Attachment D-1A

Summary of Analytical and Hydraulic Data for Proposed CAMU Phase 1 Area

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Tables

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Acronyms and Abbreviations

Agencies	NYSDEC and USEPA
AOC	Administrative Order on Consent
CAMU	Corrective Action Management Unit
CFR	Code of Federal Regulations
CMS	Corrective Measures Study
ESI	Eastern Surface Impoundment
ETU	Ethylene thiourea
FMC	FMC Corporation
GMP	Groundwater Monitoring Program
ICM	Interim Corrective Measure
IRM	Interim Remedial Measure
ug/L	micrograms per liter
mg/kg	milligrams per kilogram
NYCRR	Compilation of the Rules and Regulations of the State of New York
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OM&M	Operations, Maintenance and Monitoring
RCRA	Resource Conservation and Recovery Act
SCOs	Soil Cleanup Objectives
SWMU	Solid Waste Management Unit
USEPA	United States Environmental Protection Agency
WTP	Water Treatment Plant

1. Introduction

By letter dated November 23, 2009, the New York State Department of Environmental Conservation (NYSDEC), in consultation with the United States Environmental Protection Agency (USEPA) and the New York State Department of Health (NYSDOH), responded to and provided FMC Corporation (FMC) with comments on FMC's draft *Corrective Management Unit (CAMU) Application* (March 2008) for the proposed construction of a CAMU on the eastern portion of the FMC Facility in Middleport, New York. By letter dated March 5, 2010, FMC provided the NYSDEC and the USEPA (the latter two entities together referred to herein as "the Agencies") with draft responses to the comments provided in the November 23 letter. Subsequently, representatives of FMC, the Agencies and the NYSDOH attended a meeting in Albany, NY on April 28, 2010 and participated in a teleconference on May 5, 2010 to discuss FMC's draft responses.

The draft CAMU Application (submitted March 27, 2008) proposed that the CAMU would be constructed without a base liner or low permeability cap. Based on the comments from the Agencies provided in the November 23, 2009 letter and the subsequent meeting and teleconference, FMC proposed to revise the CAMU design to include two phases ("Phase 1" and "Phase 2"), with Phase 1 comprising the area of SWMU Group C and Phase 2 comprising the area south of SWMU Group C (see Figure 1). The Phase 2 Area would have a base liner and leachate collection system, while the Phase 1 Area would not. A low permeability cap would be constructed over the entire CAMU.

Assuming for purposes of this summary that the minimum design requirements are applicable, the NYSDEC has the authority to designate a CAMU constructed without a low permeability base liner (see 6NYCRR 373-2.19(c)(5)(iii)(b)(2)) when the CAMU is located in an area with "existing significant levels of contamination" and where the design "would prevent migration from the unit that would exceed long-term remedial goals" for a site. This allows the materials placed in a CAMU to be managed in concert with other corrective measures to be implemented at a site.

As explained in this Attachment (Attachment D-1A), existing contamination within the proposed CAMU Phase 1 Area is significant and pervasive (not localized), and the soils proposed to be placed within the CAMU will not exacerbate existing conditions. Further, although the placement of this soil within the CAMU (beneath a cover) is not expected to impact groundwater, if impact were to occur, it would be addressed by the Facility's existing engineered groundwater containment, collection and treatment system.

This Attachment provides information requested by the Agencies in General Comment #3a of the November 23, 2009 letter to support the design of the proposed CAMU without a base liner beneath the proposed CAMU Phase 1 Area (green-hatched Area on Figure 1). Specifically, this Attachment provides:

1. Summary of soil and groundwater data to demonstrate that contamination is significant and pervasive (not localized) in the proposed CAMU Phase 1 Area (see Section 2 of this Attachment)

2. Summary of groundwater recovery system hydraulic data to demonstrate control of groundwater in the proposed CAMU Phase 1 Area (see Section 3 of this Attachment)

2. Soil and Groundwater Analytical Data Review

Laboratory analytical data for soil and groundwater samples collected within the proposed CAMU Phase 1 Area are summarized in the following sections.

2.1 Soil

The proposed CAMU Phase 1 Area is the location of SWMU Group C, which includes the Eastern Process Wastewater Retention Basin (SWMU#3), the Eastern Surface Impoundment (ESI) (SWMU #50), and the 1987-1988 Northern Ditches Contaminated Soil Storage Area (SWMU #53) [reference RFI Report Volume I for additional information on the SWMUs]. SWMUs #3, #50 and #53 are included in SWMU Group C, as well as the soil placed in the ESI Fill Area (SWMU #54) beginning in 1996. The Eastern Process Wastewater Retention Basin (SWMU #3) was an unlined lagoon that received process wastewater from the Ambam dithiocarbamate pesticide manufacturing process (Ambam is a water-soluble ammonium carbamate intermediate used to manufacture ethylenebisdithiocarbamate (EBDC) fungicide products) from approximately 1964 to 1977 and treated maintenance wastewater from the carbofuran manufacturing areas from approximately 1969 to 1975. The eastern basin was closed in 1977-1978 by filling/grading existing soil. In the spring of 1978, the ESI was constructed within the footprint of the closed eastern basin.

In 1987-1988, FMC constructed a low-permeability surface cover (North Site Cover) over permeable surfaces on the northern portion of the Facility. The North Site Cover, which consists of a clay/sand/topsoil cover (2 feet minimum thickness), was constructed over the proposed CAMU Phase 1 Area, excluding the footprint of the ESI.

Concurrent with the construction of the North Site Cover, FMC conducted the Northern Ditches Interim Remedial Measure, in which approximately 1,680 cubic yards of soil was excavated from the FMC-owned North Railroad Property and placed within an engineered containment cell (SWMU #53). This work was conducted under the terms and conditions of an order on consent between FMC and the NYSDEC (File No. 87-49, 1987), and prior to the promulgation of the RCRA CAMU regulations in 1993. FMC submits that this Northern Ditches Contaminated Soil Storage Area (SWMU #53) is part of the existing contamination in SWMU Group C and is not “CAMU-Eligible Waste” that would be managed in the CAMU.

The ESI (SWMU #50) is one of three detention basins for stormwater runoff from the Facility that were determined by the Agencies to be RCRA-regulated hazardous waste storage units subject to interim status requirements under 6 NYCRR Part 373-3 and 40 CFR Part 265. The ESI was taken out of service in 1988. The closure of the ESI has been deferred, under the terms and conditions of the AOC. After the Agencies have reached a decision concerning designation of a CAMU, FMC will submit closure plan modifications for the ESI based on the Agencies' decision.

Between 1973 and 1986, 84 soil samples were collected at 25 locations within or adjacent to the proposed CAMU Phase 1 Area. The soil sampling locations are shown on Figure 2. The analytical data for arsenic (84 results) and other constituents (i.e., 24 results for volatile organics, semi-volatile organics, chlorinated pesticides, PCBs, methyl carbamates, metals, herbicides and/or other pesticides) in these soil samples are provided in Tables 1 and 2, respectively. In the November 23, 2009 letter, the Agencies requested that the soil analytical data be compared to the NYSDEC Remedial Program Soil Cleanup Objectives (SCOs) for industrial land use listed in Table 375-6.8(b) of 6NYCRR Subpart 375-6. This comparison is provided in Tables 1 and 2 in response to the Agencies' November 23, 2009 letter, and with the amendment that the arsenic data are compared to the Agencies' Middleport soil background delineation criterion of 20 mg/kg.

The soil analytical data include detections of arsenic, lead, mercury, chlorinated pesticides, ammonia, ETU, rotenone and volatile organics at various locations distributed throughout the proposed CAMU Phase 1 Area. Among these sample results, the highest concentrations of constituents were found near groundwater recovery trench A (see Figure 2), where a black substance was encountered during installation of the trench.

The primary Site-related contaminant, arsenic, is found throughout the proposed CAMU Phase 1 Area at concentrations above 20 mg/kg. The maximum concentration of arsenic in these soil samples is approximately 2,000 mg/kg and the average concentration (arithmetic average of all samples) is approximately 67 mg/kg.

From 1996 to 2008, the area within and adjacent to the ESI (ESI Fill Area) was used for the placement of soils excavated as part of remedial activities conducted by FMC and approved by the Agencies. Approximately 96,000 cubic yards of soil, classified as non-hazardous, was excavated from 36 off-site properties and the North Railroad Property in 1996, 1999, 2003, 2005, 2007 and 2008 and placed in the ESI Fill Area (SWMU #54) without a base liner or low permeability cap.

The materials placed in the ESI Fill Area are proposed for inclusion in the CAMU. The primary contaminant in the soil placed in the ESI Fill Area is arsenic. The average concentrations of arsenic in soils placed in the ESI Fill Area are as follows:

Remedial Activity	Approximate Volume of Soil Placed in the ESI Fill Area (cubic yards)	Average Soil Arsenic Concentration (mg/kg)
1996 Bleacher Area IRM	2,200	152
1999 Roy-Hart School ICM	39,000	55
2003 Western Residential Properties ICM	15,000	94
2005 North Railroad Property Phase 1 ICM	16,000	250
2007-2008 Early Action	23,750	50

The average concentration (on a volume-weighted basis) of arsenic in all soil placed in the ESI Fill Area is approximately 95 mg/kg.

2.2 Groundwater

Groundwater monitoring locations within the vicinity of the proposed CAMU Phase 1 Area, including those associated with Trenches A, D, E and G of the Facility's groundwater recovery system are shown on Figure 3.

The quarterly groundwater analytical data collected over time (under the Groundwater Monitoring Program [GMP] Work Plan [2002]) for the four indicator compounds (arsenic, ammonia, ETU and methylene chloride) in extraction wells associated with Trenches A, D, E and G are summarized in Table 3, and are plotted on Figures 4a to 4h (for each of the eight applicable extraction wells, respectively). Figures 4a through 4h are duplicated from figures presented in the Middleport Facility Fourth Quarter 2009/2010 Progress Report (July 1, 2010 through September 30, 2010), dated November 2010. The groundwater analytical data collected over the period from 2002 through 2010 for the monitoring wells are summarized in Table 4 for the groundwater indicator parameter list (GIPL) constituents (also collected under the GMP). In the November 23, 2009 letter, the Agencies requested that the groundwater analytical data be compared to the groundwater standards provided in 6NYCRR Part 703. This comparison is provided in Tables 3 and 4 in response to the Agencies' November 23, 2009 letter.

The groundwater data show elevated concentrations of arsenic, ammonia, ETU and methylene chloride in groundwater beneath and west of the proposed CAMU Phase 1 Area. The concentrations

of arsenic observed in the extraction wells and the downgradient monitoring wells have not increased over time, following placement of the arsenic-impacted soil in the unlined ESI Fill Area. Additionally, as presented in the table below, the average yearly arsenic concentrations (expressed in ug/L) for groundwater extracted from wells associated with the recovery trenches within or near the proposed CAMU footprint also demonstrate that the groundwater concentrations have not increased overtime.

Average Yearly Arsenic Concentration in Groundwater (ug/L)								
Year	Trench A	Trench D			Trench E	Trench G		
	A-756X	A-760X	D-EX1	D-EX2	A-757X	G-EX1	G-EX2	G-EX3
1995	n.a.	n.a.	n.a.	n.a.	175,000	n.a.	n.a.	n.a.
1996	25,275	n.a.	n.a.	n.a.	146,500	n.a.	n.a.	n.a.
1997	17,667	n.a.	n.a.	n.a.	286,667	n.a.	n.a.	n.a.
1998	32,125	n.a.	n.a.	n.a.	180,667	n.a.	n.a.	n.a.
1999	24,295	349	n.a.	n.a.	153,525	n.a.	n.a.	n.a.
2000	41,600	456	n.a.	n.a.	112,333	n.a.	n.a.	n.a.
2001	47,357	596	n.a.	n.a.	105,967	n.a.	n.a.	n.a.
2002	8,390	1,428	n.a.	n.a.	94,500	n.a.	n.a.	n.a.
2003	7,646	5,808	n.a.	n.a.	79,200	n.a.	n.a.	n.a.
2004	26,650	1,705	n.a.	n.a.	86,860	n.a.	n.a.	n.a.
2005	13,633	6,328	182	26	99,000	38	10	1
2006	15,363	2,708	247	45	69,575	9	2	1
2007	4,230	4,088	732	70	101,825	22	2	3
2008	3,516	4,374	829	125	98,020	15	2	2
2009	4,814	4,100	1,065	43	120,475	95	1	2
2010	6,813	3,647	283	158	157,295	12	0	1

n.a. = not applicable because well was not yet installed

3. Control of Groundwater in the Proposed CAMU Phase 1 Area

At the FMC Facility, interim corrective measures have been implemented to contain and remediate impacted groundwater throughout the Facility, including the proposed CAMU Phase 1 Area. FMC has implemented a series of Interim Corrective Measures (ICMs) designed to intercept and treat overburden and shallow bedrock groundwater before it can migrate beyond the Facility boundaries. The groundwater remedial systems at the Facility are being operated under the terms and conditions of the AOC. The groundwater remediation ICMs rely primarily on overburden underdrains and bedrock blast fractured trenches (and associated sumps and extraction wells) to create hydraulic barriers to off-site groundwater flow. Extracted groundwater is treated at the Facility's on-site water treatment plant. The effectiveness of the groundwater ICMs is routinely monitored, evaluated and reported to the Agencies in accordance with the Facility Groundwater Monitoring Plan (GMP) (March 2002) under the terms and conditions of the AOC.

3.1 Identification of Groundwater Control Systems

Three groundwater recovery trenches are primarily responsible for control of potential off-site groundwater flow from the proposed CAMU Phase 1 Area: Trench A, Trench G and (to a lesser extent) Trench D (see Figure 1 for locations). Specifics of these trenches are as follows:

i) Trench A (approximately 300 feet in length) uses one extraction well (A-756X) for interception of groundwater and control of off-site groundwater migration along the Facility's eastern property boundary, east of the proposed CAMU Phase 1 Area;

ii) Trench D (approximately 480 feet in length) uses three extraction wells (A-760X, D-EX1 and D-EX2) for interception of groundwater and control of off-site groundwater migration along the Facility's northern property boundary, northwest of the proposed CAMU Phase 1 Area; and

iii) Trench G (approximately 790 feet in length) uses three extraction wells (G-EX1, G-EX2, and G-EX3) for interception of groundwater and control of off-site groundwater migration along the Facility's northern property boundary, north of the proposed CAMU Phase 1 Area.

A component of groundwater from the proposed CAMU Phase 1 Area is also intercepted by Trench E to the west of the proposed CAMU Phase 1 Area. Table 5 presents a summary of the quarterly average groundwater recovery rates for the extraction wells in these trenches for the past three years. These rates have been relatively consistent over time, but reflect some variation due to seasonality (e.g., dry conditions) and maintenance requirements.

