg/kg	100,000	0/36	ND - ND	0	0/36
alpha-Chlordane	µg/kg	910	6/36	1.7 - 2,300	1	1/30
gamma-Chlordane	µg/kg	NV	4/36	1.7 - 940	0	0/32
Dieldrin	µg/kg	39	5/36	10 - 39	0	10/31
Endosulfan I	µg/kg	4,800	0/36	ND - ND	0	0/36
Endosulfan II	µg/kg	4,800	5/36	0.83 - 780	0	1/31
Endosulfan sulfate	µg/kg	4,800	1/36	3 - 3	0	1/35
Endrin	µg/kg	2,200	2/36	0.83 - 21	0	1/34
Endrin aldehyde	µg/kg	NV	0/36	ND - ND	0	0/36
Endrin ketone	µg/kg	NV	0/33	ND - ND	0	0/33
Heptachlor	µg/kg	420	0/36	ND - ND	0	1/36
Heptachlor Epoxide	µg/kg	NV	3/36	1 - 180	0	0/33
Isodrin	µg/kg	NV	0/36	ND - ND	0	0/36
Methoxychlor	µg/kg	NV	0/36	ND - ND	0	0/36
Toxaphene	µg/kg	NV	0/36	ND - ND	0	0/36
Other Pesticides/Herbicides						
2,4,5-T	mg/kg	NV	0/3	ND - ND	0	0/3
2,4-D	mg/kg	NV	0/3	ND - ND	0	0/3
Chlorpyrifos (Dursban)	mg/kg	NV	0/3	ND - ND	0	0/3
Diazinon	mg/kg	NV	0/3	ND - ND	0	0/3
Dinocap	mg/kg	NV	0/3	ND - ND	0	0/3
Dinoseb	mg/kg	NV	0/3	ND - ND	0	0/3
Ethion	mg/kg	NV	0/3	ND - ND	0	0/3
Malathion	mg/kg	NV	0/3	ND - ND	0	0/3
Ethyl Parathion	mg/kg	NV	0/3	ND - ND	0	0/3
Methyl Parathion	mg/kg	NV	0/3	ND - ND	0	0/3
Phorate (Thimet)	mg/kg	NV	0/3	ND - ND	0	0/3
Ronnel	mg/kg	NV	0/3	ND - ND	0	0/3
Furans and Methyl Carbamates						
7-Hydroxybenzofuran	mg/kg	NV	0/3	ND - ND	0	0/3
Carbaryl (Sevin)	mg/kg	NV	0/3	ND - ND	0	0/3
Carbofuran	mg/kg	NV	0/3	ND - ND	0	0/3
Chloropropham	mg/kg	NV	0/3	ND - ND	0	0/3
Baygon (propoxur)	mg/kg	NV	0/3	ND - ND	0	0/3

**TABLE 7.2
STATISTICAL SUMMARY OF NON-ARSENIC SOIL ANALYTICAL DATA AND COMPARISON TO
RESIDENTIAL SOIL CLEANUP OBJECTIVES**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Analyte	Units	Residential Soil Cleanup Objective (SCO)	Frequency Detected	Range of Detections	No. Samples Exceeding SCO	Frequency of Non-Detect Exceeding SCO
Phenolic Compounds						
2-Methylphenol (o-Cresol)	mg/kg	100	0/3	ND - ND	0	0/3
4,6-Dinitro-2-methylphenol	mg/kg	NV	0/3	ND - ND	0	0/3
Metals						
Lead	mg/kg	400	36/36	7.6 - 720	2	0/0
Aluminum	mg/kg	NV	10/10	7,900 - 22,600	0	0/0
Antimony	mg/kg	NV	0/7	ND - ND	0	0/7
Barium	mg/kg	350	7/7	86.5 - 370	1	0/0
Beryllium	mg/kg	14	7/7	0.53 - 2	0	0/0
Cadmium	mg/kg	3	3/10	0.3 - 2	0	0/7
Calcium	mg/kg	NV	1/1	4,560 - 4,560	0	0/0
Chromium	mg/kg	36	7/7	19.9 - 52	1	0/0
Cobalt	mg/kg	NV	7/7	5.3 - 8.7	0	0/0
Copper	mg/kg	270	10/10	16.5 - 154	0	0/0
Iron	mg/kg	NV	10/10	15,800 - 32,000	0	0/0
Magnesium	mg/kg	NV	1/1	4,370 - 4,370	0	0/0
Manganese	mg/kg	2,000	10/10	552 - 2,170	1	0/0
Mercury	mg/kg	0.81	8/10	0.08 - 0.38	0	0/2
Molybdenum	mg/kg	NV	0/6	ND - ND	0	0/6
Nickel	mg/kg	140	7/7	17 - 27	0	0/0
Potassium	mg/kg	NV	1/1	1,780 - 1,780	0	0/0
Selenium	mg/kg	36	2/10	0.5 - 0.6	0	0/8
Silver	mg/kg	36	0/7	ND - ND	0	0/7
Sodium	mg/kg	NV	1/4	338 - 338	0	0/3
Thallium	mg/kg	NV	0/10	ND - ND	0	0/10
Titanium	mg/kg	NV	6/6	133 - 322	0	0/0
Vanadium	mg/kg	NV	7/7	21.7 - 34	0	0/0
Zinc	mg/kg	2,200	10/10	57.3 - 538	0	0/0

