TABLE 2.1
RESULTS OF CULVERT 105 VIDEO INSPECTION SOUTH OF THE ERIE CANAL

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

Pipe Conditions During April 2004 Inspection						
Pipe Section Number[1]	**Length of Pipe Inspected (feet)**	**Pipe Material[2]**	**Estimated Pipe Diameter**	**Pipe Condition[3]**	**Entry Point and Comments**	**Sediment/Debris Presence**
1	122.9	Tile	24"	Poor	Entry at catch basin CB-S6; south to debris in manhole MH-S7	Large debris only
2	7.4	Tile	24"	Poor	Entry at catch basin CB-S6; north to debris (joins Section 24)	Large debris only
16	132.3	Concrete Tile	24"	Fair / Good	Entry at manhole MH-S2; north to Culvert 105 main pipe at manhole MH-S1	Sediments at 73.2 feet
17	2.0	Concrete Tile	24"	Good	Entry at manhole MH-S2; south to bulkhead end	No sediment or debris present
18	4.1	PVC	24"	Poor	Entry at manhole MH-S3; north to pipe material change to stone at 4.1 feet - stone prevents further progress	Large debris only
	0.7	Stone	24"	Poor		
19	119.0	CPP	24"	Good	Entry at manhole MH-S3; south to second catch basin	Large debris only
20	28.0	CPP	24"	Good	Entry at manhole MH-S4; north to catch basin (joins Section 19)	No sediment or debris present
21	10.8	CPP	24"	Fair	Entry at manhole MH-S4; south to debris past catch basin CB-S5; pipe material change at 10.8 feet	Large debris only
	142.2	Tile	24"	Poor		
22	12.2	Tile	24"	Fair	Entry at manhole MH-S1; south to debris; pipe material change at 12.2 feet	Large debris only
	6.9	Stone	24"	Poor		
23	98.8	Tile	36"	Fair	Entry at manhole MH-S1; north to pipe material change at 98.8 feet	Sediment at 40.0 to 54.1 feet
	0.8	Stone	36"	Fair		
24	132.0	Tile	24" to 30"	Poor	Entry at catch basin CB-S6; north to pipe material change at 132.0 feet	Large debris only
	1.0					
25	11.4	Tile	10"	Fair	Entry at drop inlet basin on Freeman Avenue; lateral to debris at Culvert 105 main pipe	Large debris only
26	10.1	Tile (PVC at inlet)	8"	Fair	Entry at drop inlet basin on Park Avenue; lateral to Culvert 105 main pipe	Large debris only
27	5.6	Tile	8"	Fair	Entry at drop inlet basin on Park Avenue; lateral towards Culvert 105 to debris	Large debris only
28	2.0	Tile	8"	Fair	Entry at drop inlet basin on Park Avenue; south to debris	Large debris only

Notes:

1. Number assigned to each section of Culvert 105 buried pipe inspected, as referenced in the National Vacuum Service video inspection reports dated April 2004. Refer to Figure 2.4 of this Volume II of the RFI Report and to *Culvert 105 Video Inspection Results* (BBL and Geomatrix, July 2004).
2. Piping sections constructed of plastic materials (i.e., PVC, CPP) are likely to have been installed more recently (widely available since the 1960s) than pipe sections constructed of tile or stone (available since at least the early 1900s).

   PVC = polyvinyl chloride plastic pipe

   CPP = corrugated polyethylene plastic pipe
3. Pipe condition reported by National Vacuum Service:

   Good — Pipe has little or no constructional defects, with minimal cracking/rootlets and little or no flow obstructions.

   Fair — Pipe has some damages, minor drainage obstructions, some cracks and rootlets penetration.

   Poor — Pipe is damaged with notable deformations, holes, breaks, deep root presence and other drainage obstructions.

TABLE 3.1
INVENTORY OF RFI VOLUME II INVESTIGATIONS

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

Vol. II Section	Sampling Dates	Off-Site Soil Investigation Program[1]	Properties Sampled[2]	# Locations	# Samples	Analyses Conducted (# Samples Analyzed)[3]	# Samples Removed[4]
3.2	Nov. 1985	Roy-Hart Surface Soil Sampling & Analysis Program	Roy-Hart School Property	8	8	arsenic (8), mercury (8), phenol (8), carbofuran (8), lead (3), other metals (3), chlorinated pesticides (4), VOCs (3), SVOCs (3)	4
3.3	Nov. 1986	NYSDEC Roy-Hart Site Investigation	Roy-Hart School Property	14	27	arsenic (27), lead (27), chlorinated pesticides (27), furans (27)	22
3.4	Mar. 1987	Roy-Hart Supplemental Soil Sampling & Analysis Program	Roy-Hart School Property	6	6	arsenic (6), lead (6)	6
3.5	Dec. 1987	Roy-Hart Comprehensive Sampling Program	Roy-Hart School Property	78	78	arsenic (78), lead (78)	23
3.6	Jan. 1989	NYSDOH Sampling Program	9 residential and 1 industrial properties north of the Facility	10	10	arsenic (10), lead (10), other metals (10)	3
3.7	1990-1993	Off-Site Investigation (OSI)	Roy-Hart School Property, and 6 of the 14 West residential properties	9	32	arsenic (32), lead (32), chlorinated pesticides (16), other metals (20), phenols (12), furans (12)	15
3.8	Sep. 1995	RFI - Phase II Investigations	Property R1b just east of Facility property boundary	2	4	arsenic (4), lead (4), chlorinated pesticides (4), ETU (4)	0
3.8	Jul. 1996	Agencies' Supplemental Sampling	Property R1b just east of Facility property boundary	2	2	arsenic (2), lead (2), chlorinated pesticides (2)	0
3.9	Jul. 1996	RFI Phase III - Supplemental Sampling	15 residential and commercial properties north, northwest and west of Facility, and in Rochester Road ROW	18	18	arsenic (18), chlorinated pesticides (2)	6
3.10	Jul.-Aug. 1996	Bleacher Area IRM Excavation	Roy-Hart School Property	14	15	arsenic (15), lead (10), chlorinated pesticides (2), other metals (2), PCBs (2)	4
3.11	Nov. 1996	Under Bleacher Area and Football Field Sampling	Roy-Hart School Property	14	34	arsenic (34)	34

TABLE 3.1
INVENTORY OF RFI VOLUME II INVESTIGATIONS

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

Vol. II Section	Sampling Dates	Off-Site Soil Investigation Program[1]	Properties Sampled[2]	# Locations	# Samples	Analyses Conducted (# Samples Analyzed)[3]	# Samples Removed[4]
3.12	Nov. 1996	Additional Off-site Arsenic Soil Sampling Program	Residential, commercial, industrial, agricultural properties surrounding the facility	24	24	arsenic (24)	1
3.12	Apr. 1997	Additional Off-site Arsenic Soil Sampling Program	Residential, commercial, industrial, agricultural properties surrounding the facility	20	20	arsenic (20)	2
3.12	Dec. 1998	Additional Off-site Arsenic Soil Sampling Program	6 residential properties north and west of the facility	6	6	arsenic (6), other metals (3)	0
3.13	Dec. 1998	Roy-Hart ICM Pre-Excavation Sampling	Roy-Hart School Property	120	440	arsenic (440), lead (47)	275
3.13	Apr. 1999	Roy-Hart ICM Pre-Excavation Sampling	Roy-Hart School Property and adjoining agricultural property R1a	64	139	arsenic (139)	80
3.13	May 1999	Roy-Hart Surface Soil Comparison	Roy-Hart School Property	20	40	arsenic (40)	0
3.13	Jul.-Aug. 1999	Roy-Hart ICM Excavation Confirmation Sampling	Roy-Hart School Property	200	216	arsenic (216), lead (216), chlorinated pesticides (22)	36
3.14	Sep.-Nov. 2002	2002 Sampling Program	14 West Properties, North Commercial/Industrial Area, and along Culvert 105 and Tributary One	116	380	arsenic (380), lead (57), chlorinated pesticides (44)	209
3.15	Jun.-Aug. 2003	West Properties ICM Area Sampling & Excavation	14 West residential properties west of Facility and within former surface water pathway	79	345	arsenic (345), lead (27), chlorinated pesticides (16)	178
3.16	Nov. 2003 - Jan. 2004	Middleport Environmental Exposures Investigation	40 residential properties around the Facility	40	88	arsenic (88; composites)	3
3.17	Mar. 2004	Tributary One/Culvert 105 Phase I Sampling	property BA1 along Tributary One	4	16	arsenic (16)	0

TABLE 3.1
INVENTORY OF RFI VOLUME II INVESTIGATIONS

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

Vol. II Section	Sampling Dates	Off-Site Soil Investigation Program[1]	Properties Sampled[2]	# Locations	# Samples	Analyses Conducted (# Samples Analyzed)[3]	# Samples Removed[4]
3.17	Sep.-Dec. 2004	Tributary One/Culvert 105 Phase II Sampling	along Culvert 105 from Wooded Parcel to the Canal	34	142	arsenic (142), chlorinated pesticides (7)	18
3.18	Sep.-Dec. 2004	Areas Potentially Affected By Historic Air Deposition Sampling	230 residential, commercial and industrial properties surrounding the Facility	1,240	2,684	arsenic (2,684)	80
3.18	Nov.-Dec. 2005	Areas Potentially Affected By Historic Air Deposition Sampling	continue with same per Addendum	212	522	arsenic (522), lead (1)	0
3.19	2007	Early Action Sampling	12 P-Block residential properties, Property J10, and formerly Wooded Parcel	57	340	arsenic (340)	104
			Totals[5]:	2,411	5,636		1,103

Notes:
1. This table only describes soil sampling activities within Air Deposition Study Area 1 and soil and sediment sampling activities within the Culvert 105 Study Area south of the Erie Canal; other sampling activities were conducted concurrently as described in RFI Report Volume I. All samples are soil, with the exception of 5 sediment samples collected within Culvert 105 piping, catch basins, or manholes.
2. Sampling locations are shown on Figures 3.2 through 3.34.
3. Number of samples reflects number of combined results for that event (refer to Section 4.1 of this Volume II of the RFI Report). Analytical data are summarized in Appendix C for arsenic and in Appendix D for other constituents.
4. Samples removed include 1,093 soil samples that were later excavated by FMC during IRM/ICM/Early Action remedial activities and replaced with clean fill; 5 soil samples that were later removed or regraded during construction, remediation, or landscaping activities by others; 1 sediment sample from within the Culvert 105 piping that was removed during repair of the pipe in 2004; and 4 sediment samples that were removed during the clearing of Culvert 105 catch basins and manholes in 2007.
5. Total sample count of 5,636 listed above includes 8 duplicative samples, leaving a total of 5,628 unique combined results in the database. Specifically, during the Dec. 1998 and Apr. 1999 Roy-Hart ICM Pre-Excavation sampling, 8 samples were collected at the same sampling location and depth interval in different events and the results were combined.

TABLE 3.2
OFF-SITE INVESTIGATION PARAMETER LIST

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

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

Notes:
* analyzed by same method as chlorinated pesticides
** analyzed by same method as chlorinated herbicides
This table is replicated from Table 4.2 of the *1990-1993 Off-Site Investigation Report* (CRA, 1993).

TABLE 4.1
SUMMARY OF ARSENIC SAMPLING BY PROGRAM

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

Sampling Event[1]	Number of Locations	Total Number of Samples[2]	Number of Samples Collected					
			FMC		Agency			
			Field Samples	Field Duplicates	Split Samples	Split Duplicates	Field Samples	Field Duplicates
November 1985 Roy-Hart Sampling	8	8	8	10	3	0	0	0
Nov 1986 NYSDEC Site Investigation	14	27	0	0	0	0	27	3
March 1987 Roy-Hart Supplemental Investigation	6	6	6	0	0	0	0	0
December 1987 Roy-Hart Comprehensive Sampling	78	78	78	8	0	0	0	0
January 1989 NYSDOH Study	10	10	0	0	0	0	10	1
1990-1993 Off-Site Investigation	9	32	34	6	0	0	0	0
September 1995 RFI Phase II Investigation	2	4	4	1	0	0	0	0
July 1996 Agencies' Supplemental ESI Investigation	2	2	2	0	2	0	0	0
July 1996 RFI Phase III Supplemental Sampling	18	18	18	1	17	2	0	0
July - August 1996 Bleacher Area Excavation	14	15	14	1	9	0	1	0
November 1996 Under Bleacher and Field Sampling	14	34	34	2	30	1	0	0
November 1996 Arsenic Soil Sampling	24	24	24	2	24	2	0	0
April 1997 Additional Off-Site Arsenic Soil Sampling	20	20	20	2	20	2	0	0
December 1998 Additional Off-Site Sampling	6	6	6	0	6	0	0	0
1998-1999 Roy-Hart Pre-Excavation Sampling	120	440	440	7	71	3	0	0
April 1999 Additional Roy-Hart Pre-Excavation Sampling	64	139	127	7	1	0	12	0
May 1999 Roy-Hart Comparison Sampling	20	40	40	7	40	0	0	0
Roy-Hart Excavation Confirmation Sampling	200	216	0	0	0	0	216	23
2002 Sampling Program	116	380	379	20	43	5	1	0
2002 West Properties Sampling	79	345	345	16	30	0	0	0
November 2003 - January 2004 Composite Sampling	40	88	88	9	0	0	0	0
Winter/Spring 2004 Tributary/Culvert Sampling	4	16	12	0	1	0	4	0
Fall 2004 Tributary/Culvert Sampling	34	142	141	7	9	0	2	0
Fall 2004 Air Deposition Sampling	1,240	2,684	2,573	153	500	26	110	7
Fall 2005 Air Deposition Sampling	212	522	522	28	70	3	0	0
2007 Early Action Sampling	57	340	338	21	0	0	2	0
Totals[3]:	2,411	5,636	5,253	308	876	44	385	34

Notes:

1. This table only describes soil sampling activities within Air Deposition Study Area 1 and soil and sediment sampling activities within the Culvert 105 Study Area south of the Erie Canal; other sampling activities were conducted concurrently as described in RFI Report Volume I.
   All samples are soil, with the exception of 5 sediment samples collected within Culvert 105 piping, catch basins, or manholes.
2. Number of samples reflects number of combined results for that event (refer to Section 4.1 of this Volume II of the RFI Report). Analytical data are summarized in Appendix C for arsenic and in Appendix D for other compounds.
3. Total sample count of 5,636 listed above includes 8 duplicative samples, leaving a total of 5,628 unique combined results in the database. Specifically, during the 1998 and 1999 Roy-Hart ICM Pre-Excavation sampling, 8 samples were collected at the same sampling location and depth interval in different events and the results were combined.

TABLE 4.2
STATISTICS OF USABLE SOIL ANALYTICAL DATA SET

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

Parameter Group		FMC Primary Samples	FMC Duplicate Samples	Agency Primary Samples	Agency Duplicate Samples	Combined Samples
Arsenic	Total:	5,253	300	1,261	67	5,628
	Removed:	1,066	47	199	10	1,103
	Remaining:	4,187	253	1,062	57	4,525
Lead	Total:	478	43	73	4	528
	Removed:	164	8	50	4	210
	Remaining:	314	35	23	0	318
Other Metals	Total:	37	5	11	2	39
	Removed:	23	4	5	1	17
	Remaining:	14	1	6	1	22
Chlorinated Pesticides	Total:	106	8	40	5	139
	Removed:	60	4	30	5	84
	Remaining:	46	4	10	0	55
Chlorinated Herbicides and Organophosphate Pesticides	Total:	12	1	0	0	12
	Removed:	9	1	0	0	9
	Remaining:	3	0	0	0	3
Furans and Methyl Carbamates	Total:	20	3	27	3	47
	Removed:	12	1	21	3	33
	Remaining:	8	2	6	0	14
Phenolic Compounds*	Total:	20	3	3	0	20
	Removed:	12	2	1	0	12
	Remaining:	8	1	2	0	8
Other SVOCs	Total:	0	0	3	0	3
	Removed:	0	0	1	0	1
	Remaining:	0	0	2	0	2
VOCs	Total:	0	0	3	0	3
	Removed:	0	0	1	0	1
	Remaining:	0	0	2	0	2
Ethylene thiourea (ETU)	Total:	4	0	0	0	4
	Removed:	0	0	0	0	0
	Remaining:	0	0	0	0	0
PCBs	Total:	0	0	2	0	2
	Removed:	0	0	1	0	1
	Remaining:	0	0	1	0	1

Notes:
* Some phenolic compounds also analyzed by chlorinated pesticides and herbicides methods:
Dinocap as chlorinated pesticide and Dinoseb as chlorinated herbicide.
Includes 5 sediment samples collected within Culvert 105 piping, catch basin, or manholes.
For arsenic data, refer to tables in Appendix C.
For lead data, refer to Tables D.1 to D.3 in Appendix D.
For other metals data, refer to Table D.9 in Appendix D.
For chlorinated pesticides data, refer to Tables D.4 to D.8 in Appendix D.
For chlorinated herbicides and organophospate pesticides data, refer to Table D.11 in Appendix D.
For phenolic compounds, furans and methyl carbamates data, refer to Table D.10 in Appendix D.
For VOCs and SVOCs data, refer to Table D.12 in Appendix D.
For ETU data, refer to Table D.13 in Appendix D.
For PCBs data, refer to Table D.14 in Appendix D.