3.2 Mechanism for Hydraulic Control by Blast-Fractured Trenches

Figure 1 shows the locations of the proposed CAMU Phase 1 Area and the existing recovery trenches that control groundwater migration in its vicinity. Overburden and shallow bedrock groundwater flows in the proposed CAMU Phase 1 Area are primarily controlled by Blast Fractured Trenches A, D and G and their associated extraction wells. Groundwater flow in the shallow bedrock is intercepted directly by the blast fractured trenches, all of which physically penetrate the shallow bedrock zone.

The bedrock blasting also included the overburden/bedrock interface. The resultant blast-fractured trenches are physically and hydraulically in contact with the lower overburden. This allows groundwater flow in the overburden to be controlled by induced downward leakage to the trenches and associated extraction wells. A more detailed description of the blast-fractured trench design and hydraulic control of overburden and bedrock groundwater flow are presented in the report titled "*2005 Groundwater ICM Construction & Performance Report*" (2005 Groundwater ICM Report) December 2005).

3.3 Results of the 2005 ICM Performance Testing

In 2005, a comprehensive assessment of the hydraulic performance of the entire groundwater ICM system was performed coincident with the initial start-up of Trench D (following its extension) and Trench G (following its construction). The results are presented in the 2005 Groundwater ICM Report.

The timing of this assessment allowed an opportunity to directly measure the overburden and shallow bedrock groundwater hydraulic responses to pumping from Trench D and Trench G extraction wells and compare the response measurements to data for unstressed conditions (i.e., prior to pumping from the new Trench D and Trench G extraction wells).

The new Trench D and Trench G extraction wells started pumping in July 2005. Prior to the start-up and performance testing, groundwater conditions were monitored by measuring the hydraulic head at 191 monitoring well and piezometer locations for the four weeks immediately prior to system start-up. The antecedent data provided the static heads used to determine the drawdown response throughout the Site resulting from pumping the new extraction wells. The start-up monitoring consisted of the collection of groundwater level data from the same 191 monitoring wells and piezometers for four consecutive weeks following start-up of the new extraction wells.

To obtain more precise response measurements in key performance monitoring wells located close to the trenches, pressure transducers were installed in wells A-1096, A-16, A-858A, A-1216 and A-1218 (see Figure 3 for locations). Each of these wells exhibited drawdown response to the start-up of the new extraction wells. Hydrographs showing responses to pumping from Trench D and Trench G are included as Figures 5a and 5b, respectively. Both hydrographs show rapid drawdown in response to pumping. This indicates hydraulic continuity between the blasted trench and the surrounding shallow bedrock, which is a key factor in development of an effective hydraulic barrier.

In wells measured manually, drawdown was measured as far away as well A-16, located off-site approximately 200 feet north of Trench D and well A-858A, located off-site approximately 150 feet north of Trench G (see Figure 3). Drawdown was of greater magnitude closer to the trenches (A-1096, A-1216, and A-1218). The widespread drawdown responses to the start-up indicate hydraulic continuity between the blasted trench and the surrounding shallow bedrock and that a hydraulic depression had formed along the trenches. In addition, the Trench G extraction well G-EX1 and Trench G piezometer TGP-1 exhibited drawdown in response to pumping from the new Trench D extraction wells, indicating the depressions created by these two trenches overlap.

Based on the performance testing results, FMC concluded that the ICMs, and in particular Trenches D and G, were performing as designed and create a hydraulic barrier to off-site flow of overburden and shallow bedrock groundwater.

3.4 Hydraulic Barrier Effectiveness in Proposed Phase 1 CAMU Area

Overburden Hydraulic Barrier Effectiveness: The primary control of groundwater flowing in the overburden beneath the proposed CAMU Phase 1 Area is created by Blast Fractured Trench G and its three extraction wells (G-EX1, GEX-2 and G-EX3). Trench G extends to the west from the northeast corner of the Facility approximately 790 feet along the north Site property boundary to the eastern end of Trench D. The three Trench G extraction wells are located within the trench approximately equidistant along its length.

Trench G was located to take advantage of the natural groundwater flow direction and create a hydraulic depression to prevent off-site migration of overburden groundwater from the eastern portion of the Facility. Figure 6 presents the overburden groundwater hydraulic head distribution map for measurements obtained in February 2010, which are included in the most recent quarterly progress report (May 2010) submitted to the Agencies. This map is representative of the routine operational conditions and is consistent with the performance history of the system (as presented to the Agencies in quarterly report submittals since 2005).

The overburden hydraulic head distribution (Figure 6) shows groundwater flowing onto the Facility from the south and southeast, and migrating across the Facility to the north and northwest toward Trench G. Groundwater extraction from Trench G has created a linear hydraulic depression in the overburden, as evidenced by the inward gradients measured between well pairs 1211/1212 and 1213/1214. This indicates the induced infiltration downward has overcome the natural northerly hydraulic gradient and has resulted in the desired hydraulic barrier to off-site groundwater flow in the overburden. In other words, groundwater flowing in the overburden is captured by and discharges to Trench G, where it is intercepted.

Trench A has a similar (though more localized) effect on overburden hydraulic heads. In contrast to Trench G, which is oriented to take advantage of the natural hydraulic gradient, Trench A is constructed perpendicular to the overburden equipotential lines (i.e., along the groundwater flow path) and therefore has comparably less effect on the area-wide overburden groundwater flow direction. Outside of the depression caused by Trench A, overburden groundwater continues to flow north and northwest to Trench G, where it is intercepted.

Figure 6 also shows the groundwater flow directions throughout the proposed CAMU Phase 1 Area. These vectors converge to Trench G, indicating the Trench G capture zone extends throughout (and beyond) the proposed CAMU Phase 1 Area including the section of the eastern boundary north of Trench A. Based on the groundwater elevation measurements, Trench G captures horizontal overburden groundwater flow from the entire proposed CAMU Phase 1 Area footprint. Therefore, any water infiltrating the proposed CAMU Phase 1 Area will either be captured by Trench G or flow vertically downward to the shallow bedrock (see discussion of bedrock hydraulic control presented below).

Shallow Bedrock Hydraulic Barrier Effectiveness: The primary control of groundwater flowing in the shallow bedrock beneath the proposed CAMU Phase 1 Area is created by Blast Fractured Trenches A and G, and to a lesser extent Trench D. Locations of these trenches and their associated extraction wells are shown on Figure 1.

The shallow bedrock hydraulic head distribution is shown on Figure 7. By creating a linear high hydraulic conductivity zone which physically intercepts the bedrock groundwater, blast-fractured trenches (when pumped) are an extremely effective means to control bedrock groundwater flow. This is particularly true for low hydraulic conductivity regimes such as the shallow bedrock underlying the Facility. Figure 7 shows groundwater flow directions in the shallow bedrock are toward Trench A in the southeast portion of the proposed CAMU Phase 1 Area and toward Trench G from the remainder of the proposed CAMU Phase 1 Area. West of the proposed CAMU Phase 1 Area, flow is captured by Trench D, with a minor component likely captured by source area control Trench E (See Figure 7). In the area along the eastern boundary of the Facility, north of Trench A, flow is either toward Trench A or Trench G. Due to the natural northerly hydraulic gradient, the flow divide is closer to Trench A. Together these two trenches effectively provide a barrier to off-site shallow bedrock groundwater flow across this section of the Facility boundary. To the north, Trench G physically intercepts shallow bedrock groundwater flow. The hydraulic depression shown on Figure 7 represents an in-trench drawdown of 4 to 5 feet compared to surrounding groundwater and shows the effectiveness of Trench G in capturing shallow bedrock groundwater which would otherwise flow off-site to the north.

The combined effect of Trenches A and G result in capture of shallow bedrock groundwater from throughout the proposed CAMU Phase 1 Area. Water percolating down from the overburden to the shallow bedrock would be captured by these two trenches.

4. Summary

The proposed CAMU Phase 1 Area is already impacted with contaminants, including arsenic and other constituents in soil and in groundwater, that are controlled by the existing engineered hydraulic containment, collection and treatment system. The placement of impacted soil in the unlined ESI Fill Area during the previous remedial activities conducted from 1996 to 2008 has not resulted in increases in groundwater contaminant concentrations.

The existing groundwater trench ICMs, and in particular blast-fractured Trenches A and G, are effective in capturing overburden and shallow bedrock groundwater from the proposed CAMU Phase 1 Area, as discussed above. Hence, if leaching were to occur within the CAMU Phase I CAMU Area, it would be intercepted by the existing groundwater recovery system and treated at the Facility's WTP. Therefore, FMC and FMC's environmental consultants (e.g., ARCADIS, AMEC Geomatrix) concluded that use of the existing engineered containment, collection and treatment system, in lieu of a liner and leachate

collection system, represents an effective integration of the proposed CAMU Phase 1 Area with the existing corrective measures in use at the Facility.

5. References

AMEC Geomatrix. 2009. Corrective Measures Study Work Plan for Suspected Air Deposition and Culvert 105 Study Areas (August).

ARCADIS. 2008. Draft CAMU Application (March).

Conestoga-Rovers & Associates (CRA). 2002. Groundwater Monitoring Program Work Plan for Remedial Systems Effectiveness Monitoring, Revision No. 5 (March).

NYSDEC. 2007. Documentation of Environmental Indicator Determination – RCRA Corrective Action Environmental Indicator RCRA Info Code (CA750) – Migration of Contaminated Groundwater Under Control. FMC Corporation, 100 Niagara Street, Middleport, NY 14105, Facility EPA ID # NYD002126845. (March 14, 2007).

USEPA, et al. 1991. Administrative Order on Consent [Docket No. II RCRA-90-3008(h)-0209] entered into by FMC, NYSDEC and USEPA, effective July 2, 1991.

TABLE 1
ARSENIC SOIL ANALYTICAL DATA WITHIN OR ADJACENT TO PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Sample Depth (inches)	Date Collected	Soil Arsenic Concentration (mg/kg)
21-86	0 - 92.4	01/29/86	14.0
22-86	0 - 48	01/27/86	**36.0**
22-86	48 - 68.4	01/27/86	1.9
23-86	0 - 14.4	01/27/86	15.0
23-86	14.4 - 87.6	01/27/86	2.5
24-86	0 - 96	01/28/86	11.0
BH-C1	48 - 69.6	10/27/93	**161**
BH-C2	24 - 54	10/28/93	4.1
BH-C2	54 - 96	10/28/93	4.1
BH-C3	24 - 48	10/27/93	9.5
BH-C4	33.6 - 72	10/28/93	5.6
BH-C5	33.6 - 72	10/29/93	**2,420 J [1,520]**
BH-C5	156 - 166.8	10/29/93	**211**
BH-C6	48 - 72	10/26/93	**21.8**
BH-C7	66 - 90	10/26/93	**95.6**
BH-C8	0 - 3	07/08/96	**33.4**
BH-C8	0 - 6	09/14/95	**60.8 [67.7]**
BH-C8	24 - 48	09/14/95	10.1
BH-C9	0 - 3	07/08/96	**47.5**
BH-C9	0 - 6	09/14/95	**38.7**
BH-C9	24 - 48	09/14/95	6.4
ESI-06	0 - 6	07/15/96	**79.0**
ESI-8	0 - 6	07/15/96	**84.0**
ESI-8	0 - 6	07/22/96	**68.4**
ESI-9	0 - 6	07/15/96	**27.0 [37.0]**
ESI-9	0 - 6	07/22/96	**22.2**
ESI-09B	0 - 6	07/22/96	**291**
J-22	6	01/01/73	**32.0**
J-22	18	01/01/73	**42.0**
J-22	30	01/01/73	2.0
J-22	42	01/01/73	7.0
J-22	54	01/01/73	1.0 U
J-22	66	01/01/73	5.0
J-22	78	01/01/73	2.0
J-22	90	01/01/73	5.0
K-22	6	01/01/73	**71.0**
K-22	18	01/01/73	**44.0**
K-22	30	01/01/73	**35.0**
K-22	42	01/01/73	15.0
K-22	54	01/01/73	12.0
K-22	66	01/01/73	10.0
K-22	78 - 79.2	01/01/73	7.0
L-22	6	01/01/73	**116**
L-22	18	01/01/73	**57.0**
L-22	30	01/01/73	7.0
L-22	42	01/01/73	17.0
L-22	54	01/01/73	1.0 U
L-22	66	01/01/73	**105**
L-22	74.4	01/01/73	**140**
M22	6	01/01/73	**64.0**
M22	18	01/01/73	**52.0**
M22	30	01/01/73	12.0
M22	42	01/01/73	**25.0**
M22	54	01/01/73	7.0
M22	66	01/01/73	**25.0**

TABLE 1
ARSENIC SOIL ANALYTICAL DATA WITHIN OR ADJACENT TO PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID	Sample Depth (inches)	Date Collected	Soil Arsenic Concentration (mg/kg)
M22	78 - 81.6	01/01/73	**74.0**
N-22	6	01/01/73	**78.0**
N-22	18	01/01/73	10.0
N-22	30	01/01/73	7.0
N-22	42	01/01/73	10.0
N-22	54	01/01/73	4.0
N-22	66	01/01/73	2.0
N-22	78	01/01/73	4.0
O-22	6	01/01/73	**100**
O-22	18	01/01/73	**40.0**
O-22	30	01/01/73	**140**
O-22	42	01/01/73	10.0
O-22	54	01/01/73	10.0
O-22	66	01/01/73	**86.0**
O-22	78 - 82.8	01/01/73	**39.0**
P-22	6	01/01/73	16.2
P-22	18	01/01/73	17.0
P-22	30	01/01/73	**25.0**
P-22	42	01/01/73	15.0
P-22	54	01/01/73	4.0
P-22	66 - 67.2	01/01/73	4.0
Q-22	6	01/01/73	**372**
Q-22	18	01/01/73	**89.0**
Q-22	30	01/01/73	7.0
Q-22	42	01/01/73	12.0
Q-22	54	01/01/73	**23.0**
Q-22	66	01/01/73	**89.0**
Q-22	78	01/01/73	**42.0**
Q-22	90	01/01/73	**23.0**

Notes:
1. See Figure 2 of Attachment D-1A for sample locations.
2. mg/kg = milligrams per kilogram; equivalent to parts per million (ppm)
3. [ ] = sample duplicate result
4. Data qualifiers:
   J = Arsenic was positively identified, but the reported concentration is estimated.
   U = Analyzed for but not detected; the associated value is the instrument detection limit.
5. Values in **BOLD** exceed the Agencies' Middleport soil arsenic delineation criterion of 20 mg/kg. (comparison provided for screening purposes of the Draft CMS Report only).