General Notes:

1. The analytical results included are for those locations identified as applied to Residential Screening Values in Tables 6.3a to 6.3e.
2. Residential Soil Cleanup Objective (SCO) values obtained from 6 NYCRR Subpart 375-6 Table 375-6.8(b) and are shown in Table 6.4.

Acronyms and Abbreviations:

µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
ND = not detected
NV = no value available
RFI = RCRA Facility Investigation
SCO = Soil Cleanup Objective

**TABLE 7.3
STATISTICAL SUMMARY OF NON-ARSENIC SOIL ANALYTICAL DATA AND COMPARISON TO INDUSTRIAL
SOIL SCREENING VALUES**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Analyte	Units	Industrial Soil Cleanup Objective (SCO)	Industrial Soil Screening Level (SSL)	Frequency Detected	Range of Detections	No. Samples Exceeding Criteria	Frequency of Non-Detect Exceeding Criteria
Metals							
Lead	mg/kg	3,900	NV	2/2	50.4 - 56.6	0	0/0
Aluminum	mg/kg	NV	140,000	1/1	12,100	0	0/0
Antimony	mg/kg	NV	13	0/1	ND	0	0/1
Barium	mg/kg	10,000	2,040	1/1	86.5	0	0/0
Beryllium	mg/kg	2,700	NV	1/1	0.53	0	0/0
Cadmium	mg/kg	60	4,500	1/1	0.30	0	0/0
Calcium	mg/kg	NV	120,000	1/1	4,560	0	0/0
Chromium	mg/kg	6,800	75,600	1/1	19.9	0	0/0
Cobalt	mg/kg	NV	610,000	1/1	8.7	0	0/0
Copper	mg/kg	10,000	NV	1/1	29.4	0	0/0
Iron	mg/kg	NV	47,000	1/1	17,800	0	0/0
Magnesium	mg/kg	NV	14.7	1/1	4,370	0	0/0
Manganese	mg/kg	10,000	NV	1/1	606	0	0/0
Mercury	mg/kg	5.7	41,000	1/1	0.22	0	0/0
Molybdenum	mg/kg	NV	NV	0/0	--	0	0/0
Nickel	mg/kg	10,000	10,200	1/1	19.0	0	0/0
Potassium	mg/kg	NV	NV	1/1	1,780	0	0/0
Selenium	mg/kg	6,800	NV	0/1	ND	0	0/1
Silver	mg/kg	6,800	143	0/1	ND	0	0/1
Sodium	mg/kg	NV	NV	1/1	338	0	0/0
Thallium	mg/kg	NV	NV	0/1	ND	0	0/1
Titanium	mg/kg	NV	613,000	0/0	--	0	0/0
Vanadium	mg/kg	NV	23,500	1/1	21.7	0	0/0
Zinc	mg/kg	10,000	23,500	1/1	360	0	0/0

General Notes:

1. The analytical results included are for those locations identified as applied to Industrial Screening Values in Tables 6.3a to 6.3e. The included locations were only sampled for metals.
2. The Industrial Soil Cleanup Objectives obtained from 6 NYCRR Subpart 375-6 Table 375-3.6(b) and are shown in Table 6.5.
3. The Industrial Soil Screening Levels are the lowest values for each constituent from Table 6.5 (values derived in the 1999 Draft RFI Report [CRA 1999]).

Acronyms and Abbreviations:

µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
ND = not detected
NV = no value available
RFI = RCRA Facility Investigation
SCO = Soil Cleanup Objective
SSL = Soil Screening Level
-- = not applicable