TABLE 4.3
IDENTIFICATION OF POTENTIAL STATISTICAL OUTLIERS FOR SOIL ARSENIC

RFI REPORT - VOLUME II
FMC CORPORATION - MIDDLEPORT, NEW YORK

Property	Location	Depth Interval (inches)	Arsenic Concentration (mg/kg)	Moran's Index Value	Z-Score	2-Sided Significance Level
B1	B1-2	3-6	63.9	-0.00119	-4.59	< 0.05
	B1-10	0-3	65.1	-0.00095	-1.17	0.10 - 0.32
		3-6	77.0	-0.00237	-5.30	< 0.05
		9-12	163	-0.00008	-3.55	< 0.05
D7	D7-4	0-3	97.6	-0.00421	-1.78	0.05 - 0.10
		3-6	86.0	-0.00331	-3.05	< 0.05
E5	E5-4	0-3	116	-0.00298	-3.58	< 0.05
		3-6	95.0	-0.00338	-6.12	< 0.05
E7	E7-4	3-6	61.6	-0.00145	-1.71	0.05 - 0.10
G2	G2-2	3-6	61.6	-0.00090	-2.21	< 0.05
G3	G3-4	3-6	53.4	-0.00246	-1.66	0.05 - 0.10
G6	G6-3	0-3	298	-0.00358	-3.50	< 0.05
G14	G14-6	3-6	54.5	-0.00074	-2.00	< 0.05
I5	I5-2	3-6	35.5	-0.00022	-1.05	0.10 - 0.32
I7	I7-2	3-6	43.6	-0.00109	-1.62	0.10 - 0.32
I11	I11-3	0-3	146	-0.00845	-1.00	0.10 - 0.32
J26	J26-7	0-3	206	-0.00151	-1.25	0.10 - 0.32
N5	N5-6	3-6	59.2	-0.00279	-1.82	0.05 - 0.10
T7	WSS27	0-3	103	-0.00214	-2.25	< 0.05
U4	U4-10	3-6	46.9	-0.00073	-1.71	0.05 - 0.10
R1c	R1c-11	0-3	163	-0.00055	-3.51	< 0.05
		3-6	89.7	-0.00028	-7.41	< 0.05
Roy-Hart School	SS-3-85	0-6	115	-0.00038	-2.65	< 0.05

Notes:

1. Potential statistical outliers indentified using Moran's Index method, calculated using ArcGIS 9.2 (ESRI, 2008), a two-dimensional program, performed for separate depth intervals. A negative Moran's Index value and a Z-score less than -1.00 indicates that the concentration at that location is a potential outlier.
2. Potential outliers do not include arsenic concentrations less than 20 mg/kg or samples associated with soil that was later excavated during an IRM/ICM/Early Action remedial activity.
3. Sample SS-3-85 presumed removed by subsequent construction of parking lot in late 1990s. Sample WSS27 presumed regraded by subsequent landscaping.
4. The presence of a potential statistical arsenic outlier does not necessarily indicate the absence of FMC-related arsenic on the property.

TABLE 5.1
IDENTIFICATION OF POTENTIAL SOURCES AND FACTORS AFFECTING DISTRIBUTION IN AIR DEPOSITION STUDY AREA 1

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

Property[1]	Observations/Conditions[2]
A2	Property owner stated compost was placed throughout front yard (A2-1).
A3	Sample location A3-4 is within a vegetable garden. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Sampling log notes presence of ash/coal in sample location A3-4; A3-2 also contains brick, ash, slag and coal. Property owner stated soil was brought into backyard ~25 years ago (sample locations A3-1, A3-2, and A3-3).
B1	Property B1 was historically used for saw mill/lumberyard operations in the 1800s through the 1930s. The property owner noted the presence of dwarf fruit trees and the use of fertilizers on the property. Sampling log notes the presence of brick material at B1-12.
B2	Sample log for location B2-4 notes presence of coal/ash. Sample B2-4 in close proximity to wood deck. Property owner stated use of weed and feed in 2004 only and soil has been imported and placed in vicinity of garage.
B4	Sample log for B4-2 notes presence of coal. Property log notes visual appearance that the property is largely fill material.
B6	Former lumber yard at B7, north of property. Property owner stated yearly use of weed and feed and re-graded patio spoils into backyard (location B6-4).
B7	Property owner stated property was a former lumber yard and soil was imported and placed on the south side of the apartment complex (locations B7-2, B7-3, and B7-4). Sample B7-8 was collected adjacent to three apple trees. Sample log notes presence of ash at location B7-6 and ash/brick/coal at B7-8.
B8	Access was granted, property was not sampled due to lack of sampleable area (fill/gravel was ubiquitous).
C1	Property owner stated imported soil placed in backyard (sample locations C1-4, C1-5, and C1-6) and use of granular fertilizer 2 times/year.
C2	Sample log notes the presence of coal/ash at C2-4.
C3	Property owner stated use of granular weed killer in 2004. Sample location C3-6 is in close proximity to wood deck.
C8	Sample C8-4 location is within a vegetable garden. Sample log notes ash at C8-4 and brick fragments at C8-2.
C10	Sample location C10-4 collected adjacent to pressure-treated wood timbers.
C11	Property owner stated soil imported north/south of driveway and along Canal (sample location C11-1). Sample C11-2 collected in tomato garden.
D1	Property owner stated soil imported for garden and perimeter of home. Sample log notes ash/coal at D1-4 (garden location).
D2	Sample D2-2 collected from tomato garden, D2-4 collected from vegetable garden. Property owner stated use of Scott's (once) and imported mulch and manure only - no soil.
D3	Sample location D3-4 is within a vegetable garden. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Sampling log notes presence of ash in sample D3-4 and ash/coal at D3-2.
D5	Property owner stated use of Scott's (spring only). Sample log stated trace coal at D5-4 (tomato garden location). Sample D5-1 located in close proximity to pressure-treated timbers/raised garden.
D6	Sample location D6-2 is within a former vegetable garden and next to a pressure treated wood deck. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Property owner stated that topsoil was imported in from yard (location D6-1).

TABLE 5.1
IDENTIFICATION OF POTENTIAL SOURCES AND FACTORS AFFECTING DISTRIBUTION IN AIR DEPOSITION STUDY AREA 1

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

Property[1]	Observations/Conditions[2]
D7	Sample location D7-4 is within a vegetable garden. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Sampling log notes presence of ash/coal at sample D7-4. Property owner stated filling/regrading performed in backyard behind deck in ~2000 (location D7-2) and use of liquid weed killer in 2004.
D9	Property owner stated tree had been removed from front yard and soil was brought in to fill void. Property owner also stated property was farmed prior to 1955, along with property D4. Also, owner stated the presence of a former garden in the vicinity of D9-4, where fertilizers and insecticides were used.
D10	Sample location D10-4 is within a vegetable garden. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Sampling log notes presence of slag in sample D10-4. Property owner stated regular fertilizer use and imported soil throughout front yard (location D10-1).
D11	Sample location D11-4 is within a vegetable garden. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Sampling log notes presence of slag, ash, coal and glass in sample location D11-4 and coal only at D11-2. Property owner stated soil was imported in the 1950s.
D12	Sampling log notes presence of ash and coal in D12-2 samples. Sampling log notes presence of ash in D12-4 samples.
E2	Property owner stated use of weed killer (spring only).
E3	Property owner stated imported soil in front yard and use of liquid weed and feed (spring only).
E4	Sample location E4-2 next to wooden play set.
E5	Sample location E5-4 is within a vegetable garden. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Sampling log notes presence of coal at sample location E5-4. Property owner stated soil had been imported for gardens and on north side of garage.
E6	Sampling log notes presence of ash in sample location E6-2 and coal in sample location E6-4. Property owner stated driveway spoils were placed in the backyard in the 1980s.
E7	Sampling log notes presence of ash and coal in sample in E7-2 and and coal only in E7-4. Property owner stated infrequent use of weed killer.
E9	Property owner stated use of fertilizer (spring only). Sample E9-4 collected in vicinity of fire pit/ring and pressure treated deck.
E10	Property owner stated soil imported for raised flower beds (pressure treated timbers), use of weed and feed/fertilizer, and that the property was a former "dump" for construction debris. Sample E10-4 collected from raised garden bed. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
E11	Sample location E11-4 is under a mature tree, next to a fire pit/ring and wood deck and near a topographically low area along the Canal towpath. Sample location E11-2 collected near pressure treated timbers.
F1	Property regraded with imported fill soils in the past; approximately 1-foot over entire property. Sampling log notes presence of coal and brick in sample location F1-4.
F3	Property owner stated use of bagged topsoil to fill in low areas and use of TruGreen lawn service.

TABLE 5.1
IDENTIFICATION OF POTENTIAL SOURCES AND FACTORS AFFECTING DISTRIBUTION IN AIR DEPOSITION STUDY AREA 1

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

Property[1]	Observations/Conditions[2]
F4	Property owner stated property was former dump site, has brought in soil throughout property, and believes there were apple trees on the property. Sample location F4-4 collected from garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
F5	Property owner stated property was former dump site. Property owner's husband removed debris and imported topsoil throughout property. Samples F5-2 and F5-4 collected from garden locations. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
F6	Property owner stated property may have been a former dump site.
F8	Sample F8-4 collected from vegetable garden. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
F9	Property owner stated use of lawn service (fertilizer/weed control) since ~2000. Sample F9-4 collected beneath wood play set.
G2	Property owner stated imported fill reported placed in the back yard of the property in the 1950s and a former drainage ditch from the school property ran along the east side of the property. Sample log stated the presence of ash/coal at G2-4.
G3	Location G3-3 may be near former backfilled ditch along west side of property. Property owner stated the regular use of Scott's 4-Step fertilizer program.
G4	Property owner stated imported soil in front yard (sample location G4-1 likely collected from this area). Sample G4-2 collected from garden.
G6	Property owner stated the use of fertilizer. Sample location G6-4 collected from garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
G7	Evidence of coal and ash at sample location G7-2 and ash only at G7-4. Property owner stated that cow manure had been placed throughout the entire property and uses weed and feed products. Sample location G7-3 collected in close proximity to wood deck.
G11	Property owner stated annual use of weed and feed (granular).
G13	Property owner stated the use of Chem Lawn.
G14	Sample location G14-6 located near a surface water drainage ditch that runs along the property/Canal boundary.
G15	Sample location G15-6 located near a surface water drainage ditch that runs along the property/Canal boundary. Sample location G15-2 collected from garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Sample location G15-4 collected in close proximity to wood deck/stairs. Property owner stated the use of weed and feed/Sevin. Also, the owner believes the previous owner imported soil and placed near the Canal (sample locations G15-5 and G15-6 possibly collected from this area).
G16	Sample location G16-5 collected in close proximity to pressure treated timbers.
G17	Property owner stated apple trees historically present and grandfather would spray trees.
H1	Sample log notes the presence of coal/ash at H1-2 and coal only at H1-4. Sample H1-4 collected from garden location and H1-2 in close proximity to wood deck. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Property owner stated use of pesticides.
H2	Sample log notes the presence of coal at location H2-4.
H4	Property owner stated the importing of soil for gardens. Sample log notes the presence of coal at H4 4.

TABLE 5.1
IDENTIFICATION OF POTENTIAL SOURCES AND FACTORS AFFECTING DISTRIBUTION IN AIR DEPOSITION STUDY AREA 1

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

Property[1]	Observations/Conditions[2]
I1	Property owner stated use of pesticides/fertilizers on garden area. Sample I1-2 was collected from a garden location and I1-4 was collected from a strawberry patch. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
I2	Property owner stated imported soil was placed along the back wall of the building.
I5	Sample location I5-4 is within a vegetable garden. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Property owner stated the use of weed and feed on the lawn and that soil was imported for the garden.
I6	Location I6-1 was collected from ornamental garden.
I7	Sampling log notes presence of coal and ash in sample locations I7-2 and I7-4. Property owner stated the use of weed and feed and Grub-Ex.
I9	Property owner stated soil was imported north of the house to halfway to the garage (locations I9-2 and I9-3).
I11	Sample location I11-3 was collected in close proximity to wooden fence and deck.
I12	Property owner stated imported soil in raised beds and various locations in backyard.
I14	Property owner stated imported soil in raised flower beds. Sample log notes ash observed at location I14-2 and coal at I14-4.
I18	Property owner stated imported soil in raised flower beds on north and east side of house. Sample log stated presence of brick at I18-4.
I20	Coal/ash found in sample location (I20-4).
I21	Sampling log notes presence of coal at I21-2.
J1	Sampling log notes presence of ash at J1-4.
J2	Sampling log notes presence of coal at J2-4.
J3	Property owner stated soil imported around pond, door, driveway. Sample location J3-1 in vicinity of gas line, possible disturbed soils.
J4	Property owner stated driveway soils used to build berm in backyard and use of granular fertlizer. Sample log notes presence of ash at J4-6.
J5	Property owner stated used weed/feed in 2003. Sample J5-6 was collected from garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
J6	Property owner stated soil imported for garden and prior weed/feed use. Sample log notes presence of coal/ash at J6-6.
J7	Property owner stated use of weed/feed every spring and spoils from garage were re-graded into backyard (J7-4 and J7-5). Sample log notes presence of coal/ash at J7-4.
J8	Sample log notes the presence of coal/ash at J8-6.
J11	Property owner stated soil imported for garden (J11-4) and backyard (J11-3). Sample location J11-4 garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
J12	Property owner stated soil graded from pool installation and imported for flower beds; and use of Scott's "Yard Guard". Sample log notes the presence of coal at J12-2.
J13	Property owner stated use of Miracle Grow on garden and recalls Culvert 105 as open ditch in backyard. Sample J13-4 collected from garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
J14	Property owner stated spoils from pool installation regraded throughout backyard (sample locations J14-3, J14-4, J14-5).
J15	Culvert 105 traverses property.

TABLE 5.1
IDENTIFICATION OF POTENTIAL SOURCES AND FACTORS AFFECTING DISTRIBUTION IN AIR DEPOSITION STUDY AREA 1

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

Property[1]	Observations/Conditions[2]
J16	Culvert 105 traverses property. Sample log notes presence of coal at J16-2.
J17	Sample log notes presence of ash at J17-2 (garden location). Property owner stated use of granular Scott's weed/feed and imported soil along west side of house and driveway and low areas in front yard (sample location J17-1 possibly collected from this area).
J18	Sample log notes the presence of ash at J18-4.
J19	Property owner stated father sprayed the property with pesticides to kill mosquitoes. Sample log notes the presence of coal at J19-4.
J20	Property owner stated the importing of soil in the backyard (pre-1970), the historic presence of orchards on the property, and the use of weed/feed in spring.
J22	Property owner stated the importing of potting soil into flower beds and stated property was a former orchard.
J23	Sample log notes presence of ash at J23-4. Property owner stated former use of granular weed and feed.
J24	Sampling log notes presence of ash in sample J24-3. Sample location J24-4 collected within a vegetable garden. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Property owner stated the use of Scott's weed and feed.
J26	Sample location J26-7 is next to a mature tree between tree roots. Sample log notes presence of ash at location J26-5.
K1	Sample location K1-4 in close proximity to pressure-treated fence.
K2	Sample log notes the presence of coal/ash at K2-4. Property owner stated soil imported for flower beds only.
K3	Property owner stated use of Chem-Lawn in 2001/2002 only.
K6	Property owner stated the use of granular fertilizer on the lawn. Sample log notes presence of ash at K6-4.
L1	Farm fields and/or orchards were historically located on Property L1. Property owner stated the use of Grub-Ex on the lawn and importing soil behind the house and patio (locations L1-11 through L1-31). Property owner stated property was a former cornfield. Location L1-20 collected beneath wood play set.
L3	Property owner stated apple trees historically present on the west and south side of the house (locations WW35, WW36, XX35, and XX36).
M2	Property owner stated imported soil placed behind house (sample location M2-3 likely collected from this area) and near garage of 11 Maple; prior use of lawn fertilizer/weed and feed (before 2004).
M3	Property owner stated imported soil placed behind house in 1951 and in area of former pool (sample locations M3-3, M3-4). Culvert 105 runs below northeast corner of house.
M6	Property owner stated apple trees were historically on the property (60+ yrs ago). Sample log notes presence of ash/coal at M6-2.
M8	Property owner stated use of granular fertilizer prior to 2004.
M11	Property owner stated father would spray apple tree in backyard.
M12	Sample log notes the presence of coal/ash at M12-4.
M13	Property owner stated previous owner imported soil for the entire property. Property owner also stated the use of fertilizer/weed and feed. Sampling log notes the presence of ash in sample location M13-2. Sample M13-4 collected near tomato plants and pressure treated timbers. Imported soil, amendments, fertilizers and/or pesticides may have been used for the tomatoes.