TABLE 2

NON-ARSENIC SOIL ANALYTICAL DATA WITHIN OR ADJACENT TO PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID: Sample Depth (Inches):	Industrial SCO	Units	21-86 0 - 92.4 01/29/86	22-86 0 - 48 01/27/86	22-86 48 - 68.4 01/27/86	23-86 0 - 14.4 01/27/86	23-86 14.4 - 87.6 01/27/86	24-86 0 - 96 01/28/86	BH-C1 48 - 69.6 10/27/93	BH-C2 24 - 54 10/28/93	BH-C2 54 - 96 10/28/93	BH-C3 24 - 48 10/27/93	BH-C4 33.6 - 72 10/28/93	BH-C5 33.6 - 72 10/29/93	BH-C5 156 - 166.8 10/29/93
Volatile Organics															
1,1,1-Trichloroethane	1,000	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.0070 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U [0.0060 U]	0.72 U
1,1,2,2-Tetrachloroethane	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.0070 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U [0.0060 U]	0.72 U
1,1-Dichloroethane	480	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	1,000	mg/kg	1.0 U	1.0 U	2.0	1.0 U	1.0 U	1.0 U	0.0070 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U [0.0060 U]	0.72 U
1,2-Dichlorobenzene	1,000	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	60	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.0070 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U [0.0060 U]	0.72 U
1,2-Dichloropropane	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	250	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.44 U	0.41 U	0.37 U	0.38 U	0.39 U	0.38 U [0.37 U]	0.38 U
2-Butanone (MEK)	1,000	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
2-Chloroethyl vinyl ether	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Acetone	1,000	mg/kg	44.0	78.0	75.0	1.0 U	1.0 U	1.0 U	0.037	0.11	0.011 U	0.010 J	0.010 J	0.0060 J [0.018 J]	2.3
Acrolein	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Benzene	89	mg/kg	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U	0.0010 J	0.0060 U	0.0060 U	0.0010 J	0.0060 U	0.0060 U [0.0060 U]	0.72 U
Bromoform	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NV	mg/kg	1.0 U	5.0	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	44	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	1,000	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.0090	0.0060 U	0.0060 U	0.0030 J	0.0060 U	0.0060 U [0.0060 U]	0.72 U
Chloroethane	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Chloroform	700	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.0070 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U	0.0030 J [0.0040 J]	0.19 J
Chloromethane	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	780	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.0070 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U [0.0060 U]	0.72 U
Methylene chloride	1,000	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.014	0.0060 U	0.0060 U	0.0050 J	0.0060 U	0.0080 [0.012]	0.72 U
m-xylene	1,000	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Styrene	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	300	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.0020 J	0.0020 J	0.0060 U	0.0010 J	0.0060 U	0.0060 U [0.0060 U]	0.72 U
trans-1,2-Dichloroethene	1,000	mg/kg	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	400	mg/kg	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U	0.0070 U	0.0060	0.0020 J	0.0020 J	0.0020 J	0.0020 J [0.0020 J]	0.72 U
Trichlorofluoromethane	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Vinyl acetate	NV	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	27	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	1,000	mg/kg	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.0060 J	0.0060 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U [0.0060 U]	0.72 U

TABLE 2

NON-ARSENIC SOIL ANALYTICAL DATA WITHIN OR ADJACENT TO PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID: Sample Depth (Inches):	Industrial SCO	Units	21-86 0 - 92.4 01/29/86	22-86 0 - 48 01/27/86	22-86 48 - 68.4 01/27/86	23-86 0 - 14.4 01/27/86	23-86 14.4 - 87.6 01/27/86	24-86 0 - 96 01/28/86	BH-C1 48 - 69.6 10/27/93	BH-C2 24 - 54 10/28/93	BH-C2 54 - 96 10/28/93	BH-C3 24 - 48 10/27/93	BH-C4 33.6 - 72 10/28/93	BH-C5 33.6 - 72 10/29/93	BH-C5 156 - 166.8 10/29/93
Semi-Volatile Organics															
2-Methylphenol	1,000	mg/kg	NA	NA	NA	NA	NA	NA	0.44 U	0.41 U	0.37 U	0.38 U	0.39 U	0.38 U [0.37 U]	0.11 J
4,6-Dinitro-2-methylphenol	NV	mg/kg	NA	NA	NA	NA	NA	NA	2.2 U	2.0 U	1.9 U	1.9 U	2.0 U	1.9 U [1.9 U]	1.9 U
Aramite	NV	mg/kg	NA	NA	NA	NA	NA	NA	2.7 U	2.4 U	2.2 U	2.3 U	2.4 U	2.3 U [2.2 U]	2.3 U
bis(2-Ethylhexyl)phthalate	NV	mg/kg	NA	NA	NA	NA	NA	NA	1.0	0.24 J	0.077 J	0.61	0.13 J	0.38 U [0.46 U]	0.38 U
Isophorone	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.44 U	0.41 U	0.37 U	0.38 U	0.39 U	0.38 U [0.37 U]	0.20 J
Naphthalene	1,000	mg/kg	NA	NA	NA	NA	NA	NA	0.44 U	0.41 U	0.37 U	0.38 U	0.39 U	0.38 U [0.37 U]	0.38 U
Phenol	1,000	mg/kg	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.44 U	0.41 U	0.37 U	0.38 U	0.39 U	0.38 U [0.37 U]	0.38 U
Chlorinated Pesticides															
4,4'-DDD	180,000	ug/kg	NA	NA	NA	NA	NA	NA	1,200 J	59.0 J	3.7 UJ	60.0 J	6.4 J	4,400 J [4,400 J]	850 J
4,4'-DDE	120,000	ug/kg	NA	NA	NA	NA	NA	NA	450 J	130 J	2.8 J	36.0 J	11.0 J	1,200 J [1,300 J]	530 J
4,4'-DDT	94,000	ug/kg	NA	NA	NA	NA	NA	NA	3,400 J	22.0 J	3.7 UJ	70.0 J	6.1 J	9,300 J [9.5 J]	780 J
Aldrin	1,400	ug/kg	NA	NA	NA	NA	NA	NA	22.0 U	2.0 UJ	1.9 UJ	95.0 UJ	2.0 U	270 J [82.0 J]	38.0 UJ
alpha-BHC	6,800	ug/kg	NA	NA	NA	NA	NA	NA	1,400 J	2.0 UJ	1.9 UJ	590 J	2.0 U	30.0 J [30.0 J]	38.0 UJ
alpha-Chlordane	47,000	ug/kg	NA	NA	NA	NA	NA	NA	36.0 J	2.0 UJ	1.9 UJ	9.5 UJ	2.0 U	96.0 U [94.0 U]	38.0 UJ
beta-BHC	14,000	ug/kg	NA	NA	NA	NA	NA	NA	500 J	1.8 J	1.9 UJ	97.0 J	1,600 J	360 J [310 J]	55.0 J
delta-BHC	1,000,000	ug/kg	NA	NA	NA	NA	NA	NA	120 J	2.0 UJ	1.9 UJ	7.1 J	2.0 U	70.0 J [71.0 J]	66.0 J
Dieldrin	2,800	ug/kg	NA	NA	NA	NA	NA	NA	84.0 J	8.8 J	0.78 J	7.7 J	0.70 J	350 J [360 J]	190 J
Endosulfan I	920,000	ug/kg	NA	NA	NA	NA	NA	NA	97.0 J	2.0 UJ	1.9 UJ	15.0 J	2.0 U	960 UJ [1,100 J]	270 J
Endosulfan II	920,000	ug/kg	NA	NA	NA	NA	NA	NA	44.0 U	4.1 UJ	3.7 UJ	19.0 UJ	3.9 U	880 J [190 UJ]	76.0 UJ
Endosulfan sulfate	920,000	ug/kg	NA	NA	NA	NA	NA	NA	44.0 U	4.1 UJ	3.7 UJ	2.1 J	3.9 U	83.0 J [190 UJ]	76.0 UJ
Endrin	410,000	ug/kg	NA	NA	NA	NA	NA	NA	30.0 J	4.1 UJ	3.7 UJ	19.0 UJ	3.9 U	89.0 J [87.0 J]	88.0 J
Endrin aldehyde	NV	ug/kg	NA	NA	NA	NA	NA	NA	44.0 U	0.62 J	36.0 J	19.0 UJ	3.9 U	44.0 J [190 UJ]	74.0 J
Endrin ketone	NV	ug/kg	NA	NA	NA	NA	NA	NA	44.0 U	0.55 J	3.7 UJ	19.0 U	3.9 U	24.0 J [20.0 J]	76.0 UJ
gamma-BHC (Lindane)	23,000	ug/kg	1,000 U	1,000 U	1,000 U	1,000 U	1,000 U	1,000 U	140 J	2.0 UJ	1.9 UJ	95.0 UJ	2.0 U	24.0 J [24.0 J]	38.0 UJ
gamma-Chlordane	NV	ug/kg	NA	NA	NA	NA	NA	NA	53.0 J	2.0 UJ	1.9 UJ	1.7 J	2.0 U	130 J [120 J]	100 J
Heptachlor	29,000	ug/kg	NA	NA	NA	NA	NA	NA	22.0 U	2.0 UJ	1.9 UJ	95.0 UJ	2.0 U	96.0 U [94.0 U]	38.0 UJ
Heptachlor epoxide	NV	ug/kg	NA	NA	NA	NA	NA	NA	22.0 U	2.0 UJ	1.9 UJ	95.0 UJ	2.0 U	96.0 U [94.0 U]	38.0 UJ
Isodrin	NV	ug/kg	NA	NA	NA	NA	NA	NA	33.0 U	30.0 U	28.0 U	28.0 U	29.0 U	NA	18.0 J
Methoxychlor	NV	ug/kg	NA	NA	NA	NA	NA	NA	220 U	20.0 UJ	19.0 UJ	95.0 UJ	20.0 U	57.0 J [45.0 J]	91.0 J
Toxaphene	NV	ug/kg	NA	NA	NA	NA	NA	NA	2,200 U	200 UJ	190 UJ	950 UJ	200 U	9,600 U [9,400 U]	3,800 UJ
PCBs															
Aroclor-1016 (PCB-1016)	25	mg/kg	NA	NA	NA	NA	NA	NA	0.44 U	0.041 UJ	0.037 UJ	0.19 UJ	0.039 U	1.9 U [1.9 U]	0.76 UJ
Aroclor-1221 (PCB-1221)	25	mg/kg	NA	NA	NA	NA	NA	NA	0.89 U	0.081 UJ	0.075 UJ	0.38 UJ	0.078 U	3.8 U [3.7 U]	1.5 UJ
Aroclor-1232 (PCB-1232)	25	mg/kg	NA	NA	NA	NA	NA	NA	0.44 U	0.041 UJ	0.037 UJ	0.19 UJ	0.039 U	1.9 U [1.9 U]	0.76 UJ
Aroclor-1242 (PCB-1242)	25	mg/kg	NA	NA	NA	NA	NA	NA	0.44 U	0.041 UJ	0.037 UJ	0.19 UJ	0.039 U	1.9 U [1.9 U]	0.76 UJ
Aroclor-1248 (PCB-1248)	25	mg/kg	NA	NA	NA	NA	NA	NA	0.44 U	0.041 UJ	0.037 UJ	0.19 UJ	0.039 U	1.9 U [1.9 U]	0.76 UJ
Aroclor-1254 (PCB-1254)	25	mg/kg	NA	NA	NA	NA	NA	NA	0.44 U	0.041 UJ	0.037 UJ	0.19 UJ	0.039 U	1.9 U [1.9 U]	0.76 UJ
Aroclor-1260 (PCB-1260)	25	mg/kg	NA	NA	NA	NA	NA	NA	0.44 U	0.041 UJ	0.037 UJ	0.19 UJ	0.039 U	1.9 U [1.9 U]	0.76 UJ

TABLE 2

NON-ARSENIC SOIL ANALYTICAL DATA WITHIN OR ADJACENT TO PROPOSED CAMU PHASE 1 AREA
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FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID: Sample Depth (Inches):	Industrial SCO	Units	21-86 0 - 92.4 01/29/86	22-86 0 - 48 01/27/86	22-86 48 - 68.4 01/27/86	23-86 0 - 14.4 01/27/86	23-86 14.4 - 87.6 01/27/86	24-86 0 - 96 01/28/86	BH-C1 48 - 69.6 10/27/93	BH-C2 24 - 54 10/28/93	BH-C2 54 - 96 10/28/93	BH-C3 24 - 48 10/27/93	BH-C4 33.6 - 72 10/28/93	BH-C5 33.6 - 72 10/29/93	BH-C5 156 - 166.8 10/29/93
Other Pesticides/Herbicides															
2,4,5-T	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.42 U	0.39 UJ	0.35 U	0.36 U	0.38 U	0.37 U [0.36 U]	0.37 U
2,4,5-TP (Silvex)	1,000,000	mg/kg	NA	NA	NA	NA	NA	NA	0.42 U	0.39 UJ	0.35 U	0.36 U	0.38 U	0.37 U [0.36 U]	0.37 U
2,4-D	NV	mg/kg	NA	NA	NA	NA	NA	NA	1.0 U	0.97 UJ	0.88 U	0.90 U	0.95 U	0.92 U [0.90 U]	0.92 U
Chlorpyrifos	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.018 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U [0.015 U]	0.015 U
Diazinon	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.018 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U [0.015 U]	0.015 U
Dichlorvos	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.089 U	0.081 U	0.075 U	0.076 U	0.078 U	0.077 U [0.075 U]	0.076 U
Dinocap	NV	mg/kg	NA	NA	NA	NA	NA	NA	2.2 UJ	2.0 UJ	1.9 UJ	1.9 UJ	2.0 UJ	1.9 UJ [1.9 UJ]	1.9 UJ
Dinoseb	NV	mg/kg	NA	NA	NA	NA	NA	NA	1.0 UJ	0.97 UJ	0.88 UJ	0.90 UJ	0.95 UJ	0.92 UJ [0.90 UJ]	0.92 UJ
Ethion	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.018 U	0.016 U	0.015 U	0.015 U	0.016 U	0.048 J [0.14 J]	0.043
Karbutilate	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.47 U	0.085 U	0.079 U	0.080 U	0.082 U	0.80 U [1.6 U]	0.80 U
Malathion	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.018 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U [0.015 U]	0.015 U
Mevinphos	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.089 U	0.081 U	0.075 U	0.076 U	0.078 U	0.077 U [0.075 U]	0.076 U
Parathion, ethyl	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.018 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U [0.015 U]	0.019
Parathion, methyl	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.018 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U [0.015 U]	0.015 U
Phorate	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.018 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U [0.015 U]	0.015 U
Ronnel	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.018 U	0.016 U	0.015 U	0.015 U	0.016 U	0.015 U [0.015 U]	0.015 U
Trifluralin	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.0033 J	0.012 U	0.011 U	0.011 U	0.012 U	0.0018 J [0.0025 J]	0.0027 J
Methyl Carbamates															
7-Hydroxybenzofuran	NV	mg/kg	1.5	1.0	0.30 U	0.30 U	0.30 U	3.2	0.24	0.14 U	0.13 U	0.13 U	0.14 U	0.13 U [0.13 U]	0.31
Carbaryl	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.13 U	0.12 U	0.11 U	0.11 U	0.12 U	0.11 U [0.11 U]	0.11 U
Carbofuran	NV	mg/kg	4.1	5.7	0.30 U	0.30 U	0.30 U	0.30 U	0.093 U	0.085 U	0.078 U	0.079 U	0.082 U	0.080 U [0.078 U]	0.080 U
Chlorpropham	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.28 U	0.26 U	0.24 U	0.24 U	0.25 U	0.44 J [0.84 J]	0.81
Propoxur	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.11 U	0.10 U	0.095 U	0.096 U	0.10 U	0.097 U [0.095 U]	0.098 U
Ziram	NV	mg/kg	NA	NA	NA	NA	NA	NA	23.7	3.4 U	3.3 U	3.4 U	3.5 U	6.7 [6.5]	24.9
Other Synthetic Organics															
Ammonia	NV	mg/kg	NA	NA	NA	NA	NA	NA	421	89.7 U	248 J	894	123	88.7 U [88.8 U]	260
Carbophenothion	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.0044 U	0.0041 U	0.0037 U	0.0038 U	0.0039 U	NA	0.038 U
Dichlone	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.037 UJ	0.034 UJ	NA	0.032 UJ	0.033 UJ	NA	0.32 U
Ethylenethiourea (ETU)	NV	mg/kg	NA	NA	NA	NA	NA	NA	45.0	0.070	0.075	0.011 U	0.012 U	0.011 UJ [0.072 J]	18.0
Rotenone, Commercial	NV	mg/kg	NA	NA	NA	NA	NA	NA	16.0	0.085 U	0.079 U	0.86	0.082 U	0.36 J [1.6 UJ]	11.0
Metals															
Cadmium	60	mg/kg	NA	NA	NA	NA	NA	NA	0.82	0.67	0.56	0.46	0.69	1.1 [1.5]	0.45
Cyanide (total)	10,000	mg/kg	NA	NA	NA	NA	NA	NA	2.3 U	2.8 U	2.4 U	2.6 U	2.3 U	2.7 U [2.5 U]	2.7 U
Lead	3,900	mg/kg	NA	NA	NA	NA	NA	NA	39.6	8.3	9.5	10.5	8.9	817 [662]	38.7
Mercury	5.7	mg/kg	NA	NA	NA	NA	NA	NA	0.24	0.050 U	0.060 U	0.050 U	0.060 U	**4.2 J [18.3 J]**	0.29
Selenium	6,800	mg/kg	NA	NA	NA	NA	NA	NA	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U [0.11 U]	0.11 U
Thallium	NV	mg/kg	NA	NA	NA	NA	NA	NA	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U [0.11 U]	0.11 U
Zinc	10,000	mg/kg	NA	NA	NA	NA	NA	NA	295	70.9	71.8	56.8	52.3	139 [158]	58.3