**TABLE 7.4
STATISTICAL SUMMARY OF SOIL ANALYTICAL DATA AND COMPARISON TO ECOLOGICAL
SOIL CLEANUP OBJECTIVES**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Analyte	Units	Ecological Soil Cleanup Objective (SCO)	Frequency Detected	Range of Detections	No. Samples Exceeding SCO	Frequency of Non-Detect Exceeding SCO
Chlorinated Pesticides						
4,4'-DDD	µg/kg	3.3	8/18	0.7 - 44	4	10/10
4,4'-DDE	µg/kg	3.3	16/18	2.0 - 140	15	2/2
4,4'-DDT	µg/kg	3.3	16/18	0.44 - 790	14	2/2
Aldrin	µg/kg	140	0/18	ND - ND	0	0/18
alpha-BHC	µg/kg	40	0/18	ND - ND	0	0/18
beta-BHC	µg/kg	600	0/18	ND - ND	0	0/18
gamma-BHC (Lindane)	µg/kg	6,000	0/18	ND - ND	0	0/18
delta-BHC	µg/kg	40	1/18	1.0 - 1.0	0	0/17
alpha-Chlordane	µg/kg	1,300	3/18	1.7 - 6.1	0	0/15
gamma-Chlordane	µg/kg	NV	2/18	1.7 - 4.6	0	0/16
Dieldrin	µg/kg	6	4/18	1.9 - 16	3	3/14
Endosulfan I	µg/kg	NV	0/18	ND - ND	0	0/18
Endosulfan II	µg/kg	NV	1/18	1.9 - 1.9	0	0/17
Endosulfan sulfate	µg/kg	NV	1/18	8.3 - 8.3	0	0/17
Endrin	µg/kg	14	2/18	0.83 - 3	0	3/16
Endrin aldehyde	µg/kg	NV	0/18	ND - ND	0	0/18
Endrin ketone	µg/kg	NV	0/13	ND - ND	0	0/13
Heptachlor	µg/kg	140	0/18	ND - ND	0	0/18
Heptachlor Epoxide	µg/kg	NV	0/18	ND - ND	0	0/18
Isodrin	µg/kg	NV	0/18	ND - ND	0	0/18
Methoxychlor	µg/kg	NV	0/18	ND - ND	0	0/18
Toxaphene	µg/kg	NV	0/18	ND - ND	0	0/18
Other Pesticides/Herbicides						
2,4,5-T	mg/kg	NV	0/3	ND - ND	0	0/3
2,4-D	mg/kg	NV	0/3	ND - ND	0	0/3
Chlorpyrifos (Dursban)	mg/kg	NV	0/3	ND - ND	0	0/3
Diazinon	mg/kg	NV	0/3	ND - ND	0	0/3
Dinocap	mg/kg	NV	0/3	ND - ND	0	0/3
Dinoseb	mg/kg	NV	0/3	ND - ND	0	0/3
Ethion	mg/kg	NV	0/3	ND - ND	0	0/3
Malathion	mg/kg	NV	0/3	ND - ND	0	0/3
Ethyl Parathion	mg/kg	NV	0/3	ND - ND	0	0/3
Methyl Parathion	mg/kg	NV	0/3	ND - ND	0	0/3
Phorate (Thimet)	mg/kg	NV	0/3	ND - ND	0	0/3
Ronnel	mg/kg	NV	0/3	ND - ND	0	0/3
Furans and Methyl Carbamates						
7-Hydroxybenzofuran	mg/kg	NV	0/3	ND - ND	0	0/3
Carbaryl (Sevin)	mg/kg	NV	0/3	ND - ND	0	0/3
Carbofuran	mg/kg	NV	0/3	ND - ND	0	0/3
Chloroprotham	mg/kg	NV	0/3	ND - ND	0	0/3
Baygon (propoxur)	mg/kg	NV	0/3	ND - ND	0	0/3

**TABLE 7.4
STATISTICAL SUMMARY OF SOIL ANALYTICAL DATA AND COMPARISON TO ECOLOGICAL
SOIL CLEANUP OBJECTIVES**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Analyte	Units	Ecological Soil Cleanup Objective (SCO)	Frequency Detected	Range of Detections	No. Samples Exceeding SCO	Frequency of Non-Detect Exceeding SCO
Phenolic Compounds						
2-Methylphenol (o-Cresol)	mg/kg	NV	0/3	ND - ND	0	0/3
4,6-Dinitro-2-methylphenol	mg/kg	NV	0/3	ND - ND	0	0/3
Metals						
Arsenic	mg/kg	13	1,036/1,040	0.8 - 1,050	469	0/4
Lead	mg/kg	63	22/22	3.0 - 515	13	0/0
Aluminum	mg/kg	NV	6/6	1,840 - 22,200	0	0/0
Antimony	mg/kg	NV	0/3	ND - ND	0	0/3
Barium	mg/kg	433	3/3	102 - 269	0	0/0
Beryllium	mg/kg	10	3/3	0.42 - 1.8	0	0/0
Cadmium	mg/kg	4	6/8	0.44 - 2.5	0	0/2
Calcium	mg/kg	NV	1/1	28,600 - 28,600	0	0/0
Chromium	mg/kg	1	3/3	15.6 - 24	3	0/0
Cobalt	mg/kg	NV	3/3	7.3 - 7.8	0	0/0
Copper	mg/kg	50	8/8	36.2 - 103	6	0/0
Iron	mg/kg	NV	6/6	14,800 - 25,700	0	0/0
Magnesium	mg/kg	NV	1/1	8,740 - 8,740	0	0/0
Manganese	mg/kg	1,600	6/6	240 - 1,200	0	0/0
Mercury	mg/kg	0.18	5/8	0.18 - 0.98	4	0/3
Molybdenum	mg/kg	NV	0/2	ND - ND	0	0/2
Nickel	mg/kg	30	3/3	16.8 - 26	0	0/0
Potassium	mg/kg	NV	1/1	2,070 - 2,070	0	0/0
Selenium	mg/kg	3.90	2/6	0.6 - 1.7	0	0/4
Silver	mg/kg	2	1/3	1.5 - 1.5	0	2/2
Sodium	mg/kg	NV	1/4	486 - 486	0	0/3
Thallium	mg/kg	NV	0/6	ND - ND	0	0/6
Titanium	mg/kg	NV	2/2	132 - 201	0	0/0
Vanadium	mg/kg	NV	3/3	18.2 - 34	0	0/0
Zinc	mg/kg	109	6/6	169 - 564	6	0/0