TABLE 5.1
IDENTIFICATION OF POTENTIAL SOURCES AND FACTORS AFFECTING DISTRIBUTION IN AIR DEPOSITION STUDY AREA 1

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

Property[1]	Observations/Conditions[2]
M14	Sample log notes the presence of ash/coal at M14-2. Sample M14-4 collected beneath pressure-treated play set.
M15	Sample log notes the presence of ash/coal at M15-4.
M17	Sample locations M17-2 and M17-3 collected near area of possible fill placement.
M18	Sample location M18-2 collected in close proximity to wood deck.
M19	Sample log notes the presence of ash/coal at M19-4. Property owner stated the use of Grub-Ex in 2003. Culvert 105 along east property boundary.
M20	Sample log notes the presence of coal/ash at M20-2. Culvert 105 along west property boundary.
M21	Property owner stated driveway spoils regraded north of driveway and spoils from pool in northwest corner of property. Location M21-2 collected in close proximity to wood timbers.
M22	Property owner indcated soil imported for gardens and property may have been a former dump. Location M22-4 collected from garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
M23	Property owner stated soil imported for flower beds and low areas and has Funk Lawn spray 3x/year. Sample log notes coal/ash at M23-2.
M24	Property owner stated soil imported for flower beds and area around pool. Also, has lawn sprayed by Funk Lawn Care 4x/year. Sample logs indicate the presence of coal/ash at M24-2 and M24-4.
M25	Property owner stated imported soil for flower beds only.
M26	Sample location M26-4 collected from garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
N1	Sample location N1-4 collected from garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Property owner stated regrading/imported soil in backyard near driveway and use of fertilizer in 1999.
N3	Property owner stated imported soil for play area and property was former school yard. Sample location N3-5 collected near pressure treated timbers.
N6	Sample location N6-4 collected from garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden. Renter stated new sewer installed spring 2004 on south side of house. Sample log notes presence of ash at N6-4.
N7	Property owner stated soil imported east of stone driveway in backyard (N7-6 and N7-7).
N8	Property owner stated soil imported for former garden. Sample logs indicate coal at locations N8-2 and N8-4.
N9	Sample N9-4 collected at garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
N10	Property owner stated fertilizer (Miracle Grow) for garden areas only. Sample N10-4 collected at garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
N11	Sample log notes presence of coal at N11-2 (garden location). Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
N12	Property owner stated imported fill/stone on south side of building.
N13	Fill and stone imported for substation base. Sample collected outside this area.
N14	Automotive repair shop.
O1	Property owner stated driveway soils placed in backyard ~1990 (O1-3 and O1-4).

TABLE 5.1
IDENTIFICATION OF POTENTIAL SOURCES AND FACTORS AFFECTING DISTRIBUTION IN AIR DEPOSITION STUDY AREA 1

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

Property[1]	Observations/Conditions[2]
O2	Sample log notes presence of ash at O2-4.
O3	Sample log notes presence of ash at O3-2. Location O3-1 collected in close proximity to railroad tie raised flower bed.
O5	Property owner stated former fruit trees in backyard.
O7	Evidence of fill (e.g., coal, ash, debris) observed at O7-8, 10, 14, 16, 18, and 20).
Q1	Sample log notes coal at Q1-4.
Q2	Property owner stated buildings were former coal shed and horse barn. Property owner uses granular fertilizer 2 times/year. Sample log notes presence of coal at Q2-4 (garden location). Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
R1	Sampling log notes presence of coal in sample location R1-2.
R3	Property owner stated soil imported along sidewalk (front yard) and in the backyard (R3-3, R3-4, R3-5 and WSS16); use of weed/feed 2 times/year.
R4	Property owner stated use of fertilizers and stated fill has been brought in over the years to raise low areas. Sample location R4-1 is adjacent to a pressure-treated wood raised flower bed.
R6	Property remediated due to owner-related contamination (drums/gasoline/oil). Omitted from 2004 sampling program.
R7	Property owner imported over 1' of soil for entire property; omitted from 2004 sampling program.
R8	The property is reportedly part of a historical farmland with a former orchard on or near the property. Coal, wood, and/or brick found at sample locations R8-12, R8-8, R8-2 and R8-3. Property owner stated former cherry and pear trees removed 10-15 years ago.
S1	Property owner stated use of granular fertilizer on new/front lawn. Sample log notes the presence of ash at S1-4.
S3	Property owner notes use of Funk Lawn Service prior to 2003. Sample log notes presence of ash/coal at S3-4.
S5	Property owner stated soil imported for flower beds only.
S6	Property owner stated soil imported in backyard (S6-2, 3, and 4) and use of fertilizer prior to 2000.
S7	Property owner stated use of weed/feed every two years. Soil imported in backyard to fill in former pool (between sample locations S7-2 and S7-3).
S8	Property owner stated use of weed/feed every two years. Sample log notes presence of coal at S8-2.
S9	Sample log notes presence of coal at S9-6, ash/coal at S9-4, and brick at S9-2.
S11	Property owner stated previous owner had large vegetable garden.
S12	Soil regraded in vicinity of newly constructed garage.
S14	Property owner stated former fruit trees in northwest corner of property. Sample location in close proximity to railroad ties.
S15	Property owner stated soil imported on north side of property during 2003 remediation of 40 S. Vernon (vicinity of S15-1); use of fertilizer and weed/feed prior to 2003.
S16	Sample log notes presence of coal at S16-4. Property owner stated use of fertilizer in 2002. Sample S16-3 collected beneath wood play set.
S17	Property owner stated that soil has been imported throughout entire yard and uses fertilizer/weed killer.
S18	Sample log notes presence of coal/ash at S18-4 (collected beneath wood playset). Property owner stated use of weed/feed in spring.

TABLE 5.1
IDENTIFICATION OF POTENTIAL SOURCES AND FACTORS AFFECTING DISTRIBUTION IN AIR DEPOSITION STUDY AREA 1

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

Property[1]	Observations/Conditions[2]
S21	Property owner stated use of Roundup.
S24	Sample log notes presence of coal at S24-4.
S25	Sample log notes presence of coal at S25-4.
S27	Sample log notes presence of coal at S27-6.
T1	Sample T1-3 collected beneath wood play set and T1-4 collected at garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
T2	Property owner stated the use of GrubEx prior to 2001.
T3	Property owner stated soil imported in garden, landscape beds, and around trees.
T4	Property owner stated pool spoils placed beneath pine tree in backyard, use of weed/feed (2003?) and GrubEx.
T7	Location WSS27 presumed regraded by landscaping after sample collection. Property owner stated topsoil had been imported to plant grass and uses weed and feed on the lawn. Sample T7-6 collected from garden location. Imported soil, amendments, fertilizers and/or pesticides may have been used in the garden.
U1	Property owner stated property was former agricultural field, and soil imported along northern property boundary (north of U1-1).
U2	Property owner stated former agricultural field, soil was imported to seed lawn in 1961, prior to 1995 use of fertilizer.
U3	Sample U3-1 in close proximity to pressure treated timbers.
U4	Concrete debris along eastern portions of property. Property owner stated property may have been formerly a farm. Sample log stated presence of ash/coal at U4-6.
U5	Property owner stated agricultural land during the 1940s/1950s and use of pesticides on lawn.
V1	Sample location V1-2 is located beneath wood playset.
V2	Property owner stated property may have been agricultural land.
V3	Property owner stated regrading of property after building constructed in 1961.
R1a	Property owner stated agricultural land since 1825, regrading of soil on east side of house in 1991, former orchard (no spraying since 1960s), garden in vicinity of R1a-YY.
R1b	Property owner stated agricultural land since 1825, currently farmed for wheat and hay. Manure used on fields.
R1c	Sample location R1C-11 is situated within a narrow strip (approximately 2-3 feet wide) between the Drive-In movie screen structure and a metal building. Fill materials may have been placed in the area as part the construction of the two structures. Sample location R1C-21 is located on a National Grid power line corridor.
R1d	Property owner stated property was agricultural land prior to 1980.
Roy-Hart	Orchards formerly located on this property (aerial photos).
Wooded Parcel	Orchards formerly located on this property (aerial photos).

Notes:
1. Refer to Figure 2.1 for locations of properties.
2. Information obtained from property owner questionnaires during the 2004-2005 RFI sampling program, from the sampling field logs, and from historical resources (see Section 2.4).
3. The presence of a potential non-FMC related source of contamination or arsenic source does not necessarily indicate the absence of FMC-related arsenic on the property.

TABLE 5.2a
SOIL ARSENIC DATA FROM 2001-2003 GASPORT BACKGROUND STUDY

RCRA FACILITY INVESTIGATION REPORT - VOLUME II
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
Commercial-Indsutrial	Commercial	Bb	BB-1A	0-3	2.4 J	6.1 J	2.3	2.2	3.3
Commercial-Indsutrial	Commercial	Bb	BB-2A	0-3	4.6				4.6
Commercial-Indsutrial	Commercial	Bb	BB-3A	0-3	5.2				5.2
Commercial-Indsutrial	Commercial	Bf	BF-1A	0-3	7.5				7.5

TABLE 5.2a
SOIL ARSENIC DATA FROM 2001-2003 GASPORT BACKGROUND STUDY

RCRA FACILITY INVESTIGATION REPORT - VOLUME II
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-Indsutrial	Commercial	Bf	BF-2A	0-3	9.9		2.9		6.4
Commercial-Indsutrial	Commercial	Bf	BF-3A	0-3	13.2				13.2
Commercial-Indsutrial	Industrial	Ia	IA-1A	0-3	33.5	32.1			32.8
Commercial-Indsutrial	Industrial	Ia	IA-2A	0-3	26.1				26.1
Commercial-Indsutrial	Industrial	Ia	IA-3A	0-3	3.5		3.1		3.3
Commercial-Indsutrial	Industrial	Ib	IB-1A	0-3	12.5				12.5
Commercial-Indsutrial	Industrial	Ib	IB-2A	0-3	20.4		20.8		20.6
Commercial-Indsutrial	Industrial	Ib	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 in May 2002 during the Gasport Background Study.
2. Approximate locations of properties sampled shown on Figure 8.1b of this Volume II of the RFI Report.
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 5.2b
SUMMARY OF SOIL ARSENIC CONCENTRATIONS BY PROPERTY TYPE/USAGE FROM 2001-2003 GASPORT BACKGROUND STUDY

RCRA FACILITY INVESTIGATION REPORT - VOLUME II
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 types/usage groups. An analysis for potential statistical outliers identified four points in the wooded/overgrown/agricultural crop field land group.

TABLE 5.3
SUMMARY OF ESTIMATED MIDDLEPORT SOIL ARSENIC BACKGROUND CONCENTRATIONS

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

Property Type/Usage Weighting Factor Calculation Method[1]	Weighted Mean		95% UCL on Weighted Mean		95th Percentile		98th Percentile	
	Excluding Potential Outliers[2] N=99 (mg/kg)	Including Potential Outliers[3] N=103 (mg/kg)	Excluding Potential Outliers[2] N=99 (mg/kg)	Including Potential Outliers[3] N=103 (mg/kg)	Excluding Potential Outliers[2] N=99 (mg/kg)	Including Potential Outliers[3] N=103 (mg/kg)	Excluding Potential Outliers[2] N=99 (mg/kg)	Including Potential Outliers[3] N=103 (mg/kg)
2001 Gasport Work Plan[4, 5]	**8.1**	**9.7**	**8.7**	**12**	**19**	**22**	**NA**	**NA**
Updated 2001 Gasport Work Plan[6, 8]	13	14	19	19	39	40	76	75
Time-Weighted Alternative[7, 8]	9.3	11	13	14	23	25	40	41

See Notes on Page 2.

TABLE 5.3
SUMMARY OF ESTIMATED MIDDLEPORT SOIL ARSENIC BACKGROUND CONCENTRATIONS

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

Notes:

1. The Middleport background soil arsenic concentrations presented in this table are statistical values that were calculated using property type/usage group weighting factors (i.e., percentages) derived for the Middleport study area. The property type/usage groups are defined in the NYSDEC document entitled "Program to Determine Extent of FMC-Related Arsenic Contamination in Middleport - Part A - Work Plan for Development of Arsenic Background in Middleport Soil" (Agencies, September 2001) [2001 Gasport Work Plan]. The statistical values are calculated based on the soil arsenic data for different property types/usages presented in the report entitled "Development of Arsenic Background in Middleport Soil" (CRA, February 2003) [2003 Gasport Background Study Report]; the data is also provided in Table 5.2b of this Volume II of the RFI Report.
2. Calculated concentrations in this column are based on the 2003 Gasport Background Study data, excluding 4 potential outliers (total sample size = 99).
3. Calculated concentrations in this column are based on the 2003 Gasport Background Study data, including 4 potential outliers (total sample size = 103).
4. The 2001 Gasport Work Plan arsenic values were calculated using property type/usage group weighting factors specified in the 2001 Gasport Work Plan that are time-weighted, with cumulative orchard areas within two time periods (1931-1958 and 1968-1978), based on aerial photos provided in the Draft RCRA Facility Investigation (RFI) Report (CRA, January 1999) [1999 Draft RFI Report]. The calculated arsenic values are presented in the 2003 Gasport Background Study Report. No value was presented for the 98th percentile.
5. The Agencies selected 20 mg/kg arsenic (based on the weighted 95th percentile of the 2003 Gasport Background Study soil data, using the 2001 Gasport Work Plan calculation method) as the delineation criterion for FMC-related arsenic in Middleport soils for the purposes of the RFI, with consideration given to other factors that could influence potential historical air deposition and stormwater flow.
6. The Updated 2001 Gasport Work Plan arsenic values were calculated using revised property type/usage group weighting factors. The revised property type/usage group weighting factors were calculated as specified in the 2001 Gasport Work Plan and are time-weighted, with cumulative orchard areas within two time periods (1931-1958 and 1968-1978), based on aerial photos provided in the 1999 Draft RFI Report and eight additional aerial photos. The revised property type/usage group weighting factors and the calculated arsenic values are presented in Appendix 6B of RFI Report Volume I – Background and Related Information (ARCADIS and AMEC Geomatrix, Decembr 2008) [RFI Report Volume I].
7. The Time Weighted Alternative arsenic values were calculated using revised property type/usage group weighting factors. The revised property type/usage group weighting factors are time-weighted based on the individual dates of each aerial photo used. The aerial photos used include those provided in the 1999 Draft RFI Report and eight additional photos. The revised property type/usage group weighting factors and the calculated arsenic values are presented in Appendix 6B of RFI Report Volume I.
8. The Agencies have not accepted the statistical values from the Updated 2001 Work Plan or the Time-Weighted Alternative presented in the second and third rows, for reasons explained in their March 10, 2008 letter.