TABLE 2

NON-ARSENIC SOIL ANALYTICAL DATA WITHIN OR ADJACENT TO PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Sample Location ID: Sample Depth (Inches):	Industrial SCO	Units	BH-C6 48 - 72 10/26/93	BH-C7 66 - 90 10/26/93	BH-C8 0 - 3 07/08/96	BH-C8 0 - 6 09/14/95	BH-C8 24 - 48 09/14/95	BH-C9 0 - 3 07/08/96	BH-C9 0 - 6 09/14/95	BH-C9 24 - 48 09/14/95	ESI-06 0 - 6 07/15/96	ESI-8 0 - 6 07/15/96	ESI-9 0 - 6 07/15/96
Volatile Organics													
1,1,1-Trichloroethane	1,000	mg/kg	0.0050 U	0.0060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NV	mg/kg	0.0050 U	0.0060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	480	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	1,000	mg/kg	0.0050 U	0.0060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	1,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	60	mg/kg	0.0050 U	0.0060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	250	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	1,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloroethyl vinyl ether	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	1,000	mg/kg	0.029	0.020	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	89	mg/kg	0.0050 U	0.0060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	44	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	1,000	mg/kg	0.0050 U	0.0060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	700	mg/kg	0.0050 U	0.0060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	780	mg/kg	0.0050 U	0.0060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	1,000	mg/kg	0.0050 UJ	0.0060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-xylene	1,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	300	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	mg/kg	0.0050 U	0.0020 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	1,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	400	mg/kg	0.0050 U	0.0060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl acetate	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	27	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	1,000	mg/kg	0.0050 U	0.0060 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 2

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ATTACHMENT D-1A DRAFT - MAY 2011
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Semi-Volatile Organics													
2-Methylphenol	1,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aramite	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	1,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	1,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorinated Pesticides													
4,4'-DDD	180,000	ug/kg	NA	NA	23.0	26.0 [24.0]	3.0 J	19.0	18.0	3.0 J	110 J	330 J	24.0 J [46.0 J]
4,4'-DDE	120,000	ug/kg	NA	NA	340	560 [500]	34.0	160	470	19.0	290 J	1,500 J	120 J [230 J]
4,4'-DDT	94,000	ug/kg	NA	NA	280 J	480 [390]	31.0	72.0 J	590	21.0	400 J	880 J	54.0 J [98.0 J]
Aldrin	1,400	ug/kg	NA	NA	2.0 U	2.0 U [2.0 U]	2.0 U	2.0 U	2.0 U	2.0 U	2.6 U	3.2 U	2.3 U [2.9 U]
alpha-BHC	6,800	ug/kg	NA	NA	2.0 U	0.50 J [0.40 J]	2.0 U	2.0 U	0.20 J	2.0 U	2.6 U	24.0	2.3 U [2.9 U]
alpha-Chlordane	47,000	ug/kg	NA	NA	2.0 U	NA	NA	2.0 U	NA	NA	NA	NA	NA
beta-BHC	14,000	ug/kg	NA	NA	2.0 U	2.0 U [2.0 U]	2.0 U	2.0 U	4.0	2.0 U	55.0 J	200 J	5.2 J [16.0 J]
delta-BHC	1,000,000	ug/kg	NA	NA	2.0 U	2.0 U [2.0 U]	2.0 U	2.0 U	2.0 U	2.0 U	2.6 U	3.2 U	2.3 U [2.9 U]
Dieldrin	2,800	ug/kg	NA	NA	11.0	4.0 U [4.0 U]	4.0 U	7.0	4.0 U	4.0 U	28.0 J	66.0 J	4.1 J [110 J]
Endosulfan I	920,000	ug/kg	NA	NA	2.0 U	2.0 U [2.0 U]	2.0 U	2.0 U	2.0 U	2.0 U	14.0 J	3.2 U	3.4 [2.9 U]
Endosulfan II	920,000	ug/kg	NA	NA	4.0 U	4.0 U [4.0 U]	4.0 U	4.0 U	4.0 U	4.0 U	110 J	6.3 UJ	25.0 J [5.8 UJ]
Endosulfan sulfate	920,000	ug/kg	NA	NA	5.0	NA	NA	4.0 U	NA	NA	NA	NA	NA
Endrin	410,000	ug/kg	NA	NA	4.0 U	NA	NA	4.0 U	NA	NA	NA	NA	NA
Endrin aldehyde	NV	ug/kg	NA	NA	4.0 U	NA	NA	4.0 U	NA	NA	NA	NA	NA
Endrin ketone	NV	ug/kg	NA	NA	4.0 U	NA	NA	4.0 U	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	23,000	ug/kg	NA	NA	2.0 U	0.30 J [0.30 J]	2.0 U	2.0 U	0.30 J	0.10 J	2.6 U	3.2 U	2.3 U [2.9 U]
gamma-Chlordane	NV	ug/kg	NA	NA	2.0 U	NA	NA	2.0 U	NA	NA	NA	NA	NA
Heptachlor	29,000	ug/kg	NA	NA	2.0 U	NA	NA	2.0 U	NA	NA	NA	NA	NA
Heptachlor epoxide	NV	ug/kg	NA	NA	2.0 U	NA	NA	2.0 U	NA	NA	NA	NA	NA
Isodrin	NV	ug/kg	NA	NA	4.0 U	NA	NA	4.0 U	NA	NA	NA	NA	NA
Methoxychlor	NV	ug/kg	NA	NA	21.0 U	NA	NA	22.0 U	NA	NA	NA	NA	NA
Toxaphene	NV	ug/kg	NA	NA	210 U	NA	NA	220 U	NA	NA	NA	NA	NA
PCBs													
Aroclor-1016 (PCB-1016)	25	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1221 (PCB-1221)	25	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1232 (PCB-1232)	25	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1242 (PCB-1242)	25	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248 (PCB-1248)	25	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254 (PCB-1254)	25	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260 (PCB-1260)	25	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 2

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FMC CORPORATION - MIDDLEPORT, NEW YORK

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Other Pesticides/Herbicides													
2,4,5-T	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	1,000,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorpyrifos	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diazinon	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorvos	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dinocap	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dinoseb	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethion	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Karbutilate	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Malathion	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mevinphos	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion, ethyl	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion, methyl	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phorate	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ronnel	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trifluralin	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Carbamates													
7-Hydroxybenzofuran	NV	mg/kg	0.12 U	0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbaryl	NV	mg/kg	0.10 U	0.12 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbofuran	NV	mg/kg	0.074 U	0.083 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorpropham	NV	mg/kg	0.22 U	0.11 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propoxur	NV	mg/kg	0.089 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ziram	NV	mg/kg	3.6 U	3.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Synthetic Organics													
Ammonia	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbophenothion	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlone	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylenethiourea (ETU)	NV	mg/kg	0.26	0.028	NA	0.049	0.022 U	NA	0.022 U	0.022 U	0.0063	0.26	0.028 U [0.035 U]
Rotenone, Commercial	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals													
Cadmium	60	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (total)	10,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	3,900	mg/kg	31.0	78.5	64.8	82.0 [85.4]	13.0	64.0	57.2	8.7	50.0	160	44.0 [56.0]
Mercury	5.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	6,800	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NV	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	10,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 2

NON-ARSENIC SOIL ANALYTICAL DATA WITHIN OR ADJACENT TO PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011

CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Notes:

1. See Figure 2 of Attachment D-1A for sample locations.
2. mg/kg = milligrams per kilogram; equivalent to parts per million (ppm)
3. ug/kg = micrograms per kilogram; equivalent to parts per billion (ppb)
4. NA = Sample not analyzed for this analyte.
5. [ ] = sample duplicate result
6. Data qualifiers:
   U = Analyzed for but not detected; the associated value is the instrument detection limit for the analyte.
   J = Analyte was positively identified, but the reported concentration is estimated.
   UJ = Analyte not detected above the reported sample detection limit, but the detection limit is estimated.
7. Values in **BOLD** exceed the NYSDEC Remedial Program Soil Cleanup Objectives (SCOs) for industrial land use listed in Table 375-6.8(b) of 6NYCRR Subpart 375-6. This comparison is provided for screening purposes of the Draft CMS Report only.
8. NV = No SCO published.

TABLE 3
QUARTERLY GROUNDWATER ANALYTICAL DATA FOR EXTRACTION WELLS WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID	Date Collected	Result Units	Ammonia-Nitrogen	Arsenic	Ethylene Thiourea	Methylene Chloride
NYSDEC Groundwater Quality Standards			**2,000**	**25**	**ND**	**5**
A-756X	5/26/1994	ug/L	NA	NA	NA	**37,000**
	6/23/1994	ug/L	NA	NA	NA	**29,000**
	7/22/1994	ug/L	NA	NA	NA	**32,000**
	8/12/1994	ug/L	NA	NA	NA	**42,000**
	9/29/1994	ug/L	NA	NA	NA	**29,000**
	10/13/1994	ug/L	NA	NA	NA	**37,000**
	11/14/1994	ug/L	NA	NA	NA	**24,000**
	12/7/1994	ug/L	NA	NA	NA	**20,000**
	1/26/1995	ug/L	NA	NA	NA	**2,500**
	2/9/1995	ug/L	NA	NA	NA	**32,000**
	3/23/1995	ug/L	NA	NA	NA	**14,000**
	4/28/1995	ug/L	NA	NA	NA	**14,000**
	5/30/1995	ug/L	NA	NA	NA	**14,000**
	6/30/1995	ug/L	NA	NA	NA	**14000 J**
	7/24/1995	ug/L	NA	NA	NA	**17,000**
	8/28/1995	ug/L	NA	NA	NA	**18000 J**
	2/29/1996	ug/L	NA	NA	NA	**11,000**
	3/21/1996	ug/L	NA	NA	NA	**11,000**
	4/22/1996	ug/L	NA	NA	NA	**15,000**
	5/29/1996	ug/L	NA	**29800 J**	**11,000**	**12000 J**
	6/25/1996	ug/L	NA	**23,000**	**22000 J**	**14000 J**
	7/30/1996	ug/L	NA	**25,000**	**6,400**	**16,000**
	9/4/1996	ug/L	NA	**37,000**	**12,000**	**12,000**
	10/1/1996	ug/L	NA	**10,000**	**27 J**	**9,200**
	10/28/1996	ug/L	NA	**44,800**	**2200 J**	**9,400**
	11/20/1996	ug/L	NA	**17800 J**	**10,000**	**7,500**
	12/17/1996	ug/L	NA	**14,800**	**7,900**	**7,900**
	3/4/1997	ug/L	**20,700**	**13100 J**	**7,000**	**8600 J**
	6/16/1997	ug/L	**34000 J**	**11500 J**	**78.8 J**	NA
	8/14/1997	ug/L	**32,000**	**28,400**	**36,100**	**22000 J**
	3/4/1998	ug/L	**21,200**	**22500 J**	**12,400**	**6,500**
	6/17/1998	ug/L	**33500 J**	**34,400**	**31300 J**	**16000 J**
	8/5/1998	ug/L	**18,200**	**48500 J**	**24,000**	**13,000**
	11/23/1998	ug/L	**33,000**	**23,100**	**18,900**	**5,000**
	3/25/1999	ug/L	**22,900**	**28800 J**	**8,500**	**4,300**
	5/25/1999	ug/L	**29,000**	**22880 J**	**7,700**	**2,400**
	7/23/1999	ug/L	**43,400**	**28200 J**	**18500 J**	**5,000**
	10/22/1999	ug/L	**64,000**	**17,300**	**6,500**	**14**
	3/16/2000	ug/L	**26900 J**	**43700 J**	**9,300**	**5,500**
	6/1/2000	ug/L	**29,100**	**25,300**	**7020 J**	**3,800**
	8/24/2000	ug/L	**29,900**	**17900 J**	**3,700**	**2,600**
	11/7/2000	ug/L	**32,800**	**79500 J**	**4420 J**	**1,200**
	1/19/2001	ug/L	**22,600**	**93600 J**	**4,000**	**1,800**
	4/10/2001	ug/L	NA	**44,500**	**7,500**	**3,600**
	11/2/2001	ug/L	**32600 J**	**3,970**	**2,050**	**500**
	1/22/2002	ug/L	**15400 J**	**9540 J**	**3,200**	**1,700**
	5/9/2002	ug/L	**15300 J**	**9810 J**	**6,100**	**3,400**
	11/8/2002	ug/L	**27,200**	**5,820**	**16,000**	**1,400**
	6/11/2003	ug/L	**17,600**	**788**	**16,000**	**2,300**
	9/5/2003	ug/L	**24,000**	**9,850**	**6,900**	**1,200**
	11/7/2003	ug/L	**26,400**	**12300 J**	**330**	**8**