General Notes:

1. The analytical results included are for those locations identified as applied to Ecological Screening Values in Tables 6.3a to 6.3e.
2. Ecological Soil Cleanup Objectives as indicated in 6 NYCRR Subpart 375-6 Table 375-3.6(b) and shown in Table 6.6.

Acronyms and Abbreviations:

µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
ND = not detected
NV = no value available
RFI = RCRA Facility Investigation
SCO = Soil Cleanup Objective

TABLE 7.5
STATISTICAL SUMMARY OF METALS IN SOIL/SEDIMENT ANALYTICAL DATA AND COMPARISON TO SEDIMENT SCREENING CRITERIA

RCRA FACILITY INVESTIGATION REPORT - VOLUME V
 FMC CORPORATION - MIDDLEPORT, NEW YORK

	Sediment Criteria		Tributary One South Samples				Upstream/Background Samples			
	Lowest Effect Level (LEL)	Severe Effect Level (SEL)	Frequency of Detections	Range of Concentrations	Number above LEL	Number above SEL	Frequency of Detections	Range of Concentrations	Number above LEL	Number above SEL
Metals										
Aluminum	NV	NV	11 / 11	3,780 - 9,150	--	--	5 / 5	5,780 - 11,500	--	--
Arsenic	6.0	33.0	454 / 454	1.4 - 4,090	393	271	16 / 16	2.2 - 18	8	0
Cadmium	0.6	9.0	19 / 20	0.6 - 7.9	18	0	5 / 7	ND - 2.2	5	0
Copper	16	110	20 / 20	14.2 - 515	19	2	7 / 7	16.9 - 52.4	7	0
Iron	20,000	40,000	11 / 11	13,400 - 31,100	2	0	5 / 5	12,400 - 27,000	3	0
Lead	31	110	38 / 38	5.5 - 276	31	11	7 / 8	ND - 128	4	1
Manganese	460	1,100	13 / 13	320 - 1,060	10	0	5 / 5	472 - 1,680	5	1
Mercury	0.15	1.3	10 / 20	0.06 - 0.55	11	0	2 / 7	ND - 0.41	2	0
Selenium	NV	NV	0 / 11	ND - ND	0	0	0 / 5	ND - ND	--	--
Sodium	NV	NV	0 / 11	ND - ND	0	0	0 / 5	ND - ND	--	--
Thallium	NV	NV	0 / 11	ND - ND	0	0	0 / 5	ND - ND	--	--
Zinc	120	270	13 / 13	2.8 - 624	12	5	5 / 5	98.1 - 302	3	2

General Notes:

1. The analytical results included are for those locations identified as applied to Sediment Screening Criteria in Tables 6.3a to 6.3e.
2. Concentrations are presented in dry-weight milligrams per kilogram (mg/kg or parts per million).
3. Sediment screening criteria as presented in the New York State Department of Environmental Conservation's "Technical Guidance for Screening Contaminated Sediments," dated November 1993 and updated through 1999.