TABLE 6.1
STATISTICAL SUMMARY OF SOIL ARSENIC DATA BY PROPERTY[1]

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

Property ID	Number of Samples[2]	Arsenic Soil Concentration (mg/kg)					UCL Method[5]
		Mean	Maximum	Standard Deviation	Distribution[3]	95% UCL[4]	
Area A							
A2	7	15.4	39.3	11.2	N/A	39.3	Maximum
A3	7	14.1	31.8	8.0	N/A	31.8	Maximum
Area B							
B1	50	20.9	163	33.2	Lognormal	29.3	95% H-UCL
B4	7	12.4	17.1	5.0	N/A	17.1	Maximum
B6	10	18.2	25.5	6.3	Normal	21.8	95% Student's-t UCL
Area C							
C2	7	18.8	24.0	4.0	N/A	24.0	Maximum
C3	18	18.7	32.7	7.4	Normal	21.7	95% Student's-t UCL
C8	9	15.2	23.0	6.1	Normal	19.0	95% Student's-t UCL
Area D							
D1	10	20.1	33.0	7.6	Normal	24.5	95% Student's-t UCL
D2	11	26.0	48.1	10.6	Normal	31.8	95% Student's-t UCL
D3	10	30.9	67.8	17.3	Normal	41.0	95% Student's-t UCL
D4	9	23.3	34.0	8.9	Normal	28.9	95% Student's-t UCL
D5	10	19.8	31.4	7.3	Normal	24.1	95% Student's-t UCL
D6	8	20.9	30.1	7.2	Normal	25.7	95% Student's-t UCL
D7	9	34.5	97.6	36.0	Gamma	75.3	95% Approximate Gamma UCL
D9	8	28.1	49.5	14.1	Normal	37.5	95% Student's-t UCL
D10	9	24.6	42.8	9.8	Normal	30.6	95% Student's-t UCL
D11	8	25.2	58.2	18.5	Normal	37.6	95% Student's-t UCL
D12	10	43.8	89.3	24.0	Normal	57.7	95% Student's-t UCL
Area E							
E1	11	22.8	37.3	7.3	Normal	26.8	95% Student's-t UCL
E4	9	18.5	31.4	7.9	Normal	23.4	95% Student's-t UCL
E5	10	46.0	116	36.2	Gamma	75.3	95% Approximate Gamma UCL
E6	8	21.4	36.2	11.2	Normal	28.9	95% Student's-t UCL
E7	10	30.4	61.6	19.1	Normal	41.4	95% Student's-t UCL
E11	8	21.6	37.3	10.6	Normal	28.7	95% Student's-t UCL
Area F							
F1	10	30.9	58.5	21.5	Normal	43.4	95% Student's-t UCL
F2	10	27.8	56.8	16.2	Normal	37.2	95% Student's-t UCL
F3	8	31.5	55.2	16.9	Normal	42.9	95% Student's-t UCL
F4	9	15.8	25.6	7.4	Normal	20.4	95% Student's-t UCL
F8	9	29.2	44.4	10.5	Normal	35.7	95% Student's-t UCL
F9	8	17.7	34.5	12.8	Normal	26.3	95% Student's-t UCL
Area G							
G1	9	24.5	59.9	15.6	Gamma	36.1	95% Approximate Gamma UCL
G2	10	30.8	61.6	16.4	Normal	40.3	95% Student's-t UCL
G3	9	28.5	53.4	18.2	Normal	39.8	95% Student's-t UCL
G4	8	15.3	45.0	13.3	Gamma	29.1	95% Approximate Gamma UCL
G6	10	59.4	298	84.3	Nonparametric	176	95% Chebyshev (Mean, Sd) UCL
G7	8	26.4	54.0	12.2	Gamma	35.4	95% Approximate Gamma UCL
G9	8	22.3	39.6	10.4	Normal	29.3	95% Student's-t UCL
G11	10	15.6	24.0	5.5	Normal	18.8	95% Student's-t UCL
G12	16	29.3	80.4	16.5	Gamma	36.9	95% Approximate Gamma UCL
G13	15	17.9	34.4	8.4	Normal	21.8	95% Student's-t UCL
G14	12	24.2	54.5	15.3	Normal	32.1	95% Student's-t UCL
G15	12	17.6	51.4	14.2	Gamma	27.1	95% Approximate Gamma UCL
G16	25	22.3	39.1	12.8	Nonparametric	33.4	95% Chebyshev (Mean, Sd) UCL
G17	12	18.7	36.2	11.0	Normal	24.4	95% Student's-t UCL
G18	9	16.9	34.7	11.9	Gamma	27.8	95% Approximate Gamma UCL
Area H							
H3	9	19.9	26.3	4.3	Normal	22.6	95% Student's-t UCL

TABLE 6.1
STATISTICAL SUMMARY OF SOIL ARSENIC DATA BY PROPERTY[1]

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

Property ID	Number of Samples[2]	Arsenic Soil Concentration (mg/kg)					UCL Method[5]
		Mean	Maximum	Standard Deviation	Distribution[3]	95% UCL[4]	
Area I							
I1	7	13.3	28.7	8.1	N/A	28.7	Maximum
I5	11	23.5	35.5	7.5	Normal	27.6	95% Student's-t UCL
I6	7	15.2	25.4	6.5	N/A	25.4	Maximum
I7	9	20.6	43.6	11.3	Normal	27.6	95% Student's-t UCL
I8	9	10.8	35.0	9.4	Nonparametric	24.5	95% Chebyshev (Mean, Sd) UCL
I9	8	20.9	33.1	8.3	Normal	26.5	95% Student's-t UCL
I11	10	33.1	146	39.8	Nonparametric	88.0	95% Chebyshev (Mean, Sd) UCL
I12	8	20.5	38.0	10.1	Normal	27.3	95% Student's-t UCL
I13	9	15.7	26.9	6.2	Normal	19.6	95% Student's-t UCL
I14	8	15.1	26.5	6.6	Normal	19.5	95% Student's-t UCL
I16	10	19.1	27.4	5.7	Normal	22.4	95% Student's-t UCL
I17	10	24.5	32.5	6.5	Normal	28.3	95% Student's-t UCL
I18	8	19.4	28.3	6.2	Normal	23.6	95% Student's-t UCL
I20	10	27.6	59.4	15.9	Normal	36.8	95% Student's-t UCL
Area J							
J1	7	15.3	20.7	3.5	N/A	20.7	Maximum
J2	7	10.9	18.0	4.1	N/A	18.0	Maximum
J4	12	17.1	35.6	8.4	Normal	21.4	95% Student's-t UCL
J5	17	18.7	33.0	7.9	Normal	22.0	95% Student's-t UCL
J6	18	29.5	68.3	12.1	Gamma	34.8	95% Approximate Gamma UCL
J7	11	26.1	44.0	11.9	Normal	32.6	95% Student's-t UCL
J8	15	39.8	89.8	20.3	Normal	49.0	95% Student's-t UCL
J9	10	30.8	51.8	12.9	Normal	38.3	95% Student's-t UCL
J10	11	29.5	38.6	8.8	Normal	34.3	95% Student's-t UCL
J11	8	17.6	24.6	8.0	Nonparametric	24.3	85% Chebyshev (Mean, Sd) UCL
J12	10	21.8	32.0	8.2	Normal	26.5	95% Student's-t UCL
J13	8	15.3	32.9	8.0	Normal	20.7	95% Student's-t UCL
J14	32	17.5	142.0	26.2	Gamma	25.3	95% Approximate Gamma UCL
J15	35	17.2	47.0	12.8	Gamma	21.9	95% Approximate Gamma UCL
J16	9	16.7	26.1	7.9	Normal	21.6	95% Student's-t UCL
J17	10	24.2	34.7	7.8	Normal	28.7	95% Student's-t UCL
J18	10	23.4	38.0	8.7	Normal	28.5	95% Student's-t UCL
J19	10	23.4	38.7	9.3	Normal	28.8	95% Student's-t UCL
J20	10	23.9	33.2	6.9	Normal	27.8	95% Student's-t UCL
J21	11	24.2	42.9	11.3	Normal	30.3	95% Student's-t UCL
J22	10	16.2	28.9	8.1	Normal	20.8	95% Student's-t UCL
J23	10	23.4	35.9	7.9	Normal	28.0	95% Student's-t UCL
J24	14	32.9	54.8	12.1	Normal	38.7	95% Student's-t UCL
J25	21	21.4	38.3	8.8	Normal	24.7	95% Student's-t UCL
J26	37	33.5	206	32.4	Nonparametric	56.7	95% Chebyshev (Mean, Sd) UCL
Area K							
K1	11	29.9	50.7	12.5	Normal	36.7	95% Student's-t UCL
K2	11	29.1	45.5	12.6	Normal	36.0	95% Student's-t UCL
K3	10	15.3	38.2	12.8	Normal	22.7	95% Student's-t UCL
K4	11	59.6	183	54.7	Gamma	100.4	95% Approximate Gamma UCL
K5	7	24.5	36.3	8.1	N/A	36.3	Maximum
K6	10	53.2	227	62.5	Lognormal	110.2	95% H-UCL
K7	10	44.9	95.0	22.9	Normal	58.2	95% Student's-t UCL
K8	9	34.3	56.5	15.7	Normal	44.0	95% Student's-t UCL
Area L							
L1	74	25.0	39.5	8.5	Normal	26.7	95% Student's-t UCL
L3	15	16.4	31.3	8.2	Normal	20.2	95% Student's-t UCL

TABLE 6.1
STATISTICAL SUMMARY OF SOIL ARSENIC DATA BY PROPERTY[1]

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

Property ID	Number of Samples[2]	Arsenic Soil Concentration (mg/kg)					UCL Method[5]
		Mean	Maximum	Standard Deviation	Distribution[3]	95% UCL[4]	
Area M							
M1	7	19.5	40.8	10.2	N/A	40.8	Maximum
M2	11	15.3	23.0	6.0	Normal	18.6	95% Student's-t UCL
M3	25	8.1	23.9	5.4	Gamma	10.3	95% Approximate Gamma UCL
M5	11	22.1	41.7	8.6	Normal	26.8	95% Student's-t UCL
M6	10	30.2	67.7	14.9	Gamma	39.8	95% Approximate Gamma UCL
M7	10	28.7	55.6	17.5	Normal	38.9	95% Student's-t UCL
M8	10	33.7	48.2	12.2	Normal	40.8	95% Student's-t UCL
M9	16	30.3	49.8	13.9	Normal	36.4	95% Student's-t UCL
M10	12	34.1	63.9	16.5	Normal	42.6	95% Student's-t UCL
M11	11	39.1	68.7	13.4	Normal	46.4	95% Student's-t UCL
M12	10	26.5	41.3	11.4	Normal	33.1	95% Student's-t UCL
M13	10	25.6	44.6	11.9	Normal	32.5	95% Student's-t UCL
M14	10	20.4	29.9	5.8	Normal	23.8	95% Student's-t UCL
M15	10	24.3	37.0	8.5	Normal	29.2	95% Student's-t UCL
M16	11	33.2	63.7	14.8	Normal	41.3	95% Student's-t UCL
M17	11	79.9	319	118.6	Lognormal	189	95% Chebyshev (MVUE) UCL
M18	10	17.7	29.3	7.3	Normal	21.9	95% Student's-t UCL
M19	21	21.5	39.5	14.4	Gamma	31.1	95% Approximate Gamma UCL
M20	21	23.2	58.8	19.0	Normal	30.3	95% Student's-t UCL
M21	11	30.8	58.4	13.6	Normal	38.2	95% Student's-t UCL
M22	12	48.5	122	26.7	Gamma	63.6	95% Approximate Gamma UCL
M23	10	41.4	71.3	18.4	Normal	52.1	95% Student's-t UCL
M24	10	33.9	69.4	26.3	Gamma	60.2	95% Approximate Gamma UCL
M25	10	39.6	63.3	14.2	Normal	47.8	95% Student's-t UCL
M26	11	57.2	89.6	20.2	Normal	68.3	95% Student's-t UCL
M27	10	16.0	29.6	7.0	Normal	20.1	95% Student's-t UCL
Area N							
N5	15	23.8	59.2	13.2	Normal	29.8	95% Student's-t UCL
N9	8	19.5	28.6	4.7	Normal	22.6	95% Student's-t UCL
N10	9	20.1	29.6	5.1	Normal	23.2	95% Student's-t UCL
N13	15	26.4	64.1	14.3	Normal	32.9	95% Student's-t UCL
N14	14	28.9	43.1	9.4	Normal	33.3	95% Student's-t UCL
Area O							
O1	7	15.6	27.7	8.2	N/A	27.7	Maximum
O2	9	21.6	34.8	6.1	Normal	25.4	95% Student's-t UCL
O3	10	35.8	58.5	12.5	Normal	43.1	95% Student's-t UCL
O4	11	25.9	38.0	9.6	Normal	31.1	95% Student's-t UCL
O5	11	29.5	63.0	14.2	Normal	37.3	95% Student's-t UCL
O6	8	27.6	42.0	12.7	Normal	36.1	95% Student's-t UCL
O7	51	64.6	744	117.6	Lognormal	80.4	95% H-UCL
Area P							
P1 *	9	18.6	24.5	4.4	Normal	21.3	95% Student's-t UCL
P2 *	16	7.5	21.9	5.9	Gamma	10.6	95% Approximate Gamma UCL
P3 *	27	12.8	31.7	7.3	Normal	15.2	95% Student's-t UCL
P4 *	13	8.4	22.5	5.8	Normal	11.3	95% Student's-t UCL
P5 *	11	4.7	10.0	2.8	Normal	6.2	95% Student's-t UCL
P6 *	9	6.1	13.2	4.2	Gamma	9.6	95% Approximate Gamma UCL
P7 *	39	5.0	18.7	3.8	Lognormal	6.0	95% H-UCL
P8 *	6	6.9	17	5.6	N/A	17.1	Maximum
P9 *	12	7.4	19.2	5.5	Nonparametric	14.4	95% Chebyshev (Mean, Sd) UCL
P11 *	41	7.4	23.4	5.2	Nonparametric	10.9	95% Chebyshev (Mean, Sd) UCL
P12 *	14	5.1	8.3	1.8	Normal	6.4	95% Student's-t UCL
P13 *	6	6.1	12.1	3.2	N/A	12.1	Maximum
P14	(see Wooded Parcel below)						

TABLE 6.1
STATISTICAL SUMMARY OF SOIL ARSENIC DATA BY PROPERTY[1]