TABLE 3
QUARTERLY GROUNDWATER ANALYTICAL DATA FOR EXTRACTION WELLS WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID	Date Collected	Result Units	Ammonia-Nitrogen	Arsenic	Ethylene Thiourea	Methylene Chloride
NYSDEC Groundwater Quality Standards			**2,000**	**25**	**ND**	**5**
A-756X (cont'd)	3/15/2004	ug/L	**15,700**	**17,700**	**5,900**	**1,900**
	5/21/2004	ug/L	**25,300**	**17800 J**	**9200 J**	**3,700**
	8/18/2004	ug/L	**28,700**	**54,200**	**10,000**	**3,600**
	11/5/2004	ug/L	**20900 J**	**16,900**	**6400 J**	**1,400**
	3/3/2005	ug/L	**14800 J**	**29,600**	**10,000**	**3,500**
	4/14/2005	ug/L	1800 J	**17500 J**	**15,000**	**4200 J**
	9/1/2005	ug/L	**10200 J**	**5,350**	**6,400**	**56**
	10/20/2005	ug/L	**19000 J**	**2080 B**	**2700 J**	**88 J**
	2/13/2006	ug/L	**13,900**	**17600 J**	**12,000**	**1800 J**
	6/9/2006	ug/L	**19800 J**	**3250 J**	**7,500**	**700**
	9/28/2006	ug/L	**8,700**	**21800 J**	**27,000**	**1,800**
	12/19/2006	ug/L	**14,400**	**18,800**	**15,000**	**1,300**
	3/20/2007	ug/L	**20,500**	**729 J**	**5900 J**	**350**
	5/24/2007	ug/L	**12,600**	**13,000**	**17,000**	**1,700**
	9/14/2007	ug/L	**10,600**	**2,190**	**2,900**	**31**
	11/13/2007	ug/L	**18,500**	**2,700**	**40**	4
	11/13/2007	ug/L	**27,800**	**2,530**	**43**	4
	2/7/2008	ug/L	**10400 J**	**1,830**	**5 U**	**5.7**
	6/10/2008	ug/L	**14200 J**	**7,530**	**5300 J**	**550 J**
	9/18/2008	ug/L	**22,600**	**4,610**	**5,500**	**100**
	11/25/2008	ug/L	**18,800**	**94**	**5 U**	3
	1/19/2009	ug/L	**4,700**	**157**	**6**	**20 U**
	6/2/2009	ug/L	**29,500**	**13300 J**	1400 UBJ	**330**
	9/15/2009	ug/L	**37,600**	**3,560**	**4,200**	**31**
	11/18/2009	ug/L	**48,500**	**2240 J**	**2200 J**	**25 J**
	1/15/2010	ug/L	**20,900**	**7,130**	**4000 J**	**310**
	5/27/2010	ug/L	**24,400**	**12,000**	**4,100**	**350**
	8/31/2010	ug/L	**24600**	**5470 J**	**4200 J**	**5 J**
	11/1/2010	ug/L	**33400**	**2650 J**	**2600**	2 U
A-757X	9/21/1995	ug/L	**12,900**	**164,000**	**52,000**	**140,000**
	9/27/1995	ug/L	**20,700**	**186000 J**	**31,000**	**940,000**
	3/14/1996	ug/L	**26,900**	**155,000**	**45,000**	**520,000**
	3/21/1996	ug/L	**41,600**	**145,000**	**72,000**	**570,000**
	3/28/1996	ug/L	NA	**140,000**	**47000 J**	**650,000**
	4/3/1996	ug/L	**41100 J**	**140,000**	**15000 J**	**750,000**
	4/22/1996	ug/L	NA	NA	NA	**620,000**
	5/29/1996	ug/L	NA	**151000 J**	**43,000**	**450000 J**
	6/25/1996	ug/L	NA	**154,000**	**55,000**	**830000 J**
	7/29/1996	ug/L	NA	**160,000**	**57000 J**	**75000 J**
	9/4/1996	ug/L	NA	**170,000**	**32,000**	**540,000**
	9/30/1996	ug/L	NA	**140,000**	**87000 J**	**440,000**
	10/28/1996	ug/L	NA	**132,000**	**32,000**	**430,000**
	11/19/1996	ug/L	NA	**140000 J**	**33,000**	**420,000**
	12/17/1996	ug/L	NA	**131,000**	**33,000**	**440,000**
	6/16/1997	ug/L	**90,700**	**241,000**	**106000 J**	**290000 J**
	8/14/1997	ug/L	**80,900**	**473,000**	**202,000**	**460,000**
	12/17/1997	ug/L	**87,500**	**146000 J**	**95,800**	**350,000**
	3/4/1998	ug/L	**100,000**	**127000 J**	**133,000**	**140,000**
	6/5/1998	ug/L	**90,600**	**130000 J**	**94,000**	**320,000**
	8/5/1998	ug/L	**83,600**	**285000 J**	**95,000**	**340,000**
	11/23/1998	ug/L	**5,900**	**17,500**	**91,100**	**310,000**
	3/2/1999	ug/L	**59,700**	**343,000**	**54,800**	**260,000**
	3/9/1999	ug/L	**54700 J**	**111,000**	**36000 J**	**160000 J**
	3/16/1999	ug/L	**52,100**	**127,000**	**48,000**	**220,000**
	3/22/1999	ug/L	**38,000**	**137,000**	**46,000**	**100,000**

TABLE 3
QUARTERLY GROUNDWATER ANALYTICAL DATA FOR EXTRACTION WELLS WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID	Date Collected	Result Units	Ammonia-Nitrogen	Arsenic	Ethylene Thiourea	Methylene Chloride
NYSDEC Groundwater Quality Standards			**2,000**	**25**	**ND**	**5**
A-757X (cont'd)	3/30/1999	ug/L	**64,400**	**87,900**	**84,000**	**300,000**
	5/25/1999	ug/L	**65,800**	**97300 J**	**82,900**	**300,000**
	7/23/1999	ug/L	**42,500**	**159000 J**	**129000 J**	**410,000**
	10/22/1999	ug/L	**51,000**	**166,000**	**62,000**	**190000 J**
	3/16/2000	ug/L	**69400 J**	**89300 J**	**57,400**	**260,000**
	5/31/2000	ug/L	**71,500**	**113,000**	**87,000**	**440,000**
	8/24/2000	ug/L	**93,300**	**115000 J**	**52,000**	**330,000**
	11/7/2000	ug/L	**69,000**	**109,000**	**52100 J**	**290,000**
	1/19/2001	ug/L	**87,600**	**95100 J**	**43,900**	**490,000**
	4/10/2001	ug/L	NA	**85,800**	**55,900**	**370,000**
	11/2/2001	ug/L	**83000 J**	**137,000**	**25,900**	**530,000**
	1/22/2002	ug/L	**66600 J**	**109000 J**	**55,000**	**260,000**
	5/9/2002	ug/L	**44500 J**	**64500 J**	**44,200**	**220,000**
	11/7/2002	ug/L	**37,900**	**110,000**	**69,000**	**380,000**
	3/4/2003	ug/L	**50500 J**	**96200 J**	**55000 J**	**110,000**
	6/11/2003	ug/L	**57,900**	**15,600**	**63,000**	**210,000**
	9/8/2003	ug/L	**57,200**	**120,000**	**60,000**	**210,000**
	11/11/2003	ug/L	**87,700**	**102000 J**	**47,000**	**180,000**
	3/15/2004	ug/L	**63,500**	**76,100**	**38,000**	**140,000**
	5/21/2004	ug/L	**76,800**	**78,400**	**53000 J**	**120,000**
	5/21/2004	ug/L	**74,900**	**82500 J**	**48000 J**	**130,000**
	8/18/2004	ug/L	**91,200**	**91,300**	**58000 J**	**110000 J**
	11/5/2004	ug/L	**82000 J**	**106000 J**	**51000 J**	**120,000**
	3/3/2005	ug/L	**50300 J**	**73,400**	**49,000**	**76,000**
	4/14/2005	ug/L	**63600 J**	**72600 J**	**69,000**	**82000 J**
	9/1/2005	ug/L	**55500 J**	**114,000**	**58,000**	**140,000**
	10/19/2005	ug/L	**7200 J**	**136000 J**	**36000 J**	**100000 J**
	2/13/2006	ug/L	**45,100**	**62500 J**	**45,000**	**97000 J**
	6/9/2006	ug/L	**76900 J**	**78600 J**	**11,000**	**200,000**
	9/28/2006	ug/L	**41,100**	**72600 J**	**69,000**	**76,000**
	12/19/2006	ug/L	**46,200**	**64,600**	**63,000**	**71,000**
	3/20/2007	ug/L	**5,600**	**152000 J**	**6600 J**	**8,800**
	5/24/2007	ug/L	**44,200**	**64,200**	**86,000**	**88,000**
	9/14/2007	ug/L	**44,500**	**93,700**	**74,000**	**150,000**
	11/13/2007	ug/L	**66,400**	**97,400**	**56,000**	**310,000**
	2/7/2008	ug/L	**43600 J**	**91,200**	**19,000**	**1,800**
	6/10/2008	ug/L	**7400 J**	**88,200**	**50000 J**	**130000 J**
	6/10/2008	ug/L	**48200 J**	**89,700**	**51000 J**	**120000 J**
	9/18/2008	ug/L	**73,100**	**102,000**	**49000 J**	**120,000**
	11/25/2008	ug/L	**54,000**	**119,000**	**34000 J**	**79,000**
	1/19/2009	ug/L	**32,400**	**78,800**	**17000 J**	**7,800**
	6/2/2009	ug/L	**42,700**	**90100 J**	**57000 J**	**4,100**
	9/15/2009	ug/L	**63,400**	**170,000**	**36000 J**	**75,000**
	11/18/2009	ug/L	**53,100**	**143000 J**	**44000 J**	**72000 EDJ**
	1/15/2010	ug/L	**54,700**	**92,500**	**39000 J**	**42,000**
	5/27/2010	ug/L	**39,400**	**89,200**	**59,000**	**640,000**
	8/31/2010	ug/L	**33200**	**179000 J**	**40000 J**	**110000**
	11/1/2010	ug/L	**14500 J**	**271000 J**	**35000 J**	**72000**

TABLE 3
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ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID	Date Collected	Result Units	Ammonia-Nitrogen	Arsenic	Ethylene Thiourea	Methylene Chloride
NYSDEC Groundwater Quality Standards			**2,000**	**25**	**ND**	**5**
A-760X	2/16/1999	ug/L	**37,000**	**209**	**9,200**	2
	2/23/1999	ug/L	**54,000**	**228**	**9,600**	**43**
	3/3/1999	ug/L	**44,900**	**78**	**5,800**	**500**
	3/9/1999	ug/L	**49500 J**	**54**	**5500 J**	**85 J**
	3/16/1999	ug/L	**48,900**	**96**	**6,300**	**1,200**
	5/25/1999	ug/L	**32,000**	**111 J**	**7,700**	1 U
	7/23/1999	ug/L	**45,500**	**2010 J**	**19,300**	**9,600**
	10/21/1999	ug/L	**20,800**	10 U	**6,400**	**410**
	3/16/2000	ug/L	**18700 J**	**474 J**	**25,800**	1 U
	6/1/2000	ug/L	**48,200**	**516**	**5290 J**	1 U
	8/24/2000	ug/L	**61,200**	**726 J**	**4,200**	1 U
	11/7/2000	ug/L	**79,000**	**107**	**6600 J**	1 U
	1/19/2001	ug/L	**80,200**	**102 J**	**5,760**	1 U
	4/10/2001	ug/L	NA	**435**	**5,400**	1 U
	11/2/2001	ug/L	**69000 J**	**1,250**	**5,570**	1 U
	1/23/2002	ug/L	**64000 J**	**242 J**	**5,700**	1 U
	5/9/2002	ug/L	**46600 J**	**171 J**	**6700 J**	1 U
	11/1/2002	ug/L	**40,000**	**3,870**	**6,660**	1 U
	3/3/2003	ug/L	**55900 J**	**2000 J**	**4,300**	1 U
	6/11/2003	ug/L	**54,100**	**3,550**	**11,000**	1 U
	9/4/2003	ug/L	**58,500**	**6,980**	**8,200**	1 U
	11/11/2003	ug/L	**84,000**	**10700 J**	**5,000**	2 U
	3/15/2004	ug/L	**47,800**	**351**	**4,500**	2 U
	5/21/2004	ug/L	**74,300**	**1,990**	**4400 J**	2 U
	8/18/2004	ug/L	**87,900**	**1,280**	**7600 J**	2 U
	11/5/2004	ug/L	**75900 J**	**3,200**	**17000 J**	2 U
	3/3/2005	ug/L	**53800 J**	**884**	**6,600**	2 U
	4/14/2005	ug/L	**47500 J**	**907 J**	**5,500**	2 UJ
	9/1/2005	ug/L	**800 J**	**5,220**	**1,500**	5 U
	10/19/2005	ug/L	**11500 J**	**18,300**	**170 J**	2 UJ
	2/13/2006	ug/L	**14,300**	**2740 J**	**1,900**	2 UJ
	6/8/2006	ug/L	370 J	**4540 J**	**2 U**	3 J
	9/28/2006	ug/L	**14,000**	**2580 J**	**2,500**	2 U
	12/19/2006	ug/L	**20,700**	**973**	**1,200**	2 U
	3/20/2007	ug/L	**2,100**	**2350 J**	**160 JX**	2 U
	5/24/2007	ug/L	**30,000**	**523**	**3,900**	2 U
	9/14/2007	ug/L	**12,000**	**3,700**	**910**	2 U
	11/13/2007	ug/L	**8,100**	**9,780**	**1,200**	2 U
	2/7/2008	ug/L	**10100 J**	**596**	**1,000**	2 U
	6/10/2008	ug/L	**15300 J**	**2,720**	**1,900**	2 U
	9/18/2008	ug/L	**13,100**	**8,830**	**1,500**	2 U
	11/25/2008	ug/L	**7,400**	**5,350**	**590**	2 U
	1/19/2009	ug/L	**18,800**	**4,940**	**930**	2 U
	6/2/2009	ug/L	**7,000**	**2410 J**	1900 UBJ	2 U
	9/15/2009	ug/L	**5,800**	**4,300**	**1400 J**	2 U
	11/17/2009	ug/L	**4,600**	**4750 J**	**880**	2 U
	1/15/2010	ug/L	**9,600**	**4,190**	**1,200**	2 U
	5/27/2010	ug/L	**4,800**	**2,850**	**1,800**	2 U
	8/31/2010	ug/L	**4000**	**33700 J ***	**570**	2 U
	11/1/2010	ug/L	**4000**	**3900 J**	**780**	2 U