Acronyms and Abbreviations:

-- = Data not available or not applicable
 ND = not detected
 NV = no value available

**TABLE 7.6
STATISTICAL SUMMARY OF PESTICIDES IN SOIL/SEDIMENT ANALYTICAL DATA AND COMPARISON TO BENTHIC AQUATIC LIFE SEDIMENT SCREENING CRITERIA**

RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK

	Sediment Criteria, Benthic Aquatic Life		Tributary One South Samples				Upstream / Background Samples			
			Frequency of Detections	Range of Concentrations	Number Above Chronic Toxicity	Number Above Acute Toxicity	Frequency of Detections	Range of Concentrations	Number Above Chronic Toxicity	Number Above Acute Toxicity
	Chronic Toxicity	Acute Toxicity								
Chlorinated Pesticides										
4,4'-DDT	1.0	1,100	29 / 43	ND - 94.46	16	0	2 / 8	ND - 4.9	1	0
Total BHC	0.06	12.6	2 / 43	ND - 3.5	2	0	0 / 8	ND - ND	0	0
Total Chlordane	0.03	1.4	4 / 41	ND - 1.24	4	0	0 / 8	ND - ND	0	0
Dieldrin	9.0	NV	9 / 43	ND - 6.2	0	--	2 / 8	ND - 3.0	0	--
Endosulfan I	0.03	0.78	1 / 43	ND - 2.4	1	1	0 / 8	ND - ND	0	0
Endrin	4.0	NV	1 / 41	ND - 2.02	0	--	0 / 8	ND - ND	0	--
Heptachlor plus heptachlor epoxide	0.1	13.1	1 / 41	ND - 0.46	1	0	0 / 8	ND - ND	0	0
Methoxychlor	0.6	NV	0 / 41	ND - ND	0	--	0 / 8	ND - ND	0	--
Toxaphene	0.01	3.2	0 / 41	ND - ND	0	0	0 / 8	ND - ND	0	0
Other Pesticides/Herbicides										
Chlorpyrifos	5.3	10.7	0 / 16	ND - ND	0	0	0 / 5	ND - ND	0	0
Diazinon	0.007	NV	0 / 16	ND - ND	0	--	0 / 5	ND - ND	0	--
Malathion	0.02	NV	0 / 16	ND - ND	0	--	0 / 5	ND - ND	0	--
Ethyl Parathion plus methyl parathion	0.003	0.02	0 / 16	ND - ND	0	0	0 / 5	ND - ND	0	0

General Notes:

1. The analytical results included are for those locations identified as applied to Sediment Screening Criteria in Tables 6.3a to 6.3e.
2. Concentrations and criteria are presented in dry-weight micrograms per gram organic carbon (ug/gOC).
3. Sediment screening criteria as presented in the New York State Department of Environmental Conservation's "Technical Guidance for Screening Contaminated Sediments," dated November 1993 and updated through 1999.

Acronyms and Abbreviations:

-- = not applicable
 ND = not detected
 NV = no value available

**TABLE 7.7
STATISTICAL SUMMARY OF PESTICIDES IN SOIL/SEDIMENT ANALYTICAL DATA AND COMPARISON TO BIOACCUMULATION
SEDIMENT SCREENING CRITERIA**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

	Sediment Criteria, Bioaccumulation		Tributary One South Samples				Upstream / Background Samples			
			Frequency of Detections	Range of Concentrations	Number Above Human Health	Number Above Wildlife	Frequency of Detections	Range of Concentrations	Number Above Human Health	Number Above Wildlife
	Human Health	Wildlife								
Chlorinated Pesticides										
Total DDT, DDD, DDE	0.01	1	34 / 43	ND - 224.76	30	23	3 / 8	ND - 15	3	2
Total BHC	0.06	1.5	2 / 43	ND - 3.5	2	1	0 / 8	ND - ND	0	0
Total Chlordane	0.001	0.006	4 / 41	ND - 1.24	4	4	0 / 8	ND - ND	0	0
Dieldrin	See Totals Below		9 / 43	ND - 6.19	7	5	2 / 8	ND - 3.0	2	2
Total Aldrin, Dieldrin	0.1	0.77	9 / 43	ND - 6.19	7	5	2 / 8	ND - 3.0	2	2
Endosulfan I	NV	NV	1 / 43	ND - 2.42	--	--	0 / 8	ND - ND	--	--
Endrin	0.8	0.8	1 / 41	ND - 2.42	1	1	0 / 8	ND - ND	0	0
Heptachlor plus heptachlor epoxide	0.0008	0.03	1 / 41	ND - 0.46	1	1	0 / 8	ND - ND	0	0
Methoxychlor	NV	NV	0 / 41	ND - ND	--	--	0 / 8	ND - ND	--	--
Toxaphene	0.02	NV	0 / 41	ND - ND	0	--	0 / 8	ND - ND	0	--
Other Pesticides/Herbicides										
Chlorpyrifos	NV	NV	0 / 16	ND - ND	--	--	0 / 5	ND - ND	--	--
Diazinon	NV	NV	0 / 16	ND - ND	--	--	0 / 5	ND - ND	--	--
Malathion	NV	NV	0 / 16	ND - ND	--	--	0 / 5	ND - ND	--	--
Ethyl Parathion plus methyl parathion	NV	NV	0 / 16	ND - ND	--	--	0 / 5	ND - ND	--	--

General Notes:

1. The analytical results included are for those locations identified as applied to Sediment Screening Criteria in Tables 6.3a to 6.3e.
2. Concentrations and criteria are presented in dry-weight micrograms per gram organic carbon (ug/gOC).
3. Sediment screening criteria as presented in the New York State Department of Environmental Conservation's "Technical Guidance for Screening Contaminated Sediments," dated November 1993 and updated through 1999.