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

Property ID	Number of Samples[2]	Arsenic Soil Concentration (mg/kg)					UCL Method[5]
		Mean	Maximum	Standard Deviation	Distribution[3]	95% UCL[4]	
Area Q							
Q1	11	26.1	45.7	13.4	Normal	33.4	95% Student's-t UCL
Q2	9	23.9	42.1	11.9	Normal	31.3	95% Student's-t UCL
Area R							
R1	11	23.8	39.3	11.4	Normal	30.0	95% Student's-t UCL
R2	9	18.4	23.7	4.4	Normal	21.2	95% Student's-t UCL
R3	9	13.1	31.7	10.2	Normal	19.5	95% Student's-t UCL
R4	6	10.8	38.4	13.6	N/A	38.4	Maximum
R8	32	17.4	40.2	8.4	Normal	19.9	95% Student's-t UCL
Area S							
S1	10	23.8	38.3	5.5	Normal	27.2	95% Modified-t UCL
S2	10	31.0	51.0	10.4	Normal	37.0	95% Student's-t UCL
S3	10	28.3	40.5	8.2	Normal	33.1	95% Student's-t UCL
S4	16	26.8	42.6	9.9	Normal	31.1	95% Student's-t UCL
S5	10	26.6	33.2	4.4	Normal	29.1	95% Student's-t UCL
S6	10	23.7	29.2	3.2	Normal	25.5	95% Student's-t UCL
S7	11	26.9	37.5	8.2	Normal	31.4	95% Student's-t UCL
S8	10	22.7	35.5	7.2	Normal	26.9	95% Student's-t UCL
S9	15	24.6	36.7	8.2	Normal	28.3	95% Student's-t UCL
S11	11	27.8	40.4	9.4	Normal	33.0	95% Student's-t UCL
S12	36	25.7	40.7	9.0	Normal	28.3	95% Student's-t UCL
S13	36	25.0	56.6	9.3	Normal	27.6	95% Student's-t UCL
S14	11	33.1	63.1	15.7	Normal	41.7	95% Student's-t UCL
S15	11	52.8	92.4	21.5	Normal	64.5	95% Student's-t UCL
S16	10	31.4	41.0	10.0	Normal	37.2	95% Student's-t UCL
S17	11	35.7	77.8	18.1	Normal	45.6	95% Student's-t UCL
S18	10	41.8	66.8	17.9	Normal	52.2	95% Student's-t UCL
S19	10	36.5	66.0	18.9	Normal	47.4	95% Student's-t UCL
S20	11	31.7	67.7	16.1	Normal	40.4	95% Student's-t UCL
S21	10	27.6	34.2	7.5	Gamma	34.0	95% Approximate Gamma UCL
S22	8	27.9	51.5	13.6	Normal	37.0	95% Student's-t UCL
S23	10	31.7	66.6	16.0	Normal	41.0	95% Student's-t UCL
S24	11	29.0	52.5	11.8	Normal	35.5	95% Student's-t UCL
S25	10	32.5	82.1	19.9	Gamma	46.9	95% Approximate Gamma UCL
S27	17	22.2	44.0	10.1	Normal	26.5	95% Student's-t UCL
Area T							
T1	10	37.1	81.2	24.1	Normal	51.1	95% Student's-t UCL
T2	10	39.1	50.1	8.3	Normal	43.9	95% Student's-t UCL
T3	16	29.5	49.3	11.4	Normal	34.5	95% Student's-t UCL
T6	8	20.3	28.6	7.3	Normal	25.2	95% Student's-t UCL
Area U							
U3	19	17.6	26.3	5.0	Normal	19.5	95% Student's-t UCL
U4	27	19.5	46.9	10.7	Normal	23.0	95% Student's-t UCL
U6	33	12.4	30.1	9.7	Nonparametric	19.8	95% Chebyshev (Mean, Sd) UCL
Agricultural Grid Sampling Areas							
R1a	218	29.5	71.3	14.8	Normal	31.2	95% Student's-t UCL
R1b	282	26.8	205.0	24.2	Nonparametric	33.1	95% Chebyshev (Mean, Sd) UCL
R1d	148	17.3	44.0	7.0	Normal	18.2	95% Student's-t UCL
Non-Agricultural Grid Sampling Areas							
R1c-1	15	28.4	163.0	42.6	Nonparametric	137.8	99% Chebyshev (Mean, Sd) UCL
R1c-2	11	11.0	27.1	7.7	Normal	15.2	95% Student's-t UCL
R1c-3	4	21.5	32.7	11.0	N/A	32.7	Maximum

TABLE 6.1
STATISTICAL SUMMARY OF SOIL ARSENIC DATA BY PROPERTY[1]

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

Property ID	Number of Samples[2]	Arsenic Soil Concentration (mg/kg)					UCL Method[5]
		Mean	Maximum	Standard Deviation	Distribution[3]	95% UCL[4]	
West Properties ICM Area							
A1A *	31	7.2	21.9	5.6	Gamma	9.0	95% Approximate Gamma UCL
A1B *	24	6.0	16.4	4.2	Gamma	7.7	95% Approximate Gamma UCL
A1C *	15	5.5	19.3	4.5	Gamma	7.9	95% Approximate Gamma UCL
A1D *	13	5.8	9.2	2.1	Nonparametric	6.7	95% KM (t) UCL
A1E *	26	7.6	23.8	5.3	Gamma	9.5	95% Approximate Gamma UCL
A1F *	22	9.1	19.2	5.1	Normal	11.0	95% Student's-t UCL
A1G *	20	8.7	21.0	5.9	Gamma	11.5	95% Approximate Gamma UCL
A1H *	19	6.5	16.0	3.1	Gamma	7.7	95% Approximate Gamma UCL
A1I *	22	6.7	15.7	3.7	Lognormal	8.4	95% H-UCL
A1J *	25	6.4	18.3	3.7	Normal	7.8	95% Modified-t UCL
A1K *	21	8.8	20.4	5.1	Gamma	10.9	95% Approximate Gamma UCL
A1L *	12	7.7	22.3	6.3	Gamma	12.1	95% Approximate Gamma UCL
A1M *	25	6.7	13.8	3.4	Normal	7.9	95% Student's-t UCL
A1N *	33	5.9	16.6	3.6	Gamma	7.1	95% Approximate Gamma UCL
Other Areas							
Wooded Parcel *	39	29.1	239	44.8	Nonparametric	100.5	99% Chebyshev (Mean, Sd) UCL
Rest of North Commercial/ Industrial Area	16	88.7	385	123.5	Gamma	177.0	95% Approximate Gamma UCL
Roy-Hart School *	521	12.1	228	18.9	Nonparametric	13.4	95% KM (BCA) UCL

Notes:

1. Does not include 46 properties receiving Agencies' February 2007 "No Further Action" letters. Refer to Table 6.2.
2. Statistics calculated for all data collected at any depth at the indicated property, with the exception of data that corresponds to soil that was later removed (28 properties indicated by asterisk [*]).
3. Distribution assessed by goodness-of-fit tests conducted using ProUCL 4.0 at a 95% confidence level (a = 0.05).
   Distributions:
   Normal: data set follows a normal distribution, according to the Shapiro-Wilk test.
   Gamma: data set follows a gamma distribution, according to the Kolmogorov-Smirnov test.
   Lognormal: data set follows a lognormal distribution, according to the Shapiro-Wilk test.
   Nonparametric: data set does not follow any of the three distributions noted above.
4. Upper Confidence Limits (UCLs) are not calculated for properties with less then 8 total observations or less than 5 detected observations (USEPA 2007a,b). For these properties [N/A], the maximum concentration is used.
5. References:
   USEPA. 2007a. ProUCL Version 4.0 User Guide. Office of Research and Development. EPA/600/R-07/038. April.
   USEPA. 2007b. ProUCL Version 4.0 Technical Guide. Office of Research and Development. EPA/600/R-07/041. April.

TABLE 6.2
STATISTICAL SUMMARY OF SOIL ARSENIC DATA FOR 46 PROPERTIES RECEIVING AGENCIES' 2007 NFA LETTERS[1]

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

		Arsenic Soil Concentration (mg/kg)					
Property ID	Number of Samples[2]	Mean	Maximum	Standard Deviation	Distribution[3]	95% UCL[4]	UCL Method[5]
Area B							
B2	8	15.0	22.2	0.4	Normal	18.5	95% Student's-t UCL
B5	7	12.4	18.3	4.0	N/A	18.3	Maximum
B7	15	9.2	19.9	0.5	Gamma	11.6	95% Approximate Gamma UCL
Area C							
C1	10	6.8	12.3	0.3	Gamma	8.2	95% Approximate Gamma UCL
C4	7	13.1	18.2	2.9	Normal	18.2	Maximum
C9	7	12.4	18.0	4.5	N/A	18.0	Maximum
C10	7	11.7	16.6	4.5	N/A	16.6	Maximum
C11	7	4.3	9.2	2.3	N/A	9.2	Maximum
Area D							
D8	12	16.8	21.1	0.2	Normal	18.4	95% Student's-t UCL
D13	6	10.4	18.0	4.8	N/A	18.0	Maximum
Area E							
E2	7	8.3	15.1	5.2	N/A	15.1	Maximum
E3	8	9.2	18.2	0.4	Gamma	12.1	95% Approximate Gamma UCL
E9	7	6.0	8.4	1.9	N/A	8.4	Maximum
E10	7	11.5	19.2	6.2	N/A	19.2	Maximum
Area F							
F5	8	9.7	18.9	0.3	Gamma	12.7	95% Approximate Gamma UCL
F6	7	6.8	13.3	3.1	N/A	13.3	Maximum
F10	7	7.0	13.2	3.2	N/A	13.2	Maximum
Area G							
G10	11	9.1	16.1	0.4	Normal	11.1	95% Student's-t UCL
G19	12	6.6	9.9	0.3	Normal	7.6	95% Student's-t UCL
G20	17	12.4	21.0	0.2	Normal	13.8	95% Student's-t UCL
Area H							
H1	7	15.5	21.4	3.3	N/A	21.4	Maximum
H2	7	12.7	17.8	2.7	N/A	17.8	Maximum
H4	9	17.4	26.3	0.4	Normal	21.2	95% Student's-t UCL
H5	8	10.3	16.9	0.4	Gamma	12.1	95% Approximate Gamma UCL
Area I							
I2	9	14.1	21.8	0.3	Normal	16.6	95% Student's-t UCL
I3	8	15.9	21.7	0.3	Normal	18.6	95% Student's-t UCL
I21	7	12.4	17.5	3.3	N/A	17.5	Maximum
Area J							
J3	7	11.9	19.4	5.5	N/A	19.4	Maximum
Area N							
N1	8	13.3	21.9	0.4	Normal	16.9	95% Student's-t UCL
N2	10	17.2	25.0	0.4	Normal	20.5	95% Student's-t UCL
N3	9	17.2	23.4	0.2	Normal	19.3	95% Student's-t UCL
N4	12	17.1	26.4	0.3	Normal	19.6	95% Student's-t UCL
N6	8	13.1	18.3	0.3	Normal	15.3	95% Student's-t UCL
N7	15	14.8	25.5	0.4	Normal	17.3	95% Student's-t UCL
N8	7	16.8	24.9	5.9	N/A	24.9	Maximum
N11	8	10.6	25.6	0.6	Gamma	16.3	95% Approximate Gamma UCL
N12	7	12.6	18.7	4.5	N/A	18.7	Maximum
Area R							
BA-1	16	13.2	23.3	6.1	Normal	15.9	95% Student's-t UCL
Area T							
T4	10	9.6	21.1	0.4	Gamma	12.5	95% Approximate Gamma UCL
T7[3]	18	8.9	27.5	5.4	Lognormal	11.0	95% H-UCL

TABLE 6.2
STATISTICAL SUMMARY OF SOIL ARSENIC DATA FOR 46 PROPERTIES RECEIVING AGENCIES' 2007 NFA LETTERS[1]

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

Property ID	Number of Samples[2]	Arsenic Soil Concentration (mg/kg)					UCL Method[5]
		Mean	Maximum	Standard Deviation	Distribution[3]	95% UCL[4]	
Area U							
U1	9	10.0	15.9	0.4	Normal	12.3	95% Student's-t UCL
U2	8	10.0	12.2	0.2	Normal	11.1	95% Student's-t UCL
U5	34	7.6	24.7	0.5	Normal	9.0	95% Modified-t UCL
Area V							
V1	10	10.1	16.4	0.3	Normal	12.0	95% Student's-t UCL
V2	9	8.4	12.0	0.2	Gamma	9.8	95% Approximate Gamma UCL
V3	17	14.6	18.2	0.2	Normal	15.6	95% Student's-t UCL

Notes:
1. Table only includes the 46 properties receiving Agencies' February 2007 "No Further Action" letter. See Table 6.1 for others
2. Statistics calculated for all data collected at any depth at the indicated property, with the exception that Sample WSS27 on Property T7 was not used because soil at that location is presumed to have been regraded or removed.
3. Distribution assessed by goodness-of-fit tests conducted using ProUCL 4.0 at a 95% confidence level (a = 0.05).
   Distributions:
   Normal: data set follows a normal distribution, according to the Shapiro-Wilk test.
   Gamma: data set follows a gamma distribution, according to the Kolmogorov-Smirnov test.
   Lognormal: data set follows a lognormal distribution, according to the Shapiro-Wilk test.
   Nonparametric: data set does not follow any of the three distributions noted above.
4. Upper Confidence Limits (UCLs) are not calculated for properties with less then 8 total observations or less than 5 detected observations (USEPA 2007a,b). For these properties [N/A], the maximum concentration is used.
5. References:
   USEPA. 2007a. ProUCL Version 4.0 User Guide. Office of Research and Development. EPA/600/R-07/038. April.
   USEPA. 2007b. ProUCL Version 4.0 Technical Guide. Office of Research and Development. EPA/600/R-07/041. April.

TABLE 7.1
STATISTICAL SUMMARY OF ARSENIC SOIL/SEDIMENT DATA IN CULVERT 105 SOUTH STUDY AREA

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

Transect	Total Number of Samples	Arsenic Soil/Sediment Concentration (mg/kg)				
		Minimum (all depths)	Maximum (all depths)	Mean (all depths)	Mean (0-12")	Mean (>12")
CS1 soil	25	3.6	83.2	45.0	35.9	46.7
CS1 post-removal	12	3.6	79.1	33.5	n.a.	33.5
CS2 soil	20	1.0	39.5	11.0	37.3	4.4
CS3 soil	18	2.1	17.6	6.0	7.7	5.8
CS4 soil	27	2.2	47.0	19.4	43.9	15.1
CS5 soil	24	1.1	142	17.4	20.8	16.9
CS6 soil	21	1.3	26.5	7.3	23.2	4.6
J4-BSP soil	2	2.3	35.6	19.0	n.a.	19.0
Sediment locations	5	26.0	114	73.1	n.a.	n.a.

Notes:
1. "Post-Removal" indicates samples remaining after implementation of 2007 Early Action removal activities, in which soil was excavated and replaced with clean backfill.
2. "Sediment" samples were samples of accumulated sediment from within the Culvert 105 buried pipe, catch basins, or manholes, all of which were later removed.
3. Refer to Figure 3.3 for sampling locations.
4. n.a. = not applicable (no samples in this category).

TABLE 8.1
CONCENTRATIONS OF METALS OBSERVED IN BACKGROUND SOIL SAMPLES

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

Location ID: / Sample Depth: / Date Collected:	Units	S 16 0 - 6" 11/90	S 17 0 - 6" 11/90	SS-9-85 0 - 6" 11/85	SS-10-85 0 - 6" 11/85	SB-JA-01 0 - 6" 2/89	SB-JA-01 6 - 12" 2/89	SB-JA-08 0 - 6" 2/89	SB-JA-08 6 - 12" 2/89	DOH-SS 19 0 - 3" 1/89	DOH-SS 20 0 - 3" 1/89	DOH-SS 21 0 - 3" 1/89	DOH-SS 22 0 - 3" 1/89	DOH-SS 23 0 - 3" 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 Volume II of the RFI Report for description)
3. Sampling locations are depicted on Figure 8.1a of this Volume II of the RFI Report
4. U = not detected at concentration indicated
5. These 11 sampling locations (13 samples) were identified by the Agencies by letter dated January 24, 1996 as representing soil arsenic background in the Middleport study area
   For arsenic, the background data in this table was replaced by the data resulting from the 2003 Gasport Background Study (see Table 5.2b of this RFI Report Volume II)
6. -- = not analyzed

TABLE 8.2a
SUMMARY OF RESIDENTIAL SOIL SCREENING VALUES

RCRA FACILITY INVESTIGATION REPORT - VOLUME II
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	37.7	37.7	7,730	12,800,000
alpha-BHC	ug/kg	97	102	102	1,690	71,500
beta-BHC	ug/kg	72	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	40.0	40.0	2,560	121,000
Dinocap	ug/kg	NV	NV	NV	NV	n.a.
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.
Antimony	mg/kg	NV	NV	NV	NV	n.a.
Barium	mg/kg	350	5,500	5,500	690,000	n.a.
Beryllium[3]	mg/kg	14	2.0	0.15	1,300	n.a.
Cadmium	mg/kg	2.5	78.2	78.2	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	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.
Silver	mg/kg	36	NV	NV	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.
Vanadium	mg/kg	NV	550	550	NV	n.a.
Zinc	mg/kg	2,200	23,500	23,500	48,200,000	n.a.