TABLE 3
QUARTERLY GROUNDWATER ANALYTICAL DATA FOR EXTRACTION WELLS WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID	Date Collected	Result Units	Ammonia-Nitrogen	Arsenic	Ethylene Thiourea	Methylene Chloride
NYSDEC Groundwater Quality Standards			**2,000**	**25**	**ND**	**5**
D-EX1	9/1/2005	ug/L	**108000 J**	**65**	**4,500**	5 U
	10/19/2005	ug/L	**88500 J**	**298**	**6700 J**	2 UJ
	2/13/2006	ug/L	**129,000**	**92.1 J**	**8,900**	2 UJ
	6/9/2006	ug/L	**106000 J**	**87.5 J**	**8,900**	2 U
	9/28/2006	ug/L	**48,100**	**500 J**	**8,100**	2 U
	12/19/2006	ug/L	**82,000**	**309**	**6,300**	2 U
	3/20/2007	ug/L	**103,000**	**1810 J**	**9100 J**	2 U
	5/24/2007	ug/L	**6,800**	**232**	**12,000**	2 U
	9/14/2007	ug/L	**40,400**	**577**	**31,000**	2 U
	11/13/2007	ug/L	**40,800**	**309**	**10,000**	2 U
	2/7/2008	ug/L	**68400 J**	**1,300**	**13,000**	2 U
	6/10/2008	ug/L	**68100 J**	**638**	**9,600**	2 U
	9/18/2008	ug/L	**92,700**	**1,300**	**10,000**	2 U
	11/25/2008	ug/L	**36,400**	**78**	**3,100**	2 U
	1/19/2009	ug/L	**27,400**	**26**	**2,900**	2 U
	6/2/2009	ug/L	**74,300**	**192 J**	660 UBJ	2 U
	9/15/2009	ug/L	**152,000**	**651**	**5,700**	2 U
	11/17/2009	ug/L	**87,600**	**3390 J**	**6,900**	2 U
	1/15/2010	ug/L	**134,000**	**245**	**4,900**	2 U
	5/27/2010	ug/L	**80,700**	**266**	**7,300**	2 U
	8/31/2010	ug/L	**79200**	**382 J**	**6000 J**	2 U
	11/1/2010	ug/L	**39900**	**238 J**	**5600 J**	2 U
D-EX2	9/1/2005	ug/L	**228000 J**	19	**13,000**	2 J
	10/19/2005	ug/L	**149000 J**	**33**	**14000 J**	2 UJ
	2/13/2006	ug/L	**119,000**	**11.1 J**	**19,000**	2 UJ
	6/9/2006	ug/L	**116000 J**	**18.7 J**	**49,000**	2 U
	9/28/2006	ug/L	**121,000**	**8.1 UJ**	**14,000**	2 U
	12/19/2006	ug/L	**176,000**	**148**	**14,000**	2 U
	3/20/2007	ug/L	**155,000**	**32.7 J**	**12000 J**	2 U
	5/24/2007	ug/L	**16,400**	**179**	**8,600**	2 U
	9/14/2007	ug/L	**203,000**	**42**	**33,000**	2 U
	11/13/2007	ug/L	**183,000**	**26**	**19,000**	2 U
	2/7/2008	ug/L	**162000 J**	**41**	**93,000**	2 U
	6/10/2008	ug/L	**130000 J**	**40**	**11,000**	2 U
	9/18/2008	ug/L	NA	**333**	**22000 J**	2 U
	9/23/2008	ug/L	**139,000**	NA	NA	NA
	11/25/2008	ug/L	**106,000**	**84**	**5,400**	2 U
	1/19/2009	ug/L	**98,900**	23	**16000 J**	2 U
	6/2/2009	ug/L	**160,000**	**45.4 J**	**7000 J**	2 U
	6/2/2009	ug/L	**177,000**	**116 J**	**7,800**	2 U
	9/15/2009	ug/L	**196,000**	**28**	**12000 J**	2 U
	9/15/2009	ug/L	**196,000**	**28**	**10000 J**	2 U
	11/17/2009	ug/L	**182,000**	20.4 J	**6,700**	11 J
	1/15/2010	ug/L	**174,000**	15	**6700 J**	2 U
	1/15/2010	ug/L	**182,000**	20	**5,900**	2 U
	5/27/2010	ug/L	**93,200**	**247**	**6,100**	2 U
	8/31/2010	ug/L	**195000**	**315 J**	**9500 J**	2 U
	11/1/2010	ug/L	**17900**	**192 J**	**5900 J**	2 U

TABLE 3
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ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID	Date Collected	Result Units	Ammonia-Nitrogen	Arsenic	Ethylene Thiourea	Methylene Chloride
NYSDEC Groundwater Quality Standards			**2,000**	**25**	**ND**	**5**
G-EX1	9/1/2005	ug/L	**254000 J**	2.9 B	**14,000**	5 U
	10/19/2005	ug/L	**179000 J**	**65**	**8500 J**	2 UJ
	10/19/2005	ug/L	**205000 J**	**45**	**9200 J**	2 UJ
	2/13/2006	ug/L	**333,000**	5.6 J	**8,100**	2 UJ
	6/9/2006	ug/L	**193000 J**	11.3 J	**11,000**	2 U
	6/9/2006	ug/L	**190000 J**	16.4 J	**10,000**	2 U
	9/28/2006	ug/L	**194,000**	1.4 UJ	**6,000**	2 U
	12/19/2006	ug/L	**232,000**	8	**6,800**	2 U
	12/19/2006	ug/L	**173,000**	13	**6,800**	2 U
	3/20/2007	ug/L	**194,000**	**51 J**	**3800 J**	4
	5/24/2007	ug/L	**290,000**	6	**9,600**	2 U
	9/14/2007	ug/L	**197,000**	20	**12,000**	2 U
	9/14/2007	ug/L	**155,000**	13	**13,000**	2 U
	11/13/2007	ug/L	**130,000**	19	**8,700**	2 U
	2/7/2008	ug/L	**176000 J**	10	**40,000**	2
	6/10/2008	ug/L	**145000 J**	9	**9,300**	2 U
	9/18/2008	ug/L	**173,000**	25	**9300 J**	2 U
	11/25/2008	ug/L	**166,000**	15	**5,900**	2 U
	1/19/2009	ug/L	**129,000**	**314**	**7000 J**	2 U
	6/2/2009	ug/L	**313,000**	5.4 J	**4,900**	2 U
	9/15/2009	ug/L	**211,000**	**55.3**	**6,300**	2 U
	11/18/2009	ug/L	**295,000**	4.2 J	**3800 J**	2 U
	1/15/2010	ug/L	**263,000**	9	**4500 J**	2 U
	5/27/2010	ug/L	**191,000**	5	**5,000**	2 U
	8/31/2010	ug/L	**121000**	14.6 J	**4300**	2 U
	11/1/2010	ug/L	**222000**	20.6 J	**4400**	2 U
G-EX2	9/1/2005	ug/L	**97000 J**	2.1 U	**390**	5 U
	10/20/2005	ug/L	**208000 J**	18	**150 J**	2 UJ
	2/13/2006	ug/L	**140,000**	2.1 U	5 U	2 UJ
	6/9/2006	ug/L	**96700 J**	1.2 UJ	**9**	2 U
	9/28/2006	ug/L	**133,000**	4.1 UJ	**200**	2 U
	12/19/2006	ug/L	**70,400**	2	**17**	2 U
	3/20/2007	ug/L	**95,100**	2.1 J	R	2 U
	5/24/2007	ug/L	**129,000**	1.9 B	**170**	2 U
	9/14/2007	ug/L	**69,800**	3	**640**	2 U
	11/13/2007	ug/L	**35,800**	2	**1,600**	2 U
	2/7/2008	ug/L	**118000 J**	4	**1,200**	2 U
	6/10/2008	ug/L	**85700 J**	0.95 U	**290**	2 U
	9/18/2008	ug/L	**115,000**	3	**120**	2 U
	11/25/2008	ug/L	**106,000**	0.95 U	**780**	2 U
	11/25/2008	ug/L	**107,000**	0.95 U	**790**	2 U
	1/19/2009	ug/L	**82,300**	0.95 U	**780**	2 U
	6/2/2009	ug/L	**211,000**	0.95 UJ	140 UB	2 U
	9/15/2009	ug/L	**168,000**	1.1 B	**1,300**	2 U
	11/18/2009	ug/L	**122,000**	0.95 UJ	**18**	2 U
	1/15/2010	ug/L	**141,000**	0.95 U	**350 J**	2 U
	5/27/2010	ug/L	**90,900**	0.95 U	**79**	2 U
	8/31/2010	ug/L	**54400**	0.95 UJ	**40**	2 U
	11/1/2010	ug/L	**75600**	0.95 UJ	**140**	2 U

TABLE 3
QUARTERLY GROUNDWATER ANALYTICAL DATA FOR EXTRACTION WELLS WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID	Date Collected	Result Units	Ammonia-Nitrogen	Arsenic	Ethylene Thiourea	Methylene Chloride
NYSDEC Groundwater Quality Standards			**2,000**	**25**	**ND**	**5**
G-EX3	9/1/2005	ug/L	**152000 J**	2.1 U	**71**	5 U
	10/20/2005	ug/L	**212000 J**	2.1 U	**200 J**	2 UJ
	2/13/2006	ug/L	**189,000**	2.1 U	**730**	2 UJ
	6/9/2006	ug/L	**115000 J**	1.2 UJ	**830**	2 U
	9/28/2006	ug/L	**126,000**	1.2 UJ	**130**	2 U
	12/19/2006	ug/L	**90,200**	4	**66**	2 U
	3/20/2007	ug/L	**595,000**	2.6 J	**14000 J**	2 U
	5/24/2007	ug/L	**87,200**	1.8 B	**89**	2 U
	9/14/2007	ug/L	**30,600**	4	**610**	2 U
	11/13/2007	ug/L	**41,700**	2 U	**19**	2 U
	2/7/2008	ug/L	**171000 J**	4	**1,300**	2 U
	6/10/2008	ug/L	**85600 J**	0.95 U	**51 J**	2 U
	9/18/2008	ug/L	**40,100**	3	5 U	2 U
	11/25/2008	ug/L	**94,200**	1.1 B	**12**	2 U
	1/19/2009	ug/L	**78,200**	6	**41**	2 U
	6/2/2009	ug/L	**111,000**	1 BJ	16 UB	2 U
	9/15/2009	ug/L	**112,000**	0.95 U	**29**	2 U
	11/18/2009	ug/L	**180,000**	0.95 UJ	9.3 U	2 U
	1/15/2010	ug/L	**113,000**	0.98 B	**110**	2 U
	5/27/2010	ug/L	**94,300**	1.1 B	**16**	2 U
	8/31/2010	ug/L	**64200**	0.95 UJ	**3.7 U**	2 U
	11/1/2010	ug/L	**52400**	0.95 UJ	**3 J**	2 U

Notes:

1. Results presented in micrograms per liter (ug/L) which is equivalent to parts per billion (ppb).
2. NA = Not analyzed
3. NYSDEC Groundwater Quality Standards and guidance values obtained from Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.
4. Bold values indicate results above NYSDEC Groundwater Quality Standards. (comparison provided for screening purposes of the Draft CMS Report only)
5. * = This result is considered an anomaly by comparison to the nine prior and one subsequent results.
6. Locations where field samples and field duplicate samples were collected, the higher of the two values is presented.
7. Data qualifiers:

J	The compound was positively identified; however, the associated numerical value is an estimated concentration only.
U	The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
UJ	The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
B	Inorganics - The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).
	Organics - The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
D	Concentration is based on a diluted sample analysis.
E	Indicates that a result was out of calibration range.
R	The sample results are rejected.

TABLE 4
GIPL ANALYTICAL DATA (2002 - 2010) WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID:	NYSDEC Groundwater Quality Standards and Guidance Values	Units	528A					835					A-650A				
Date Collected:			2002	2004	2006	2008	2010	2002	2004	2006	2008	2010	2002	2004	2006	2008	2010
Volatile Organics																	
1,2-Dichloroethene (Total)	--	ug/L	2 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U [1 U]
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	50*	ug/L	8 J	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	9 J	6 U	6 U	6 U [6 U]
Benzene	1	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	7	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 J	1 J	1 U	1 U	1 U [1 U]
Ethylbenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	5	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U [2 U]
Toluene	5	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U [2 U]
Xylene (Total)	5	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]
Trichloroethene	5	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]
Semivolatile Organics																	
Isophorone	50*	ug/L	1 U	1 U	1 U	0.9 U	1 U	0.9 U	1 U	1 U	0.9 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]
Naphthalene	10*	ug/L	1 U	1 U	1 U	0.9 U	1 U	0.9 U	1 U	1 U	0.9 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]
OCPs																	
4,4'-DDT	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BHC-alpha	--	ug/L	0.01 J	0.0048 U	0.0048 U	0.0095 U	NA	0.048 U	0.005 U	0.0048 U	0.0095 U	0.0096 U	0.047 U	0.005 U	0.0047 U	0.0095 U	0095 U [0.0096
BHC-beta	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BHC-delta	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BHC-gamma (Lindane)	--	ug/L	0.047 U	0.0048 U	0.0048 U	0.0095 U	NA	0.048 U	0.005 U	0.0048 U	0.0095 U	0.0096 U	0.047 U	0.005 U	0.0047 U	0.0095 U	0095 U [0.0096
Herbicides																	
2,4-D	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloropropham	--	ug/L	190 U	0.37 U	0.38 U	0.38 U	NA	1.9 U	0.39 U	0.38 U	0.37 U	NA	1.9 U	0.61 U	0.38 U	0.38 U	NA
Karbutilate	--	ug/L	190 U	0.37 UJ	0.38 U	19 UJ	NA	1.9 U	0.39 UJ	0.38 U	19 UJ	NA	1.9 U	0.4 UJ	0.38 U	19 UJ	NA
Inorganics																	
Cadmium	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25	ug/L	8.9 U	10 U	8.4 U	6.9 U	6.9 U	8.9 U	10 U	8.4 U	6.9 U	6.9 U	8.9 U	10 U	8.4 U	6.9 U	6.9 U [6.9 U]
Mercury	0.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000*	ug/L	4.9 U	10.7 B	6 B	8.1 U	8.1 U	5	4.8 U	5.3 U	8.1 U	13.7 B	4.9 U	4.8 U	5.3 U	8.1 U	8.1 U [8.1 U]
Arsenic																	
Arsenic	25	ug/L	2 UJ	0.85 U	2.1 U	0.95 U	0.95 U	1.4 UJ	0.85 U	2.1 U	0.95 U	5	1.4 UJ	0.85 U	2.1 U	0.95 U	2.5 [2]
Ammonia																	
Ammonia-Nitrogen	2,000	ug/L	**14,100 J**	360	110	46 J	70 J	97 UJ	130	140	78 J	150 U	94 UJ	**1100**	95 J	52 J	190 [200]
Ethylene Thiourea																	
Ethylene Thiourea	ND	ug/L	2.5 U	2 U	2 U	2 UJ	2 U	2.5 U	2 U	2 U	2 UJ	2 U	2.5 U	2 U	2 U	2 UJ	2 U [2 U]
Carbamates																	
7-Hydroxybenzofuran	--	ug/L	94 U	0.19 UJ	0.19 UJ	0.96 UJ	0.96 U	0.94 U	0.2 UJ	0.19 UJ	0.94 UJ	0.97 U	1 U	0.2 UJ	0.19 UJ	0.94 UJ	0.96 U [0.96 U]
Baygon	--	ug/L	190 U	0.37 U	0.38 UJ	1.2 UJ	1.2 U	1.9 U	0.39 U	0.38 UJ	1.2 UJ	1.3 U	1.9 U	0.4 U	0.38 UJ	1.2 UJ	1.2 U [1.2 U]
Carbaryl	--	ug/L	94 U	0.28 U	0.28 UJ	1.6 UJ	1.6 U	0.94 U	0.29 U	0.29 UJ	1.6 UJ	1.6 U	1 U	0.3 U	0.29 UJ	1.6 UJ	1.6 U [1.6 U]
Carbofuran	15*	ug/L	**31 J**	0.19 U	0.19 U	1.2 UJ	1.9 U	0.94 U	0.2 U	0.19 U	1.2 UJ	1.9 U	1 U	0.2 U	0.19 U	1.2 UJ	1.9 U [1.9 U]
Total Dithiocarbamates	--	ug/L	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	NA	5 U	5 U	NA	5 U	NA