Acronyms and Abbreviations:

-- = not applicable
 ND = not detected
 NV = no value available

TABLE 7.8
SUMMARY OF OSI TOXICITY TESTS WITH SEDIMENT SAMPLES FROM TRIBUTARY ONE

RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK

Sample Location	Tests on <i>Hyalella azteca</i>		Tests on <i>Chironomus tentans</i>	
	Survival (%)	Mean Dry Weight mg/organism (+/- S.D.)	Survival (%)	Mean Dry Weight mg/organism (+/- S.D.)
Laboratory Control (large grain size) ^a	95	0.37 (+/-0.02)	71	1.75 (+/-1.04)
Laboratory Control	94	0.35 (+/-0.02)	65	2.63 (+/-0.73)
J1 (upgradient)	100	0.32 (+/-0.01)	83	2.25 (+/-0.34)
SD-1 (upgradient)	91	0.35 (+/-0.02)	91	2.68 (+/-0.63)
SD-2 (upgradient)	94	0.35 (+/-0.03)	92	2.74 (+/-0.37)
SD-3	98	0.37 (+/-0.05)	92	2.69 (+/-0.36)
SD-4	94	0.29 (+/-0.01)	86	0.92 (+/-0.28) ^b
SD-5	98	0.27 (+/-0.02) ^c	74	0.99 (+/-0.40) ^b
SD-6	91	0.34 (+/-0.04)	71	2.60 (+/-0.74)
SD-7	99	0.32 (+/-0.02)	82	2.54 (+/-0.42)
SD-8	96	0.29 (+/-0.02)	89	2.74 (+/-0.35)
SD-9	93	0.42 (+/-0.05) ^d	71	2.71 (+/-0.52)
SD-10	6 ^b	0.20 (+/-0.04) ^e	31 ^b	2.42 (+/-1.33) ^e
SD-11	0	0 ^{e,f}	66	1.85 (+/-0.59)

General Notes:

1. Table replicated from Tables 9 and 10 of Appendix O of OSI Report (CRA 1993).
2. Samples SD-1 and SD-2 collected upstream on Tributary One; sample SD-J1 collected from Jeddo Creek.
3. S.D. = standard deviation

Specific Notes:

- a. An additional laboratory control consisting of large grain size (up to 2.0 mm) was included in the test design in order to identify potential bias toward survival or growth caused by grain size. Additional large grain size lab control samples were added because of the larger sieve (2.0mm) used for sorting samples SD-4 and SD-5.
- b. Significantly less (P=0.05) than Reference samples J1, SD-1 and SD-2 indicating an adverse effect.
- c. Significantly less (P=0.05) than Reference samples SD-1 and SD-2 indicating an adverse effect.
- d. Significantly greater (P=0.05) than Reference samples J1, SD-1 and SD-2.
- e. Growth was not statistically analyzed because survival was significantly reduced.
- f. Growth was not determined because no organisms survived to the end of the experiment.

**TABLE 7.9
INVENTORY OF BENTHIC INVERTEBRATES COLLECTED DURING THE SEPTEMBER 1992 SURVEY OF TRIBUTARY ONE**

**RCRA FACILITY INVESTIGATION REPORT – VOLUME V
FMC CORPORATION – MIDDLEPORT, NEW YORK**

Order/Family	Number of Organisms										
	Upstream Samples				Downstream Samples						
	SD-J1		SD-1		SD-3		SD-4		SD-10 ^a	SD-11	
	Riffle	Run	Riffle	Run	Riffle	Run	Riffle	Run	Run	Riffle	Run
Tricoptera											
Hydropsychidae	102	2	23	--	5	1	120	1	--	1	1
Hydroptilidae	5	2	1	--	2	1	7	1	--	1	--
Diptera											
Chironomidae	1	7	--	7	1	--	--	--	1	--	--
Simuliidae	--	--	85	--	--	--	3	2	--	--	--
Gastropoda	1	1	1	--	26	7	2	--	--	--	--
Isopoda	2	8	--	--	3	1	1	12	1	1	--
Amphipoda											
Gammaridae	--	3	--	2	25	5	4	6	--	--	--
Oligochaeta	--	1	--	--	1	--	--	--	2	1	11
Ephemeroptera	--	--	3	--	--	--	--	--	--	--	--
Potamanthidae	--	--	--	--	3	--	8	1	--	1	--
Hirudena	--	--	4	1	5	2	1	--	--	--	7
Coleptera											
Elmidae	--	--	1	--	3	3	2	1	--	--	--
Psephenidae	--	--	--	--	--	--	26	--	--	--	--
Turbellaria	--	--	--	--	--	--	--	1	--	--	--
Plecoptera	--	--	--	--	--	--	--	1	--	--	--
Total Number of Organisms Collected:	111	24	118	10	74	20	174	26	4	5	19