TABLE 8.2a
SUMMARY OF RESIDENTIAL SOIL SCREENING VALUES

RCRA FACILITY INVESTIGATION REPORT - VOLUME II
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.
Phenol	mg/kg	100	33,600	46,900	33,600	77,400
Furans and Methyl Carbamates						
7-Hydroxybenzofuran	mg/kg	NV	NV	NV	NV	n.a.
Baygon (propoxur)	mg/kg	NV	313	313	NV	n.a.
Carbofuran	mg/kg	NV	391	391	NV	n.a.
Carbaryl (Sevin)	mg/kg	NV	7,820	7,820	NV	n.a.
Chloropropham	mg/kg	NV	15,600	15,600	NV	n.a.
Chlorinated Herbicides						
2,4-D	mg/kg	NV	782	782	NV	n.a.
2,4,5-T	mg/kg	NV	782	782	NV	n.a.
Dinoseb	mg/kg	NV	78.2	78.2	NV	n.a.
Organophosphate Pesticides						
Chlorpyrifos (Dursban)	mg/kg	NV	235	235	NV	n.a.
Ethion	mg/kg	NV	39.1	39.1	NV	n.a.
Diazinon	mg/kg	NV	70.4	70.4	NV	n.a.
Malathion	mg/kg	NV	1,560	1,560	NV	n.a.
Methyl Parathion	mg/kg	NV	19.6	19.6	NV	n.a.
Phorate (Thimet)	mg/kg	NV	15.6	15.6	NV	n.a.
Ronnel	mg/kg	NV	3,910	3,910	NV	n.a.
Ethyl Parathion	mg/kg	NV	469	469	NV	n.a.
Volatile Organic Compounds (VOCs)						
1,2,4-trimethylbenzene	mg/kg	47	NV	NV	NV	n.a.
1,3,5-trimethylbenzene	mg/kg	47	NV	NV	NV	n.a.
Butyl-benzene	mg/kg	100	NV	NV	NV	n.a.
m-Xylene	mg/kg	100	2,040	156,000	3,880	2,040
Semi-Volatile Organic Compounds (SVOCs)						
Acenaphthene	mg/kg	100	NV	NV	NV	n.a.
Anthracene	mg/kg	100	NV	NV	NV	n.a.
Flouranthene	mg/kg	100	NV	NV	NV	n.a.
Flourene	mg/kg	100	NV	NV	NV	n.a.
Naphthalene	mg/kg	100	1,800	3,130	NV	1,800
Phenanthrene	mg/kg	100	NV	NV	NV	n.a.
Pyrene	mg/kg	100	NV	NV	NV	n.a.
Miscellaneous Compounds						
Ethylenethiourea (ETU)	mg/kg	NV	5.8	5.8	NV	n.a.
Polychlorinated biphenyls	mg/kg	1.0	1.0	1.0	NV	n.a.

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.
   Note that for beryllium, the background concentration of 2.0 mg/kg was used as the SSL.
4. NV = no value available.

TABLE 8.2b
SUMMARY OF INDUSTRIAL SOIL SCREENING VALUES

RCRA FACILITY INVESTIGATION REPORT - VOLUME II
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 (Csat)
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
Chlordane (total)	ug/kg	NV	44,000	44,000	741,000	195,000
Dieldrin	ug/kg	2,800	3,580	3,580	43,000	121,000
Dinocap	ug/kg	NV	NV	NV	NV	n.a.
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.
Antimony	mg/kg	NV	NV	NV	NV	n.a.
Barium	mg/kg	10,000	140,000	140,000	960,000	n.a.
Beryllium	mg/kg	2,700	13.0	13.0	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	5.70	14.7	613	14.7	n.a.
Nickel	mg/kg	10,000	41,000	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.
Silver	mg/kg	6,800	NV	NV	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.
Vanadium	mg/kg	NV	NV	NV	NV	n.a.
Zinc	mg/kg	10,000	613,000	613,000	67,500,000	n.a.

TABLE 8.2b
SUMMARY OF INDUSTRIAL SOIL SCREENING VALUES

RCRA FACILITY INVESTIGATION REPORT - VOLUME II
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 (Csat)
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.
Phenol	mg/kg	1,000	47,000	1,230,000	47,000	77,400
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.
Chloropropham	mg/kg	NV	409,000	409,000	NV	n.a.
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.
Dinoseb	mg/kg	NV	2,040	2,040	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.
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.
Volatile Organic Compounds (VOCs)						
1,2,4-trimethylbenzene	mg/kg	380	NV	NV	NV	n.a.
1,3,5-trimethylbenzene	mg/kg	380	NV	NV	NV	n.a.
Butyl-benzene	mg/kg	1,000	NV	NV	NV	n.a.
m-Xylene	mg/kg	1,000	2,040	4,090,000	5,400	2,040
Semi-Volatile Organic Compounds (SVOCs)						
Acenaphthene	mg/kg	1,000	NV	NV	NV	n.a.
Anthracene	mg/kg	1,000	NV	NV	NV	n.a.
Flouranthene	mg/kg	1,000	NV	NV	NV	n.a.
Flourene	mg/kg	1,000	NV	NV	NV	n.a.
Naphthalene	mg/kg	1,000	1,800	81,800	NV	1,800
Phenanthrene	mg/kg	1,000	NV	NV	NV	n.a.
Pyrene	mg/kg	1,000	NV	NV	NV	n.a.
Miscellaneous Compounds						
Ethylenethiourea (ETU)	mg/kg	NV	164	164	NV	n.a.
Polychlorinated biphenyls	mg/kg	25	NV	NV	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.
4. NV = no value available.

TABLE 8.3
STATISTICAL SUMMARY OF NON-ARSENIC SOIL ANALYTICAL DATA
AND COMPARISON TO SOIL SCREENING LEVELS (SSLs)

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

Constituent	Units	Residential Soil Screening Level (SSL)	All Samples			Samples Remaining		
			Frequency Detected	Maximum Concentration	# Samples Exceeding SSL	Frequency Detected	Maximum Concentration	# Samples Exceeding SSL
Chlorinated Pesticides								
4,4'-DDD	ug/kg	2,670	67/146	3,600	1	28/53	300	0
4,4'-DDE	ug/kg	1,880	135/147	12,000	26	46/53	3,000	1
4,4'-DDT	ug/kg	1,880	133/147	39,000	22	44/53	1,000	0
Aldrin	ug/kg	37.7	1/145	50	1	0/54	ND	0
alpha-BHC	ug/kg	102	9/146	120	1	3/54	8.2	0
beta-BHC	ug/kg	356	13/146	230	0	3/54	18	0
delta-BHC	ug/kg	102	6/145	98	0	2/54	3	0
gamma-BHC (Lindane)	ug/kg	493	8/145	215	0	4/54	3.4	0
alpha-Chlordane	ug/kg	493	10/111	3,200	3	2/43	2.5	0
gamma-Chlordane	ug/kg	493	10/112	2,600	3	1/43	2.5	0
Chlordane (total)	ug/kg	493	1/22	220	0	0/5	ND	0
Dieldrin	ug/kg	40.0	45/144	1,700	12	21/53	54	1
Dinocap	ug/kg	NV	0/6	ND	--	--	--	--
Endosulfan I	ug/kg	31,700	7/145	460	0	2/54	56	0
Endosulfan II	ug/kg	31,700	2/145	110	0	0/54	ND	0
Endosulfan sulfate	ug/kg	31,700	5/141	110	0	1/50	5	0
Endrin	ug/kg	23,500	7/141	50	0	1/50	50	0
Endrin aldehyde	ug/kg	23,500	5/141	200	0	1/49	200	0
Endrin ketone	ug/kg	23,500	3/95	160	0	0/40	ND	0
Heptachlor	ug/kg	142	3/141	110	0	1/50	2.4	0
Heptachlor Epoxide	ug/kg	70.4	7/141	360	2	0/50	ND	0
Isodrin	ug/kg	38	1/101	40	1	1/40	40	1
Methoxychlor	ug/kg	128,000	3/138	2,200	0	0/48	ND	0
Toxaphene	ug/kg	582	1/138	2,200	1	0/48	ND	0
Metals								
Lead	mg/kg	400	529/530	2,460	22	323/324	1,530	3
Aluminum	mg/kg	78,000	25/25	25,100	0	13/13	25,100	0
Antimony	mg/kg	NV	1/13	1.3	--	1/9	1.3	--
Barium	mg/kg	5,500	13/13	175	0	10/10	163	0
Beryllium	mg/kg	2.0	10/16	1.8	0	7/12	1.8	0
Cadmium	mg/kg	78	13/33	2.2	0	0/15	ND	0
Calcium	mg/kg	NV	3/3	5,920	--	3/3	5,920	--
Chromium	mg/kg	270	17/17	44	0	13/13	40	0
Cobalt	mg/kg	4,700	13/13	17	0	10/10	8	0
Copper	mg/kg	2,890	36/36	130	0	17/17	130	0
Iron	mg/kg	23,000	29/29	30,800	5	16/16	26,800	3
Magnesium	mg/kg	NV	3/3	4,980	--	3/3	4,980	--
Manganese	mg/kg	1,800	29/29	943	0	16/16	943	0
Mercury	mg/kg	10.5	36/45	1.5	0	14/20	0.6	0
Nickel	mg/kg	1,600	16/16	38	0	12/12	38	0
Potassium	mg/kg	NV	3/3	3,240	--	3/3	3,240	--
Selenium	mg/kg	391	3/25	0.83	0	2/12	0.8	0
Silver	mg/kg	NV	0/16	ND	--	0/12	ND	--
Sodium	mg/kg	NV	0/15	ND	--	0/6	ND	--
Thallium	mg/kg	5.48	0/25	ND	0	0/12	ND	0
Titanium	mg/kg	NV	10/10	566	--	7/7	466	--
Vanadium	mg/kg	550	13/13	42	0	10/10	41	0
Zinc	mg/kg	23,500	31/31	390	0	18/18	247	0

TABLE 8.3
STATISTICAL SUMMARY OF NON-ARSENIC SOIL ANALYTICAL DATA
AND COMPARISON TO SOIL SCREENING LEVELS (SSLs)

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

Constituent	Units	Residential Soil Screening Level (SSL)	All Samples			Samples Remaining		
			Frequency Detected	Maximum Concentration	# Samples Exceeding SSL	Frequency Detected	Maximum Concentration	# Samples Exceeding SSL
Phenolic Compounds								
2-Methylphenol (o-Cresol)	mg/kg	3,910	0/12	ND	0	0/3	ND	0
4,6-Dinitro-2-methylphenol	mg/kg	7.8	0/15	ND	0	0/5	ND	0
Phenol	mg/kg	33,600	4/10	0.3	0	2/5	0.2	0
Furans and Methyl Carbamates								
7-Hydroxybenzofuran	mg/kg	NV	0/39	ND	--	0/9	ND	--
Baygon (propoxur)	mg/kg	313	0/12	ND	0	0/3	ND	0
Carbofuran	mg/kg	391	0/47	ND	0	0/13	ND	0
Carbaryl (Sevin)	mg/kg	7,820	0/12	ND	0	0/3	ND	0
Chloropropham	mg/kg	15,600	0/12	ND	0	0/3	ND	0
Chlorinated Herbicides								
2,4-D	mg/kg	782	0 / 12	ND	0	0 / 3	ND	0
2,4,5-T	mg/kg	782	0 / 12	ND	0	0 / 3	ND	0
Dinoseb	mg/kg	78.2	0 / 12	ND	0	0 / 3	ND	0
Organophosphate Pesticides								
Chlorpyrifos (Dursban)	mg/kg	235	0 / 12	ND	0	0 / 3	ND	0
Ethion	mg/kg	39.1	0 / 12	ND	0	0 / 3	ND	0
Diazinon	mg/kg	70.4	0 / 12	ND	0	0 / 3	ND	0
Malathion	mg/kg	1,560	0 / 12	ND	0	0 / 3	ND	0
Methyl Parathion	mg/kg	19.6	0 / 12	ND	0	0 / 3	ND	0
Phorate (Thimet)	mg/kg	15.6	0 / 12	ND	0	0 / 3	ND	0
Ronnel	mg/kg	3,910	0 / 12	ND	0	0 / 3	ND	0
Ethyl Parathion	mg/kg	469	0 / 12	ND	0	0 / 3	ND	0
Volatile Organic Compounds (VOCs)								
1,2,4-trimethylbenzene	mg/kg	NV	1 / 3	0.00026	--	1 / 2	0.00026	--
1,3,5-trimethylbenzene	mg/kg	NV	1 / 3	0.00017	--	1 / 2	0.00017	--
butyl-benzene	mg/kg	NV	1 / 3	0.00031	--	1 / 2	0.00031	--
m-xylene	mg/kg	2,040	1 / 3	0.00008	0	1 / 2	0.0008	0
all other target VOCs	mg/kg	--	0 / 3	ND	--	0 / 2	ND	--
Semi-Volatile Organic Compounds (SVOCs)								
acenaphthene	mg/kg	NV	1 / 3	0.00004	--	0 / 2	ND	--
anthracene	mg/kg	NV	1 / 3	0.00014	--	0 / 2	ND	--
flouranthene	mg/kg	NV	1 / 3	0.00007	--	0 / 2	ND	--
flourene	mg/kg	NV	1 / 3	0.00004	--	0 / 2	ND	--
naphthalene	mg/kg	1,800	3 / 3	0.00012	0	2 / 2	0.00012	0
phenanthrene	mg/kg	NV	2 / 3	0.00043	--	1 / 2	0.00043	--
pyrene	mg/kg	NV	1 / 3	0.00005	--	0 / 2	ND	--
Miscellaneous Compounds								
Ethylenethiourea (ETU)	mg/kg	5.8	1 / 4	0.049	0	1 / 4	0.049	0
Polychlorinated biphenyls	mg/kg	1	0 / 2	ND	0	0 / 1	ND	0

Notes:

1. Residential Soil Screening Levels (SSLs) provided in Table 8.2a.
   NV = no SSL value available.
2. Statistics based on data tables provided in Appendix D. "All Samples" includes all soil and sediment analytical data collected within Air Deposition Study Area 1 and the Culvert 105 South Study Area. "Samples Remaining" does not include those samples that correspond to soil and sediment that was excavated or removed.

ND = not detected at laboratory reporting limit
-- = not applicable - no SSL value available for comparison

TABLE 8.4
STATISTICAL SUMMARY OF NON-ARSENIC SOIL ANALYTICAL DATA
AND COMPARISON TO SOIL CLEANUP OBJECTIVES (SCOs)

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

Constituent	Units	Residential Soil Screening Objective (SCO)	All Samples			Samples Remaining		
			Frequency Detected	Maximum Concentration	# Samples Exceeding SCO	Frequency Detected	Maximum Concentration	# Samples Exceeding SCO
Chlorinated Pesticides								
4,4'-DDD	ug/kg	2,600	67/146	3,600	1	28/53	300	0
4,4'-DDE	ug/kg	1,800	135/147	12,000	26	46/53	3,000	1
4,4'-DDT	ug/kg	1,700	133/147	39,000	22	44/53	1,000	0
Aldrin	ug/kg	19	1/145	50	1	0/54	ND	0
alpha-BHC	ug/kg	97	9/146	120	1	3/54	8.2	0
beta-BHC	ug/kg	72	13/146	230	2	3/54	18	0
delta-BHC	ug/kg	100,000	6/145	98	0	2/54	3	0
gamma-BHC (Lindane)	ug/kg	280	8/145	215	0	4/54	3.4	0
alpha-Chlordane	ug/kg	910	10/111	3,200	3	2/43	2.5	0
gamma-Chlordane	ug/kg	NV	10/112	2,600	--	1/43	2.5	--
Chlordane (total)	ug/kg	NV	1/22	220	--	0/5	ND	--
Dieldrin	ug/kg	39	45/144	1,700	12	21/53	54	1
Dinocap	ug/kg	NV	0/6	ND	--	--	--	0
Endosulfan I	ug/kg	4,800	7/145	460	0	2/54	56	0
Endosulfan II	ug/kg	4,800	2/145	110	0	0/54	ND	0
Endosulfan sulfate	ug/kg	4,800	5/141	110	0	1/50	5	0
Endrin	ug/kg	2,200	7/141	50	0	1/50	50	0
Endrin aldehyde	ug/kg	NV	5/141	200	--	1/49	200	--
Endrin ketone	ug/kg	NV	3/95	160	--	0/40	ND	--
Heptachlor	ug/kg	420	3/141	110	0	1/50	2.4	0
Heptachlor Epoxide	ug/kg	NV	7/141	360	--	0/50	ND	--
Isodrin	ug/kg	NV	1/101	40	--	1/40	40	--
Methoxychlor	ug/kg	NV	3/138	2,200	--	0/48	ND	--
Toxaphene	ug/kg	NV	1/138	2,200	--	0/48	ND	--
Metals								
Lead	mg/kg	400	529/530	2,460	22	323/324	1,530	3
Aluminum	mg/kg	NV	25/25	25,100	--	13/13	25,100	--
Antimony	mg/kg	NV	1/13	1.3	--	1/9	1.3	--
Barium	mg/kg	350	13/13	175	0	10/10	163	0
Beryllium	mg/kg	14	10/16	1.8	0	7/12	1.8	0
Cadmium	mg/kg	2.5	13/33	2.2	0	0/15	ND	0
Calcium	mg/kg	NV	3/3	5,920	--	3/3	5,920	--
Chromium	mg/kg	36	17/17	44	4	13/13	40	2
Cobalt	mg/kg	NV	13/13	17	--	10/10	8	--
Copper	mg/kg	270	36/36	130	0	17/17	130	0
Iron	mg/kg	NV	29/29	30,800	--	16/16	26,800	--
Magnesium	mg/kg	NV	3/3	4,980	--	3/3	4,980	--
Manganese	mg/kg	2,000	29/29	943	0	16/16	943	0
Mercury	mg/kg	0.81	36/45	1.5	3	14/20	0.6	0
Nickel	mg/kg	140	16/16	38	0	12/12	38	0
Potassium	mg/kg	NV	3/3	3,240	--	3/3	3,240	--
Selenium	mg/kg	36	3/25	0.83	0	2/12	0.8	0
Silver	mg/kg	36	0/16	ND	0	0/12	ND	0
Sodium	mg/kg	NV	0/15	ND	--	0/6	ND	--
Thallium	mg/kg	NV	0/25	ND	--	0/12	ND	--
Titanium	mg/kg	NV	10/10	566	--	7/7	466	--
Vanadium	mg/kg	NV	13/13	42	--	10/10	41	--
Zinc	mg/kg	2,200	31/31	390	0	18/18	247	0