TABLE 4
GIPL ANALYTICAL DATA (2002 - 2010) WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID:	NYSDEC Groundwater Quality Standards and Guidance Values	Units	C-860					A-1037				
Date Collected:			2002	2004	2006	2008	2010	2002	2004	2006	2008	2010
Volatile Organics												
1,2-Dichloroethene (Total)	--	ug/L	2 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U [1 U]	1 U [1 U]	1 U
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	1 U	1 U
Acetone	50*	ug/L	6 U	6 U	7 J	8 J	6 U	6 U	6 U	6 U [6 U]	6 U [6 U]	6 UJ
Benzene	1	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	0.5 U
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	0.8 U	0.8 U
Chloroform	7	ug/L	1 U	1 U	1 U	1 U	1 U	23	1 U	1 U [1 U]	1 U [1 U]	0.8 U
Ethylbenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	0.8 U	0.8 U
Methylene Chloride	5	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U [2 U]	2 U [2 U]	2 U
Toluene	5	ug/L	4 J	**16**	2 U	2 U	2 U	2 U	2 U	2 U [2 U]	2 U [2 U]	0.7 U
Xylene (Total)	5	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	0.8 U
Trichloroethene	5	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U [1 U]	1 U
Semivolatile Organics												
Isophorone	50*	ug/L	1 U	0.9 U	1 U	1 U	1 U	0.9 U	1 U	1 U [1 U]	0.9 U [0.9 U]	1 U
Naphthalene	10*	ug/L	1 U	0.9 U	1 U	1 U	1 U	0.9 U	1 U	1 U [1 U]	0.9 U [0.9 U]	1 U
OCPs												
4,4'-DDT	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BHC-alpha	--	ug/L	0.048 U	0.0049 J	0.0048 U	0.0096 U	0.0095 U	0.047 U	0.0049 U	0.0047 U [0.0047 U]	0.0095 U [0.0096 U]	0.0095 U
BHC-beta	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BHC-delta	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BHC-gamma (Lindane)	--	ug/L	0.048 U	0.0066 J	0.0048 U	0.0096 U	0.0095 U	0.047 U	0.0049 U	0.0047 U [0.0047 U]	0.0095 U [0.0096 U]	0.0095 U
Herbicides												
2,4-D	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloropropham	--	ug/L	1.9 J	1.62 U	0.4 U	0.38 U	NA	1.9 U	NA	0.38 U [0.38 U]	0.38 U [0.38 U]	NA
Karbutilate	--	ug/L	1.9 U	0.39 UJ	0.4 U	19 UJ	NA	1.9 U	NA	0.38 U [0.38 U]	19 UJ [19 UJ]	NA
Inorganics												
Cadmium	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25	ug/L	8.9 U	10 U	6.9 U	23.6	34.5 U	8.9 U	10 U	8.4 U [8.4 U]	6.9 U [6.9 U]	6.9 U
Mercury	0.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000*	ug/L	24.5 U	24 U	8.2 U	14.9 B	40.5 U	4.9 U	4.8 U	5.3 U [5.3 U]	8.1 U [8.1 U]	8.1 U
Arsenic												
Arsenic	25	ug/L	**71.9 J**	4.2 U	**155 J**	10 U	2.7 B	1.4 UJ	3.4 J	2.1 U [6.4 U]	3.7 [3.5]	3
Ammonia												
Ammonia-Nitrogen	2,000	ug/L	**12,800 J**	**20000**	**22,000 J**	**15,400**	**19,200**	7,170 J	**5,100**	**6,200 [6,000]**	**2,300 [2,400]**	**2,400**
Ethylene Thiourea												
Ethylene Thiourea	ND	ug/L	2.5 U	2 U	**4 J**	2 UJ	10 U	2.5 UJ	2 U	2 U [2 U]	2 U [2 UJ]	2 U
Carbamates												
7-Hydroxybenzofuran	--	ug/L	0.94 U	0.2 UJ	0.2 UJ	0.96 UJ	0.96 U	0.94 UJ	NA	0.19 UJ [0.19 UJ]	0.95 UJ [0.95 UJ]	0.96 U
Baygon	--	ug/L	1.9 U	0.39 U	0.4 U	1.2 UJ	1.2 U	1.9 U	NA	1.9 UJ [0.38 UJ]	1.2 UJ [1.2 UJ]	1.2 U
Carbaryl	--	ug/L	0.94 U	0.29 U	0.3 UJ	1.6 UJ	1.6 U	0.94 U	NA	0.28 UJ [0.28 UJ]	1.6 UJ [1.6 UJ]	1.6 U
Carbofuran	15*	ug/L	0.94 U	0.2 U	0.2 U	1.2 UJ	1.9 U	0.44 J	NA	0.49 J [0.51 J]	1.2 UJ [1.2 UJ]	1.9 U
Total Dithiocarbamates	--	ug/L	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U [5 U]	5 U [5 U]	5 U

TABLE 4
GIPL ANALYTICAL DATA (2002 - 2010) WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID:	NYSDEC Groundwater Quality Standards and Guidance Values	Units	C-863					836R				
Date Collected:			2002	2004	2006	2008	2010	2002	2004	2006	2008	2010
Volatile Organics												
1,2-Dichloroethene (Total)	--	ug/L	2 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	1 U	1 U
Acetone	50*	ug/L	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Benzene	1	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	0.8 U	0.8 U
Chloroform	7	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.8 U
Ethylbenzene	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	0.8 U	0.8 U
Methylene Chloride	5	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Toluene	5	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.7 U
Xylene (Total)	5	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.8 U
Trichloroethene	5	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Semivolatile Organics												
Isophorone	50*	ug/L	1 U	1 U	1 U	1 U	1 U	0.9 U	1 U	1 U	0.9 U	NA
Naphthalene	10*	ug/L	1 U	1 U	1 U	1 U	1 U	0.9 U	1 U	1 U	0.9 U	1 U
OCPs												
4,4'-DDT	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BHC-alpha	--	ug/L	0.046 U	0.0048 U	0.0048 U	0.0096 U	0.0096 U	0.047 U	0.0052 U	0.0047 U	0.1 U	0.0095 U
BHC-beta	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BHC-delta	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BHC-gamma (Lindane)	--	ug/L	0.046 U	0.0048 U	0.0048 U	0.0096 U	0.0096 U	0.047 U	0.0052 U	0.0047 U	0.1 U	0.0095 U
Herbicides												
2,4-D	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloropropham	--	ug/L	1.1 J	1.95 U	0.38 U	0.38 U	NA	1.9 U	0.4 U	0.38 U	0.38 U	NA
Karbutilate	--	ug/L	1.9 U	0.39 UJ	0.38 U	19 UJ	NA	1.9 U	0.38 UJ	0.38 U	19 UJ	NA
Inorganics												
Cadmium	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	25	ug/L	8.9 U	**26.3**	6.9 U	6.9 U	34.5 U	8.9 U	10 U	8.4 U	6.9 U	11.3 B
Mercury	0.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	10	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000*	ug/L	24.5 U	4.8 U	8.2 U	8.9 B	40.5 U	4.9 U	4.8 U	21.2	21.4	54.9
Arsenic												
Arsenic	25	ug/L	17.3 J	12.9 B	10.5 J	2.7 U	1.5 B	1.4 UJ	1.5 J	4.1 U	2.6	7.1
Ammonia												
Ammonia-Nitrogen	2,000	ug/L	**7,840 J**	**14,700**	**5,900 J**	**6,400**	**7,400**	61 UJ	170	**6,300**	71 J	86 J
Ethylene Thiourea												
Ethylene Thiourea	ND	ug/L	2.5 U	2 U	2 U	2 UJ	2 U	2.5 U	2 U	2 U	2 UJ	2 U
Carbamates												
7-Hydroxybenzofuran	--	ug/L	1 UJ	0.2 UJ	0.19 UJ	0.94 UJ	0.96 U	0.95 UJ	0.19 UJ	0.19 UJ	0.96 UJ	0.96 U
Baygon	--	ug/L	1.9 U	0.39 U	0.38 UJ	1.2 UJ	1.2 U	1.9 U	0.38 U	0.38 UJ	1.2 UJ	1.2 U
Carbaryl	--	ug/L	1 U	0.3 U	0.29 UJ	1.6 UJ	1.6 U	0.95 U	0.29 U	0.28 UJ	1.6 UJ	1.6 U
Carbofuran	15*	ug/L	1 U	0.2 U	0.19 U	1.2 UJ	1.9 U	0.95 U	0.19 U	0.19 U	1.2 UJ	1.9 U
Total Dithiocarbamates	--	ug/L	5 U	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U

TABLE 4
GIPL ANALYTICAL RESULTS (2002 - 2010) WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID:	NYSDEC Groundwater Quality Standards and Guidance Values	Units	15					DE-1003					C-1094		
Date Collected:			2002	2004	2006	2008	2010	2002	2004	2006	2008	2010	2002	2006	2008
Volatile Organics															
1,2-Dichloroethene (Total)	--	ug/L	2 U	1 U	1 U	1 U	1 U	2 U [2 U]	1 J	1 U	1 U	1 U [1 U]	2 U	1 U	1 U
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	1 U [1 U]	1 U	1 UJ	NA	NA	1 U	NA	NA
Acetone	50*	ug/L	6 U	6 U	6 U	6 U	6 U	6 UJ [6 U]	34	6 UJ	6 U	6 U [6 U]	6 U	6 U	6 U
Benzene	1	ug/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	4 J	1 U	1 U	1 U [1 U]	1 U	1 U	1 U
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	1 U [1 U]	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U
Chloroform	7	ug/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 U	1 U	1 U	1 U [1 U]	1 J	1 U	1 U
Ethylbenzene	5	ug/L	NA	NA	NA	NA	NA	2 U [2 U]	2 U	2 U	2 U	1 U [1 U]	2 U	2 U	2 U
Methylene Chloride	5	ug/L	2 U	2 U	2 U	2 U	2 U	2 U [2 U]	**1300 J**	**160**	2 U	2 J [3 J]	2 U	2 U	2 U
Toluene	5	ug/L	2 U	2 U	2 U	2 U	2 U	2 U [2 U]	2 U	2 U	2 U	2 U [2 U]	2 U	2 U	2 U
Xylene (Total)	5	ug/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	1 J	1 U	1 U	1 U [1 U]	1 U	1 U	1 U
Trichloroethene	5	ug/L	1 U	1 U	1 U	1 U	1 U	1 U [1 U]	**17**	2 J	1 U	1 U [1 U]	1 U	1 U	1 U
Semivolatile Organics															
Isophorone	50*	ug/L	1 U	1 U	0.9 U	NA	0.9 U	1 U [1 U]	3 J	1 U	1 U	0.9 U [0.9 U]	1 U	NA	0.9 UJ
Naphthalene	10*	ug/L	1 U	1 U	0.9 U	NA	0.9 U	1 U [1 U]	1 U	1 U	1 U	0.9 U [0.9 U]	1 U	NA	0.9 UJ
OCPs															
4,4'-DDT	--	ug/L	NA	NA	NA	NA	NA	0.099 J [0.063 J]	0.46	4.8 D	4.9 J	0.07 J [0.074 J]	0.023 J	NA	NA
BHC-alpha	--	ug/L	0.019 J	0.0056 J	0.0058 J	NA	NA	0.047 U [0.047 U]	0.0048 U	0.5	0.094 UJ	0.0094 U [0.0094 U]	0.0088 J	NA	NA
BHC-beta	--	ug/L	NA	NA	0.22	NA	NA	0.047 U [0.047 U]	0.0062 U	0.13	0.094 UJ	0.0094 U [0.0094 U]	0.006 J	NA	NA
BHC-delta	--	ug/L	NA	0.0048 U	0.0048 U	NA	NA	0.047 U [0.047 U]	0.0062 J	0.29	0.094 UJ	0.0094 U [0.0094 U]	0.047 U	NA	NA
BHC-gamma (Lindane)	--	ug/L	0.0053 J	0.0048 U	0.0048 U	NA	NA	0.047 U [0.047 U]	0.0054 J	0.67	0.094 UJ	0.0094 U [0.0094 U]	0.01 J	NA	NA
Herbicides															
2,4-D	--	ug/L	NA	NA	NA	NA	NA	0.48 U [0.48 U]	0.096 U	0.46 J	0.15 UJ	0.15 UJ [0.15 UJ]	0.52 U	NA	NA
Chloropropham	--	ug/L	2 U	0.38 U	0.38 U	NA	NA	1.9 U [1.9 U]	0.39 U	0.39 U	0.87 J	NA	2 U	NA	NA
Karbutilate	--	ug/L	0.89 J	2.5 J	2.3	NA	NA	1.9 U [1.9 U]	0.39 U	0.39 UJ	19 UJ	NA	2 U	NA	NA
Inorganics															
Cadmium	5	ug/L	NA	NA	NA	NA	NA	0.94 U [0.94 U]	NA	0.91 U	NA	NA	0.94 UJ	0.91 U	2 U
Lead	25	ug/L	8.9 U	10 U	8.4 U	6.9 U	6.9 U	44.5 U [44.5 U]	10 U	6.9 U	6.9 U	34.5 U [34.5 U]	8.9 U	6.9 U	6.9 U
Mercury	0.7	ug/L	NA	NA	NA	NA	NA	0.079 UJ [0.079 UJ]	R	0.056 U	0.2 U	0.056 U [0.056 U]	0.079 UJ	0.056 U	0.056 U
Selenium	10	ug/L	NA	NA	NA	NA	NA	24 UJ [24 UJ]	NA	9.4 U	NA	NA	4.8 U	NA	NA
Zinc	2,000*	ug/L	4.9 U	7.3 B	8.1 B	48.7	14.3 B	24.5 U [24.5 U]	24 U	8.2 U	17.6 B	40.5 U [40.5 U]	53.4	8.2 U	8.1 U
Arsenic															
Arsenic	25	ug/L	**68 J**	**50.6 J**	**44.1**	**29.4**	**34.1**	**97.7 J [41.8 J]**	**26.7 J**	**62**	**55**	3.7 J [3.9 J]	12.9 J	11.5 J	3.3 J
Ammonia															
Ammonia-Nitrogen	2,000	ug/L	**2,880 J**	750	**11,300**	**3,000**	**10,300**	**8,300 J [8,180 J]**	**28,300 J**	**13,600**	**13,900**	**16,400 [18,800]**	660 J	930 J	780
Ethylene Thiourea															
Ethylene Thiourea	ND	ug/L	**36**	**76**	**61**	2 UJ	**11**	**2.1 J [2.5 U]**	**620 J**	**79 J**	**4 J**	10 U [10 U]	**2,000**	**75**	**26**
Carbamates															
7-Hydroxybenzofuran	--	ug/L	0.95 U	0.19 UJ	0.19 UJ	NA	0.96 U	0.31 J [0.22 J]	2.8 J	1.2 J	0.95 UJ	0.95 U [0.95 U]	21 J	NA	NA
Baygon	--	ug/L	1.9 U	0.38 U	0.38 UJ	NA	1.2 U	1.9 U [1.9 U]	0.39 U	0.39 UJ	1.2 UJ	1.2 U [1.2 U]	2 U	NA	NA
Carbaryl	--	ug/L	0.95 U	0.29 U	0.28 UJ	NA	1.6 U	0.94 U [0.94 U]	0.29 U	0.29 UJ	1.6 UJ	1.6 U [1.6 U]	1 U	NA	NA
Carbofuran	15*	ug/L	1.5	1.4	0.75 J	NA	1.9 U	0.94 U [0.94 U]	0.73 J	0.19 UJ	1.2 UJ	1.9 U [1.9 U]	1 U	NA	NA
Total Dithiocarbamates	--	ug/L	5 U	5 U	5 U	NA	NA	5 U [5 U]	5 U	5 U	5 U	5 U [5 U]	5 U	NA	NA