General Notes:

1. SD-J1 from Jeddo Creek; all others from Tributary One South.
2. Table replicated from Table 4 of the Ecological Assessment Report that appears in Appendix O of the Off-Site Investigation Report (CRA 1993).
3. See Figures 3.2 and 7.1 of this Volume V for sampling locations.

Specific Note:

- a. Collected immediately downstream of sewage treatment plant outfall. No riffle area was present at this location.

Abbreviation:

-- = No data were collected.

TABLE 8.1

STATISTICAL SUMMARY OF ARSENIC SOIL ANALYTICAL DATA BY TRANSECT AND REACH

RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK

Transect	Total Number of Samples	Arsenic Soil Concentration (mg/kg)					
		Minimum (all depths)	Maximum (all depths)	Mean (all depths)	Mean (0 - 12 in.)	Mean (12 - 24 in.)	Mean (>12 in.)
Reach T1							
T0	27	4.1	35.8	15.2	21.5	6.7	6.7
T1	45	1.5	186	25.6	41.7	7.5	7.5
T2	53	1.1	1,680	71.9	121	12.9	12.9
T3	67	1.6	478	38.3	31.6	53.3	44.6
T4	58	1.1	582	45.4	70.6	20.5	25.9
T5	29	3.3	1,050	225	286	175	137
T6	30	2.9	238	58.9	91.4	30.6	26.3
T7	70	1.3	300	47.4	61.5	41.3	35.2
T8	61	ND	490	23.7	23.4	27.9	24.1
Reach T1 Other Soil	238	ND	636	38.4	45.7	24.3	24.3
Reach T1 Total	678	ND	1,680	48.0	62.5	31.8	29.8
Reach T2							
T9	54	2.1	465	60.3	67.2	51.4	51.4
T9.5	38	0.8	160	23.0	29.7	17.4	15.3
T10	56	2.6	422	71.2	94.9	44.9	42.8
T10.3	65	1.9	454	50.5	73.0	27.8	35.1
T10.7	79	1.4	231	38.5	44.3	43.2	34.5
T11	103	1.1	279	46.0	56.4	43.8	37.8
T11.5	59	2.6	361	51.3	27.5	95.5	62.1
Reach T2 Other Soil	2	31.8	55.2	43.5	43.5	--	--
Reach T2 Total	456	0.8	465	48.7	58.1	45.9	41.0
Reach T3							
T12	51	1.7	722	207	249	170	140
T12.3	55	2.0	701	50.9	99.9	6.2	6.2
T13	88	1.7	4,090	211	208	264	215
T14	65	1.3	855	222	176	312	283
T14.2	13	1.3	11.1	4.4	7.2	2.3	2.1
Reach T3 Other Soil	16	1.5	68	10.9	14.2	4.4	4.4
Reach T3 Total	288	1.3	4,090	162	168	188	154
Reach T4							
T14.5	28	1.8	262	34.0	54.3	12.2	9.7
T15	42	1.9	473	96.2	112	75.6	69.5
T15.5	15	1.2	68	15.2	22.7	2.1	2.1
T16	87	ND	629	57.1	79.8	38.5	32.2
T16.2	55	1.7	78	16.0	28.0	6.7	6.4
Reach T4 Total	227	ND	629	48.3	68.3	31.1	25.8
Reach T5							
T16.4	35	1.5	46.6	7.5	10.7	5.0	4.3
T16.6	39	1.5	153	17.2	24.8	13.1	11.4
T16.8	57	1.3	97.7	13.9	22.3	8.6	7.6
T18	68	ND	277	35.2	60.5	13.4	12.4
Reach T5 Total	199	ND	277	20.7	34.0	10.8	9.4