TABLE 8.4
STATISTICAL SUMMARY OF NON-ARSENIC SOIL ANALYTICAL DATA
AND COMPARISON TO SOIL CLEANUP OBJECTIVES (SCOs)

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

Constituent	Units	Residential Soil Screening Objective (SCO)	All Samples			Samples Remaining		
			Frequency Detected	Maximum Concentration	# Samples Exceeding SCO	Frequency Detected	Maximum Concentration	# Samples Exceeding SCO
Phenolic Compounds								
2-Methylphenol (o-Cresol)	mg/kg	100	0/12	ND	0	0/3	ND	0
4,6-Dinitro-2-methylphenol	mg/kg	NV	0/15	ND	--	0/5	ND	--
Phenol	mg/kg	100	4/10	0.3	0	2/5	0.2	0
Furans and Methyl Carbamates								
7-Hydroxybenzofuran	mg/kg	NV	0/39	ND	--	0/9	ND	--
Baygon (propoxur)	mg/kg	NV	0/12	ND	--	0/3	ND	--
Carbofuran	mg/kg	NV	0/47	ND	--	0/13	ND	--
Carbaryl (Sevin)	mg/kg	NV	0/12	ND	--	0/3	ND	--
Chloropropham	mg/kg	NV	0/12	ND	--	0/3	ND	--
Chlorinated Herbicides								
2,4-D	mg/kg	NV	0 / 12	ND	--	0 / 3	ND	--
2,4,5-T	mg/kg	NV	0 / 12	ND	--	0 / 3	ND	--
Dinoseb	mg/kg	NV	0 / 12	ND	--	0 / 3	ND	--
Organophosphate Pesticides								
Chlorpyrifos (Dursban)	mg/kg	NV	0 / 12	ND	--	0 / 3	ND	--
Ethion	mg/kg	NV	0 / 12	ND	--	0 / 3	ND	--
Diazinon	mg/kg	NV	0 / 12	ND	--	0 / 3	ND	--
Malathion	mg/kg	NV	0 / 12	ND	--	0 / 3	ND	--
Methyl Parathion	mg/kg	NV	0 / 12	ND	--	0 / 3	ND	--
Phorate (Thimet)	mg/kg	NV	0 / 12	ND	--	0 / 3	ND	--
Ronnel	mg/kg	NV	0 / 12	ND	--	0 / 3	ND	--
Ethyl Parathion	mg/kg	NV	0 / 12	ND	--	0 / 3	ND	--
Volatile Organic Compounds (VOCs)								
1,2,4-trimethylbenzene	mg/kg	47	1 / 3	0.00026	0	1 / 2	0.00026	0
1,3,5-trimethylbenzene	mg/kg	47	1 / 3	0.00017	0	1 / 2	0.00017	0
butyl-benzene	mg/kg	100	1 / 3	0.00031	0	1 / 2	0.00031	0
m-xylene	mg/kg	100	1 / 3	0.00008	0	1 / 2	0.0008	0
all other target VOCs	mg/kg	NV	0 / 3	ND	--	0 / 2	ND	--
Semi-Volatile Organic Compounds (SVOCs)								
acenaphthene	mg/kg	100	1 / 3	0.00004	0	0 / 2	ND	0
anthracene	mg/kg	100	1 / 3	0.00014	0	0 / 2	ND	0
flouranthene	mg/kg	100	1 / 3	0.00007	0	0 / 2	ND	0
flourene	mg/kg	100	1 / 3	0.00004	0	0 / 2	ND	0
naphthalene	mg/kg	100	3 / 3	0.00012	0	2 / 2	0.00012	0
phenanthrene	mg/kg	100	2 / 3	0.00043	0	1 / 2	0.00043	0
pyrene	mg/kg	100	1 / 3	0.00005	--	0 / 2	ND	--
Miscellaneous Compounds								
Ethylenethiourea (ETU)	mg/kg	NV	1 / 4	0.049	--	1 / 4	0.049	--
Polychlorinated biphenyls	mg/kg	1	0 / 2	ND	0	0 / 1	ND	0

Notes:

1. Residential Soil Cleanup Objectives (SCOs) provided in Table 8.2a.
   NV = no SCO value available.
2. Statistics based on data tables provided in Appendix D. "All Samples" includes all soil and sediment analytical data collected within Air Deposition Study Area 1 and the Culvert 105 South Study Area. "Samples Remaining" does not include those samples that correspond to soil and sediment that was excavated or removed.

ND = not detected at laboratory reporting limit
-- = not applicable - no SCO value available for comparison

TABLE 9.1
BASIS FOR EXCLUSION OF PROPERTIES FROM THE CORRECTIVE MEASURES STUDY

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

Property	Sample Location	Depth (inches)	Arsenic Conc.[1] (mg/kg)	Below 20 mg/kg[2]	Distant & Upwind Direction[3]	Potential Outlier Location[4]	Data Variability[5]	Potential Other Source[6]	Inconsistent Data Distribution[7]	Summary
46 "NFA" Properties: B2, B5, B7, C1, C4, C9, C10, C11, D8, D13, E2, E3, E9, E10, F5, F6, F10, G10, G19, G20, H1, H2, H4, H5, I2, I3, I21, J3, N1, N2, N3, N4, N6, N7, N8, N11, N12, BA1, T4, T7, U1, U2, U5, V1, V2 and V3										In February 2007, the Agencies determined that no further action was required at 46 properties within Air Deposition Study Area 1. The Agencies stated that the soil arsenic concentrations at these properties were consistent with area "residential background levels," as determined by comparison to residential properties sampled in Gasport (range of 3.3 to 21.1 mg/kg), with consideration given to normal sampling variability.
A1	No access - no samples collected								X	Sampling at Property A1 is not necessary because: 1) the soil data at adjacent properties (in Block A) that are the same distance and in the same direction from the Facility is consistent with the Gasport background soil data for residential properties; 2) the arsenic soil data at nearby properties (in B, H and I) that are closer to the Facility than Property A1 is consistent with the Gasport background soil data for residential properties; and 3) Property A1 is distant from the Facility and wind from the Facility blows towards Property A1 (from southeast to northwest) less than 4 percent of the time based on Figure I5.1- Wind Rose Diagram, presented in RFI Report Volume I-Background and Related Information.
A2	A2-1	0-3	18.8	X				X		The Facility is not likely the source of arsenic on Property A2 for the following reasons: 1) the soil arsenic concentrations at Property A2 are consistent with the Gasport background soil data for residential properties, except for the 0-3" sample collected at location A2-3; 2) sample location A2-3 is surrounded by soil sample locations with arsenic concentrations below 20 mg/kg (see Figures 3.8 and 6.2 to 6.5); 3) sample location A2-3 is within an area where imported fill was reportedly placed (see Table 5.1); 4) soil data at nearby properties (in Blocks A, B, H and I) that are closer to the Facility than Property A1 is consistent with residential background levels; and 5) Property A2 is distant from the Facility and wind from the Facility blows towards Property A2 (from southeast to northwest) less than 4 percent of the time based on Figure I5.1- Wind Rose Diagram, presented in RFI Report Volume I-Background and Related Information.
	A2-2	0-3	11.5	X						
	A2-2	3-6	12.0	X						
	A2-2	6-9	9.9	X						
	A2-3	0-3	39.3					X	X	
	A2-4	0-3	7.6	X						
	A2-4	3-6	8.6	X						
A3	A3-1	0-3	9.1	X				X		The Facility is not likely the source of arsenic on Property A3 for the following reasons: 1) the soil arsenic concentrations at Property A3 are consistent with the Gasport background soil data for residential properties, except for the 6-9" sample collected at location A3-4; 2) sample location A3-4 is surrounded by soil sample locations with arsenic concentrations below 20 mg/kg (see Figures 3.8 and 6.2 to 6.5); 3) the property owner stated that fill was brought onto the property, and the sampling log indicates that coal/ash was observed at location A3-4 (see Table 5.1); 4) soil data at nearby properties (in Blocks A, B, H and I) that are closer to the Facility than Property A3 is consistent with residential background levels; and 5) Property A3 is distant from the Facility and wind from the Facility blows towards property A3 (from southeast to northwest) less than 4 percent of the time based on Figure I5.1- Wind Rose Diagram, presented in RFI Report Volume I-Background and Related Information.
	A3-2	0-3	9.8	X				X		
	A3-2	3-6	10.7	X				X		
	A3-3	0-3	10.6	X				X		
	A3-4	0-3	13.9	X				X		
	A3-4	3-6	13.1	X				X		
	A3-4	6-9	31.8					X	X	

TABLE 9.1
BASIS FOR EXCLUSION OF PROPERTIES FROM THE CORRECTIVE MEASURES STUDY

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

Property	Sample Location	Depth (inches)	Arsenic Conc.[1] (mg/kg)	Below 20 mg/kg[2]	Distant & Upwind Direction[3]	Potential Outlier Location[4]	Data Variability[5]	Potential Other Source[6]	Inconsistent Data Distribution[7]	Summary
B6	B6-1	0-3	22.5				X		X	The Facility is not likely the source of arsenic on Property B6 for the following reasons: 1) the soil arsenic concentrations at Property B6 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sampling variability; 2) arsenic soil data on abutting properties (Properties B5 and B7 and on other nearby properties (Properties C4, C1, I3, J1, J2, J3) are also consistent with the Gasport background soil data for residential properties; and 3) soil data collected from the upper foot of soil on properties situated closer to the FMC Facility (i.e., northwestern portion of Property Group J) is consistent with residential background levels, as shown on the soil arsenic visualizations figures (6.2 to 6.5).
	B6-2	0-3	24.2				X		X	
	B6-2	3-6	25.0				X		X	
	B6-2	6-9	15.4	X						
	B6-2	9-12	10.7	X						
	B6-3	0-3	12.8	X						
	B6-4	0-3	20.9				X		X	
	B6-4	3-6	25.5				X		X	
	B6-4	6-9	16.4	X						
	B6-4	9-12	8.2	X						
C2	C2-1	0-3	21.1				X			The Facility is not likely the source of arsenic on Property C2 for the following reasons: 1) the soil arsenic concentrations at Property C2 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sampling variability; 2) arsenic soil data surrounding Property C2 on abutting and nearby properties (i.e., sample locations C1-1, C1-6, C3-3, C3-4, C4-2, C4-3, C4-4, C8-3, C8-4, J3-2, J4-1, and J25-1 are also consistent with the Gasport background data for residential properties, with consideration given to normal sampling variability (see Figures 3.10, 3.17, and 6.2 to 6.5); and 3) the sampling log indicates the presence of coal/ash at location C2-4.
	C2-2	0-3	18.2	X						
	C2-2	3-6	17.6	X						
	C2-3	0-3	24.0				X			
	C2-4	0-3	21.2				X	X		
	C2-4	3-6	17.8	X				X		
	C2-4	6-9	11.5	X				X		
C5	No access - no samples collected									Sampling at Properties C5, C6 and C7 is not necessary because the soil data at abutting and surrounding properties (B7, C1, C4, C9, C10, and C11) that are situated a similar distance and in the same direction from the Facility is consistent with the Gasport background soil data for residential properties.
C6	No access - no samples collected									
C7	No access - no samples collected									
C8	C8-1	0-3	4.7	X						The Facility is not likely the source of arsenic at Property C8 for the following reasons: 1) the soil arsenic concentrations at Property C8 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sampling variability; 2) the sampling log indicates the presence of fill material, including brick fragments at sample location C8-2 and ash at sample location C8-4; and 3) arsenic soil data on abutting properties C4 and C9 are also consistent with the Gasport background soil data for residential properties.
	C8-2	0-3	20.3				X	X		
	C8-2	3-6	23.0				X	X		
	C8-2	6-9	15.4	X				X		
	C8-2	9-12	7.9	X				X		
	C8-3	0-3	13.0	X						
	C8-4	0-3	13.9	X				X		
	C8-4	3-6	17.9	X				X		
	C8-4	6-9	20.7				X	X		

TABLE 9.1
BASIS FOR EXCLUSION OF PROPERTIES FROM THE CORRECTIVE MEASURES STUDY

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

Property	Sample Location	Depth (inches)	Arsenic Conc.[1] (mg/kg)	Below 20 mg/kg[2]	Distant & Upwind Direction[3]	Potential Outlier Location[4]	Data Variability[5]	Potential Other Source[6]	Inconsistent Data Distribution[7]	Summary
H3	H3-1	0-3	19.7	X					X	The Facility is not likely the source of arsenic on Property H3 for the following reasons: 1) the soil arsenic concentrations at Property H3 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sampling variability; 2) arsenic soil data on abutting and nearby properties (i.e., Properties H1, H2, H4, H5, N1, N2, and N3), including properties that are closer to the Facility than Property H3, is consistent with the Gasport background soil data for residential properties, based on review of the soil arsenic visualization figures (6.2 to 6.5); and 3) Property H3 is distant from the Facility and wind from the Facility blows towards property H3 (from southeast to northwest) less than 4 percent of the time based on Figure I5.1- Wind Rose Diagram, presented in RFI Report Volume I-Background and Related Information.
	H3-2	0-3	18.3	X					X	
	H3-2	3-6	23.1				X		X	
	H3-2	6-9	25.2				X		X	
	H3-2	9-12	13.5	X					X	
	H3-3	0-3	18.4	X					X	
	H3-4	0-3	26.3				X		X	
	H3-4	3-6	19.3	X					X	
	H3-4	6-9	15.1	X					X	
I1	I1-1	0-3	14.0	X						The Facility is not likely the source of arsenic on Property I1 for the following reasons: 1) the soil arsenic concentrations at Property I1 are consistent with the Gasport background soil data for residential properties, except for the 6-9" sample collected at location I1-2; 2) sample location I1-2 is surrounded by soil sample locations with arsenic concentrations below 20 mg/kg (see Figures 3.16 and 6.2 to 6.5); 3) sample location I1-2 is situated with a garden that had been treated with unspecified fertilizers and pesticides; and 4) Property I1 is distant from the Facility and wind from the Facility blow towards property I1 (from southeast to northwest) less than 4 percent of the time based on Figure I5.1- Wind Rose Diagram, presented in RFI Report Volume I-Background and Related Information.
	I1-2	0-3	17.0	X				X		
	I1-2	3-6	12.9	X				X		
	I1-2	6-9	28.7					X	X	
	I1-3	0-3	9.7	X						
	I1-4	0-3	5.8	X						
	I1-4	3-6	4.9	X						
I4	No access - no samples collected									Sampling at Property I4 is not necessary because the soil data at nearby properties that are a similar distance and in the same direction from the Facility (H1, H2, I2 and I3) is consistent with the Gasport background soil data for residential properties.
I22	No samples collected - extensive pavement.									Sampling at properties I22 and I23 is not necessary for the following reasons: 1) the soil data at nearby properties that are the same distance and in the same direction from the Facility (H1, H2, I2 and I3) is consistent with the Gasport background soil data for residential properties; and 2) Properties I22 and I23 are covered with extensive pavement.
I23	No samples collected - extensive pavement.									

TABLE 9.1
BASIS FOR EXCLUSION OF PROPERTIES FROM THE CORRECTIVE MEASURES STUDY

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

Property	Sample Location	Depth (inches)	Arsenic Conc.[1] (mg/kg)	Below 20 mg/kg[2]	Distant & Upwind Direction[3]	Potential Outlier Location[4]	Data Variability[5]	Potential Other Source[6]	Inconsistent Data Distribution[7]	Summary
R1	R1-1	0-3	16.7	X						The Facility is not likely the source of arsenic on Property R1 for the following reasons: 1) the soil arsenic concentrations at Property R1 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sample variability, except for the samples collected at location R1-2; 2) Property R1 is distant from the Facility, and wind from the Facility blows towards Property R1 (from east to west) less than 7 percent of the time based on Figure I5.1- Wind Rose Diagram, presented in RFI Report Volume I-Background and Related Information; 3) sample location R1-2 is surrounded by soil sample locations with arsenic concentrations that are consistent with the background levels (with consideration given to sample variability), including at abutting properties BA1 and R2; 4) the sampling log indicates the presence of coal/ash in samples collected at location R1-2; and 5) the northern portion of the property is traversed by a stormwater sewer that was installed by the New York State Department of Transportation in the 1990s as part of the Main Street reconstruction project, and it is not known what materials may have been imported onto the property during the sewer construction activities.
	R1-2	0-3	31.9					X		
	R1-2	3-6	39.0					X		
	R1-2	6-9	35.7					X		
	R1-2	9-12	39.3					X		
	R1-3	0-3	12.5	X						
	R1-4	0-3	22.6				X			
	R1-4	3-6	27.2							
	R1-4	6-9	14.4	X						
	R1-4	9-12	8.3	X						
	WSS17	0-3	14.1	X						
R2	R2-1	0-3	20.1				X			The Facility is not likely the source of arsenic on Property R2 for the following reasons: 1) the soil arsenic concentrations at Property R2 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sampling variability; and 2) Property R2 is distant from the Facility, and wind from the Facility blows towards Property R2 (from east to west) less than 7 percent of the time based on Figure I5.1- Wind Rose Diagram, presented in RFI Report Volume I-Background and Related Information.
	R2-2	0-3	21.8				X			
	R2-2	3-6	22.3				X			
	R2-2	6-9	23.7				X			
	R2-2	9-12	11.7	X						
	R2-3	0-3	21.8				X			
	R2-4	0-3	14.3	X						
	R2-4	3-6	15.7	X						
	R2-5	0-3	14.5	X						
R5	No access - no samples collected				X					Sampling at Property R5 is not necessary because it is distant from the Facility and is situated within the prevailing upwind direction of the Facility.
R6	No samples collected due to extensive fill.				X					Sampling at properties R6 and R7 is not necessary for the following reasons: 1) Properties R6 and R7 are distant from the Facility and are situated within the prevailing upwind direction of the Facility; and 2) Properties R6 and R7 have been subject to extensive filling.
R7	No samples collected due to extensive fill.				X					

TABLE 9.1
BASIS FOR EXCLUSION OF PROPERTIES FROM THE CORRECTIVE MEASURES STUDY

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

Property	Sample Location	Depth (inches)	Arsenic Conc.[1] (mg/kg)	Below 20 mg/kg[2]	Distant & Upwind Direction[3]	Potential Outlier Location[4]	Data Variability[5]	Potential Other Source[6]	Inconsistent Data Distribution[7]	Summary
R8	R8-1	0-3	13.8	X	X			X	X	The Facility is not likely the source of arsenic on Property R8 for the following reasons: 1) the soil arsenic concentrations at Property R8 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sample variability, except for samples collected at locations R8-3, R8-6, R8-12, and R8-13; 2) Property R8 is distant from the Facility and is situated within the prevailing upwind direction of the Facility; 3) sample locations R8-1, R8-12 and R8-13 are within an area formerly used as an orchard, where arsenic-containing pesticides may have been applied; 4) the sampling logs indicate the presence of fill material (i.e., coal, wood, and/or brick) in sample locations R8-2, R8-3, R8-8 and R8-12; and 5) properties/areas located closer to the Facility have soil data with concentrations consistent with the background data (Properties T7, U5, and southwest portion of the former FMC R&D property).
	R8-2	0-3	22.7		X		X	X	X	
	R8-2	3-6	19.5	X	X			X	X	
	R8-2	6-9	9.1	X	X			X	X	
	R8-2	9-12	6.5	X	X			X	X	
	R8-3	0-3	29.2		X			X	X	
	R8-4	0-3	20.8		X		X		X	
	R8-4	3-6	17.2	X	X				X	
	R8-4	6-9	15.0	X	X				X	
	R8-4	9-12	11.6	X	X				X	
	R8-5	0-3	21.1		X		X		X	
	R8-6	0-3	27.3		X				X	
	R8-6	3-6	27.9		X				X	
	R8-6	6-9	18.0	X	X				X	
	R8-6	9-12	8.5	X	X				X	
	R8-7	0-3	5.1	X	X				X	
	R8-8	0-3	14.4	X	X			X	X	
	R8-8	3-6	16.0	X	X			X	X	
	R8-8	6-9	12.6	X	X			X	X	
	R8-8	9-12	5.3	X	X			X	X	
	R8-9	0-3	16.7	X	X				X	
	R8-10	0-3	17.0	X	X				X	
	R8-10	3-6	17.9	X	X				X	
	R8-10	6-9	6.8	X	X				X	
	R8-10	9-12	5.4	X	X				X	
	R8-11	0-3	13.5	X	X				X	
	R8-12	0-3	28.6		X			X	X	
	R8-12	3-6	32.4		X			X	X	
	R8-12	6-9	40.2		X			X	X	
	R8-12	9-12	17.7	X	X			X	X	
	R8-13	0-3	29.2		X			X	X	
	WSS24	0-3	18.8	X	X				X	

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FMC CORPORATION - MIDDLEPORT, NEW YORK

Property	Sample Location	Depth (inches)	Arsenic Conc.[1] (mg/kg)	Below 20 mg/kg[2]	Distant & Upwind Direction [3]	Potential Outlier Location [4]	Data Variability [5]	Potential Other Source[6]	Inconsistent Data Distribution[7]	Summary
U3	U3-1	0-3	16.2	X	X			X	X	The Facility is not likely the source of arsenic on Property U3 for the following reasons: 1) the soil arsenic concentrations at Property U3 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sample variability; 2) Property U3 is distant from the Facility and is situated within the prevailing upwind direction of the Facility; and 3) properties/areas located closer to the Facility have soil data with concentrations consistent with the background data (Properties T7, U5, and southwest portion of the former FMC R&D property).
	U3-2	0-3	16.9	X	X				X	
	U3-2	3-6	25.1		X		X		X	
	U3-2	6-9	10.4	X	X				X	
	U3-2	9-12	5.5	X	X				X	
	U3-3	0-3	20.4		X		X		X	
	U3-4	0-3	14.5	X	X				X	
	U3-4	3-6	15.5	X	X				X	
	U3-4	6-9	20.1		X		X		X	
	U3-5	0-3	19.2	X	X				X	
	U3-6	0-3	17.7	X	X				X	
	U3-6	3-6	21.5		X		X		X	
	U3-6	6-9	20.1		X		X		X	
	U3-6	9-12	13.4	X	X				X	
	U3-7	0-3	22.7		X		X		X	
	U3-8	0-3	16.8	X	X				X	
	U3-8	3-6	17.8	X	X				X	
	U3-8	6-9	13.5	X	X				X	
	WSS23	0-3	26.3		X		X		X	

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

Property	Sample Location	Depth (inches)	Arsenic Conc.[1] (mg/kg)	Below 20 mg/kg[2]	Distant & Upwind Direction[3]	Potential Outlier Location[4]	Data Variability[5]	Potential Other Source[6]	Inconsistent Data Distribution[7]	Summary
U6	U6-1	0-3	26.6		X		X		X	The Facility is not likely the source of arsenic on Property U6 for the following reasons: 1) the soil arsenic concentrations at Property U6 are consistent with the Gasport background soil data for residential properties, with consideration given to normal sample variability, except for samples collected at locations U6-2, U6-3, U6-4 and WSS20; 2) Property U6 is distant from the Facility and is situated within the prevailing upwind direction of the Facility; and 3) properties/areas that abut Property U6, including areas closer to the Facility, have soil data with concentrations consistent with the background data (Properties T7, U1, U2, U5, and southwest portion of the former FMC R&D property).
	U6-2	0-3	28.5		X				X	
	U6-2	3-6	30.1		X				X	
	U6-2	6-9	29.3		X				X	
	U6-2	9-12	12.8	X	X				X	
	U6-3	0-3	29.8		X				X	
	U6-4	0-3	20.5		X		X		X	
	U6-4	3-6	21.4		X		X		X	
	U6-4	6-9	29.9		X				X	
	U6-4	9-12	11.1	X	X				X	
	U6-5	0-3	4.2	X	X				X	
	U6-6	0-3	4.0	X	X				X	
	U6-6	3-6	3.5	X	X				X	
	U6-6	6-9	1.6	X	X				X	
	U6-7	0-3	12.4	X	X				X	
	U6-8	0-3	11.6	X	X				X	
	U6-8	3-6	11.1	X	X				X	
	U6-8	6-9	12.2	X	X				X	
	U6-9	0-3	5.7	X	X				X	
	U6-10	0-3	4.8	X	X				X	
	U6-10	3-6	3.6	X	X				X	
	U6-11	0-3	6.2	X	X				X	
	U6-12	0-3	5.5	X	X				X	
	U6-12	3-6	4.8	X	X				X	
	U6-13	0-3	6.2	X	X				X	
	U6-14	0-3	5.0	X	X				X	
	U6-14	3-6	4.8	X	X				X	
	U6-14	6-9	3.6	X	X				X	
	U6-15	0-3	8.1	X	X				X	
	U6-16	0-3	8.7	X	X				X	
	U6-16	3-6	7.5	X	X				X	
	U6-16	6-9	5.7	X	X				X	
	WSS20	0-3	27.5		X				X	

TABLE 9.1
BASIS FOR EXCLUSION OF PROPERTIES FROM THE CORRECTIVE MEASURES STUDY

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Property	Sample Location	Depth (inches)	Arsenic Conc.[1] (mg/kg)	Below 20 mg/kg[2]	Distant & Upwind Direction [3]	Potential Outlier Location [4]	Data Variability [5]	Potential Other Source[6]	Inconsistent Data Distribution[7]	Summary
R1c-a (including the narrow strips of land that abut Property R1c-a both to the west and to the east)	AA9+00	0-3	19.7	X						The Facility is not likely the source of arsenic on Property R1c-a for the following reasons: 1) the soil arsenic concentrations at Property R1c-a are consistent with the Gasport background soil data for residential properties, with consideration given to normal sample variability, except for samples collected at location R1c-11; 2) Property R1c-a is distant from the Facility and is not situated within the prevailing downwind direction of the Facility, with wind from the Facility blowing towards Property R1c-a (from north to south) less than 4 percent of the time based on Figure I5.1- Wind Rose Diagram, presented in RFI Report Volume I-Background and Related Information; and 3) sample location R1c-11 is situated within a narrow strip of land (approximately 2-3 feet wide) between structures where fill materials may have been placed as part the construction of the two structures.
	R1c-8	0-3	14.6	X						
	R1c-9	0-3	16.6	X						
	R1c-9	3-6	6.7	X						
	R1c-9	6-9	15.0	X						
	R1c-10	0-3	5.5	X						
	R1c-11	0-3	163			X		X	X	
	R1c-11	3-6	89.7			X		X	X	
	R1c-11	6-9	7.3	X		X		X	X	
	R1c-11	9-12	4.8	X		X		X	X	
	R1c-12	0-3	4.9	X						
	R1c-13	0-3	16.1	X						
	R1c-13	3-6	16.8	X						
	R1c-13	6-9	17.5	X						
	R1c-14	0-3	27.3							
R1c-b	R1c-15	0-3	6.8	X						The Facility is not likely the source of arsenic on Property R1c-b for the following reasons: 1) the soil arsenic concentrations at Property R1c-b are consistent with the Gasport background soil data for residential properties, with consideration given to normal sample variability, with the exception of the 3-6" sample at location R1c-19; 2) sample location R1c-19 is between soil sample locations with arsenic concentrations below 20 mg/kg (see Figures 3.32 and 6.2 to 6.5); and 3) Property R1c-b is distant from the Facility and is not situated within the prevailing downwind direction of the Facility, with wind from the Facility blowing towards Property R1c-b (from north to south) less than 4 percent of the time based on Figure I5.1- Wind Rose Diagram, presented in RFI Report Volume I-Background and Related Information.
	R1c-15	3-6	7.5	X						
	R1c-17	0-3	4.8	X						
	R1c-17	3-6	3.7	X						
	R1c-17	6-9	3.9	X						
	R1c-18	0-3	18.2	X						
	R1c-19	0-3	9.6	X						
	R1c-19	3-6	27.1						X	
	R1c-19	6-9	18.3	X						
	R1c-19	9-12	5.9	X						
	R1c-20	0-3	15.6	X						

TABLE 9.1
BASIS FOR EXCLUSION OF PROPERTIES FROM THE CORRECTIVE MEASURES STUDY

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Property	Sample Location	Depth (inches)	Arsenic Conc.[1] (mg/kg)	Below 20 mg/kg[2]	Distant & Upwind Direction[3]	Potential Outlier Location[4]	Data Variability[5]	Potential Other Source[6]	Inconsistent Data Distribution[7]	Summary
R1c-c	R1c-21	0-3	25.0					X		The Facility is not likely the source of arsenic on Property R1c-c for the following reasons: 1) Property R1c-c is distant from the Facility and is not situated within the prevailing downwind direction of the Facility, with wind from the Facility blowing towards Property R1c-c (from north-northwest to south-southeast) less than 4 percent of the time based on Figure I5.1- Wind Rose Diagram, presented in RFI Report Volume I-Background and Related Information; 2) adjacent sample location R1c-20 has an arsenic concentration below 20 mg/kg; and 3) Property R1c-c is within a National Grid power line corridor, where arsenic-containing products may have been used in the past.
	R1c-21	3-6	32.7					X		
	R1c-21	6-9	21.8					X		
	R1c-21	9-12	6.6	X				X		
abuts R1c-c to east	No access - no samples collected									Sampling at this property is not necessary for the following reasons: 1) this property is distant from the Facility and is not situated within the prevailing downwind direction of the Facility, with wind from the Facility blowing towards Property R1c-c (from north-northwest to south-southeast) less than 4 percent of the time based on Figure I5.1- Wind Rose Diagram, presented in RFI Report Volume I-Background and Related Information; and 2) this property is subject to other potential on-site sources of contamination (auto junk yard).

Notes:

1. Table includes all soil arsenic data collected at the indicated property. See Figure 9.1 for locations of these properties and of properties to be included in the CMS (highlighted green).
2. Below 20 mg/kg - The soil arsenic concentration in this sample is below the delineation value of 20 mg/kg.
3. Distant and Upwind Direction - The sample location is distant from the Facility and is in the upwind direction from the Facility, based on the local prevailing wind direction (from the southwest to the northeast). Therefore, particulate air deposition from the Facility may not be a predominant source of arsenic on the property.
4. Potential Outlier Location - The soil arsenic concentration in this sample or in another sample in this location was identified as a potential statistical outlier (refer to Table 4.3), indicating that the result may not be consistent with the overall distribution of arsenic in soil in the neighborhood of the sampled location.
5. Data Variability - The soil arsenic concentration in this sample is consistent with the 2003 Gasport Background Study soil data for residential properties, with consideration given to normal sample variability and the soil sample data in the vicinity of this sample. USEPA data validation guidelines indicate that duplicate sample results with a relative percent difference (RPD) of +/- 35% (for example, 20 mg/kg and 27 mg/kg) are within an acceptable limit of sample variability.
6. Potential Other Source - Another potential source of arsenic (not related to potential migration from the Facility) was identified for this sample based on observations during sampling, information provided by the property owner, or other historical information (refer to Table 5.1).
7. Inconsistent Data Distribution - Based on review of the soil arsenic visualization figures (6.2 to 6.13), the arsenic soil data at this location may not be consistent with particulate air deposition from the Facility. For example, it is expected that the soil arsenic levels would show a decreasing trend with increasing distance from the Facility.