**TABLE 8.1
STATISTICAL SUMMARY OF ARSENIC SOIL ANALYTICAL DATA BY TRANSECT AND REACH**

**RCRA FACILITY INVESTIGATION - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK**

Transect	Total Number of Samples	Arsenic Soil Concentration (mg/kg)					
		Minimum (all depths)	Maximum (all depths)	Mean (all depths)	Mean (0 - 12 in.)	Mean (12 - 24 in.)	Mean (>12 in.)
Reach T6							
T17	40	1.8	92.8	9.5	8.2	10.7	10.7
T17.5	36	2.2	338	24.4	52.5	7.0	5.6
T19	40	1.1	264	33.8	38.6	29.1	29.1
T20	40	ND	33.8	6.1	8.0	4.2	4.2
Reach T6 Total	156	ND	338	18.3	25.1	13.1	12.2
Reach T7							
C11	35	2.2	647	80.1	116	28.4	28.4
C12	38	2.8	297	39.9	65.4	10.9	10.9
C13	40	6.4	947	208	142	273	273
C13.5	46	1.1	1,110	61.6	103	65.9	38.3
Reach T7 Total	159	1.1	1,110	97.0	107	105	87.9
Reach T8							
C14	53	2.2	520	53.4	34.0	84.3	70.4
T21	32	1.0	165	21.1	27.2	21.3	15.9
T22	36	1.5	291	23.8	43.0	13.2	11.0
Reach T8 Total	121	1.0	520	36.0	34.6	48.1	37.1

General Note:

1. "Other soil" refers to sample locations not associated with a transect.

Acronyms and Abbreviations:

in. = inches
mg/kg = milligrams per kilogram
ND = not detected
-- = not available

**TABLE 8.2
 STATISTICAL SUMMARY OF ARSENIC SEDIMENT ANALYTICAL DATA BY REACH**

**RCRA FACILITY INVESTIGATION - VOLUME V
 FMC CORPORATION - MIDDLEPORT, NEW YORK**

Reach	Total Number of Samples	Arsenic Sediment Concentration (mg/kg)		
		Minimum	Maximum	Mean
Reach T1	10	45.6	333	130
Reach T2	4	12.8	70.1	48.8
Reach T3	25	14.7	1,200	340
Reach T4	4	39.0	102	68.4
Reach T5	6	30.3	110	49.5
Reach T6	6	16.7	348	87.9
Reach T7	18	7.1	201	72.4
Reach T8	5	7.1	60.2	33.6

Acronyms and Abbreviations:

mg/kg = milligrams per kilogram

**TABLE 9.1
BASIS FOR EXCLUSION OF PROPERTIES FROM THE PROPOSED TRIBUTARY ONE SOUTH CMS AREA**

**RCRA FACILITY INVESTIGATION (RFI) REPORT - VOLUME V
FMC CORPORATION - MIDDLEPORT, NEW YORK**

Property¹	Soil Arsenic Concentration Range (mg/kg)	Observations/Conditions
BB8	2.3 to 19.8	The soil arsenic concentrations at Property BB8 are consistent with the Gasport background soil data for residential properties.
BC5	3.1 to 16.1	The soil arsenic concentrations at Property BC5 are consistent with the Gasport background soil data for residential properties and Property BC5 is located outside of the FEMA 100-year flood plain of Tributary One.
BC7	3.4 to 22.8	The soil arsenic concentrations at Property BC7 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sampling variability, the boring log for Sample TSHSB2 (sample location with the highest arsenic concentration) indicated the presence of fill material, and Property BC7 is located outside of the FEMA 100-year flood plain of Tributary One.
BC8	2.4 to 26.3	The soil arsenic concentrations at Property BC8 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sampling variability, except for Sample TSGSB2 (sample location with the highest arsenic concentration) where its boring log indicated the presence of trace coal material, and Property BC8 is located outside of the FEMA 100-year flood plain of Tributary One.
BC9	2.9 to 21.2	The soil arsenic concentrations at Property BC9 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sampling variability, and Property BC9 is located outside of the FEMA 100-year flood plain of Tributary One.
BC10	2.7 to 21.9	The soil arsenic concentrations at Property BC10 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sampling variability, and the boring logs for Samples TSESB1 and TSESB2 (sample locations with the highest arsenic concentrations) indicated the presence of coal fragments.
BG2	2.1 to 28.2	The soil arsenic concentrations at Property BG2 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sampling variability, except for sampling location T10.7W10 (3-6 inches), sample locations closer to Tributary One (T10.7W8 and T10.7W7) than T10.7W10 contain lower arsenic concentrations, the sampling locations at Property BG2 are within the former location of an orchard, and Property BG2 is located outside of the FEMA 100-year flood plain of Tributary One.
BJ8	1.8 to 19.5	The soil arsenic concentrations at Property BJ8 are consistent with the Gasport background soil data for residential properties and Property BJ8 is located outside of the FEMA 100-year flood plain of Tributary One.
BK2	0.8 to 14.0	The soil arsenic concentrations at Property BK2 are consistent with the Gasport background soil data for residential properties and Property BK2 is located outside of the FEMA 100-year flood plain of Tributary One.
BK3	1.7 to 6.3	The soil arsenic concentrations at Property BK3 are consistent with the Gasport background soil data for residential properties and Property BK3 is located outside of the FEMA 100-year flood plain of Tributary One.

Note:

1. Refer to Figures 9.2 to 9.6 for locations of properties.