TABLE 4
GIPL ANALYTICAL DATA (2002 - 2010) WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID:	NYSDEC Groundwater Quality Standards and Guidance Values	Units	C-637					834				
Date Collected:			2002	2004	2006	2008	2010	2002	2004	2006	2008	2010
Volatile Organics												
1,2-Dichloroethene (Total)	--	ug/L	2 U [2 U]	1 U	1 U [1 U]	1 U	1 U	2 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	3	ug/L	NA	NA	NA	NA	NA	1 U	1 U	1 U	NA	1 U
Acetone	50*	ug/L	6 UJ [6 UJ]	6 U	6 U [6 U]	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Benzene	1	ug/L	1 U [1 U]	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U
Chlorobenzene	5	ug/L	NA	NA	NA	NA	NA	1 U	1 U	1 U	1 U	0.8 U
Chloroform	7	ug/L	1 U [1 U]	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	0.8 U
Ethylbenzene	5	ug/L	2 U [2 U]	2 U	2 U [2 U]	2 U	1 U	2 U	2 U	2 U	2 U	0.8 U
Methylene Chloride	5	ug/L	2 U [2 U]	2 U	2 U [2 U]	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Toluene	5	ug/L	2 U [2 U]	2 U	2 U [2 U]	2 U	2 U	2 U	2 U	2 U	2 U	0.7 U
Xylene (Total)	5	ug/L	1 U [1 U]	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	0.8 U
Trichloroethene	5	ug/L	1 U [1 U]	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Semivolatile Organics												
Isophorone	50*	ug/L	NA	NA	NA	NA	NA	1 U	1 U	1 U	1 U	0.9 U
Naphthalene	10*	ug/L	NA	NA	NA	NA	NA	1 U	1 U	1 U	1 U	0.9 U
OCPs												
4,4'-DDT	--	ug/L	NA	NA	NA	NA	NA	0.096 U	0.0096 U	0.0095 U	0.02 U	0.019 U
BHC-alpha	--	ug/L	NA	NA	NA	NA	NA	0.048 U	0.0048 U	0.0047 U	0.01 U	0.0094 U
BHC-beta	--	ug/L	NA	NA	NA	NA	NA	0.048 U	0.025 U	0.0057 U	0.01 U	0.0094 U
BHC-delta	--	ug/L	NA	NA	NA	NA	NA	0.048 U	0.0048 U	0.0047 U	0.01 U	0.0094 U
BHC-gamma (Lindane)	--	ug/L	NA	NA	NA	NA	NA	0.048 U	0.0048 U	0.0047 U	0.01 U	0.0094 U
Herbicides												
2,4-D	--	ug/L	NA	NA	NA	NA	NA	0.47 U	0.095 U	0.16 U	0.16 U	0.15 U
Chloropropham	--	ug/L	1.9 U [1.9 U]	0.38 U	0.39 U [0.38 U]	0.38 UJ	NA	1.9 U	0.38 U	0.39 U	0.38 U	NA
Karbutilate	--	ug/L	1.9 U [1.9 U]	0.38 UJ	0.39 U [0.38 UJ]	19 U	NA	1.9 U	0.38 U	0.39 U	19 U	NA
Inorganics												
Cadmium	5	ug/L	0.94 U [0.94 U]	0.76 U	0.91 U [0.91 U]	2 U	2 U	0.94 U	0.76 U	0.91 U	2 U	**6.3**
Lead	25	ug/L	8.9 U [8.9 U]	10 U	6.9 U [6.9 U]	6.9 U	6.9 U	8.9 U	10 U	6.9 U	6.9 U	6.9 U
Mercury	0.7	ug/L	0.079 UJ [0.079 UJ]	R	0.056 U [0.056 U]	0.056 U	0.056 U	0.079 UJ	0.028 U	0.056 U	0.056 U	0.056 U
Selenium	10	ug/L	4.8 UJ [4.8 UJ]	5.9 U	9.4 U [9.4 U]	10.7 U	8.9 U	NA	NA	NA	NA	NA
Zinc	2,000*	ug/L	4.9 U [4.9 U]	5.6 B	8.2 U [8.2 U]	8.1 U	8.1 U	62.7	8.8 B	8.2 U	8.1 U	15.2 B
Arsenic												
Arsenic	25	ug/L	7.9 J [R]	2.6 UJ	1.2 UJ [1.2 UJ]	0.95 UJ	0.95 U	9.3	0.87 B	1.3 J	1.9 B	2.1 J
Ammonia												
Ammonia-Nitrogen	2,000	ug/L	1,820 J [1,610 J]	**4,200 J**	1,800 [1,800]	**2,600**	**3,000**	100 U	95 J	61 J	46 J	160
Ethylene Thiourea												
Ethylene Thiourea	ND	ug/L	**140 [140]**	**160**	**250 [240]**	**120**	**170**	2.5 U	4 U	2 U	2 U	2 U
Carbamates												
7-Hydroxybenzofuran	--	ug/L	1.8 J [1.8 J]	0.19 UJ	1.3 J [1.2 J]	0.95 U	1.1 J	0.94 U	0.19 UJ	0.19 UJ	0.95 UJ	0.95 U
Baygon	--	ug/L	1.9 U [1.9 U]	0.38 U	0.39 U [0.38 UJ]	1.2 UJ	1.2 U	1.9 U	0.38 UJ	0.39 U	1.2 UJ	1.2 U
Carbaryl	--	ug/L	0.94 U [0.95 U]	0.29 U	0.29 UJ [0.29 UJ]	1.6 UJ	1.6 U	0.94 U	0.28 U	0.29 UJ	1.6 UJ	1.6 U
Carbofuran	15*	ug/L	0.94 U [0.95 U]	0.19 U	0.19 U [0.19 U]	1.2 U	1.9 U	0.94 U	0.19 UJ	0.19 U	1.2 U	1.9 U
Total Dithiocarbamates	--	ug/L	5 U [5 U]	5 U	5 U [5 U]	5 UJ	5 U	5 UJ	5 U	5 U	5 U	5 U

TABLE 4
GIPL ANALYTICAL DATA (2002 - 2010) WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID:	NYSDEC Groundwater Quality Standards and Guidance Values	Units	A-858A					B-859			21				
Date Collected:			2002	2004	2006	2008	2010	2002	2004	2006	2002	2004	2006	2008	2010
Volatile Organics															
1,2-Dichloroethene (Total)	--	ug/L	2 U	1 U [1 U]	1 U	1 U	1 U	2 U	1 U	1 U	24	24	23	26	**19**
1,4-Dichlorobenzene	3	ug/L	1 U	1 U [1 U]	1 U	NA	1 U	1 U	NA	NA	1 U	1 U	1 U	NA	1 U
Acetone	50*	ug/L	6 U	6 U [6 U]	6 U	6 U	6 U	6 U	6 U	6 UJ	6 U	6 U	6 U	6 U	6 U
Benzene	1	ug/L	1 U	1 U [1 U]	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	1 J	1 U	1 U	0.7 J
Chlorobenzene	5	ug/L	1 U	1 U [1 U]	1 U	1 U	0.8 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.8 U
Chloroform	7	ug/L	1 U	1 U [1 U]	1 U	1 U	0.8 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.8 U
Ethylbenzene	5	ug/L	2 U	2 U [2 U]	2 U	2 U	0.8 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.8 U
Methylene Chloride	5	ug/L	2 U	2 U [2 U]	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Toluene	5	ug/L	2 U	2 U [2 U]	2 U	2 U	0.7 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.7 U
Xylene (Total)	5	ug/L	1 U	1 U [1 U]	1 U	1 U	0.8 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.8 U
Trichloroethene	5	ug/L	1 U	1 U [1 U]	1 U	1 U	1 U	1 U	1 U	1 U	**25**	**33**	**25**	**30**	**21**
Semivolatile Organics															
Isophorone	50*	ug/L	1 U	1 U [1 U]	1 U	0.9 U	1 U	1 U	NA	NA	1 U	1 U	1 U	0.9 U	0.9 U
Naphthalene	10*	ug/L	1 U	1 U [1 U]	1 U	0.9 U	1 U	1 U	NA	NA	1 U	1 U	1 U	0.9 U	0.9 U
OCPs															
4,4'-DDT	--	ug/L	0.094 U	0.0094 U [0.0095 U]	0.0095 U	0.019 U	0.02 U	0.094 U	NA	NA	0.095 U	0.0096 U	0.0095 U	0.019 U	0.019 U
BHC-alpha	--	ug/L	0.047 U	0.0047 U [0.0047 U]	0.0047 U	0.0094 U	0.0099 U	0.047 U	NA	NA	0.048 U	0.0086 J	0.0047 U	0.0095 J	0.0093 U
BHC-beta	--	ug/L	0.047 U	0.015 U [0.02 U]	0.0057 U	0.0094 U	0.0099 U	0.0048 J	NA	NA	0.0061 J	0.013 J	0.022 U	0.017 J	0.022 J
BHC-delta	--	ug/L	0.047 U	0.0047 U [0.0047 U]	0.0047 U	0.0094 U	0.0099 U	0.047 U	NA	NA	0.048 U	0.0048 U	0.0047 U	0.0094 U	0.0093 U
BHC-gamma (Lindane)	--	ug/L	0.047 U	0.0047 U [0.0047 U]	0.0047 U	0.0094 U	0.0099 U	0.047 U	NA	NA	0.048 U	0.05 U	0.0051 J	0.0094 U	0.0093 U
Herbicides															
2,4-D	--	ug/L	0.47 U	0.095 U [0.095 U]	0.15 U	0.15 U	0.15 U	0.48 U	NA	NA	0.16 J	0.096 U	0.5 U	5.1	0.15 UJ
Chloropropham	--	ug/L	1.9 U	0.8 U [0.7 U]	0.38 U	0.38 U	NA	1.9 U	NA	NA	1.9 U	0.38 U	0.38 UJ	0.38 UJ	NA
Karbutilate	--	ug/L	1.9 U	0.38 U [0.38 U]	0.38 U	56 U	NA	1.9 U	NA	NA	1.9 U	0.38 U	0.38 UJ	19 U	NA
Inorganics															
Cadmium	5	ug/L	0.94 U	0.76 U [0.76 U]	0.91 U	2 U	2 U	0.94 U	0.78 B	0.91 U	0.94 U	0.76 U	0.91 U	2 U	2 U
Lead	25	ug/L	8.9 U	10 U [10 U]	6.9 U	6.9 U	6.9 U	8.9 U	15.4 B	6.9 U	8.9 U	10 U	6.9 U	6.9 U	6.9 U
Mercury	0.7	ug/L	0.079 UJ	0.028 U [0.028 U]	0.056 U	0.056 U	0.056 U	0.079 UJ	0.028 U	0.056 U	0.079 UJ	0.028 U	0.056 UJ	0.056 U	0.056 U
Selenium	10	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000*	ug/L	16.7	5.6 B [8.2 B]	8.2 U	8.1 U	8.1 U	6.4	64	19.7 B	18.1	45.3	8.2 U	16.2 B	10.8 B
Arsenic															
Arsenic	25	ug/L	1.4 U	2.2 B [1.9 B]	1.2 UJ	19.6	0.95 U	5.5 J	19.2 B	6 U	1.4 U	11.8 J	2.1 UJ	1.3 B	2.6 J
Ammonia															
Ammonia-Nitrogen	2,000	ug/L	1,860	**2,100 [2,200]**	1,700	1,500	1,400	**4,350**	**8,000**	**6,600**	**48,600**	**104,000**	**107,000 J**	**85,100**	**98,500**
Ethylene Thiourea															
Ethylene Thiourea	ND	ug/L	**4.3 J**	2 U [3 U]	**7.7 J**	**4.8 J**	**6.5**	2.5 U	2 U	2 U	2.5 U	2 U	**2.8 J**	**4.1 J**	**4.8 J**
Carbamates															
7-Hydroxybenzofuran	--	ug/L	0.94 U	0.19 UJ [0.19 UJ]	0.19 UJ	0.94 UJ	0.95 U	0.94 U	NA	NA	0.95 U	0.19 UJ	0.19 UJ	0.94 U	1.4 J
Baygon	--	ug/L	1.9 U	0.38 UJ [0.38 UJ]	0.38 U	1.2 UJ	1.2 U	1.9 U	NA	NA	1.9 U	0.38 U	0.38 UJ	1.2 UJ	1.2 U
Carbaryl	--	ug/L	0.94 U	0.28 U [0.28 U]	0.29 UJ	1.6 UJ	1.6 U	0.94 U	NA	NA	0.95 U	0.28 U	NA	1.6 UJ	1.6 U
Carbofuran	15*	ug/L	0.94 U	0.19 U [0.19 U]	0.19 U	1.2 U	1.9 U	0.94 U	NA	NA	2.7	3	3 J	6.9 J	2.4 J
Total Dithiocarbamates	--	ug/L	5 UJ	5 U [5 U]	5 U	5 U	5 U	5 UJ	NA	NA	5 U	5 U	5 U	5 U	5 U

TABLE 4
GIPL ANALYTICAL DATA (2002 - 2010) WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Location ID:	NYSDEC Groundwater Quality Standards and Guidance Values		A-16					C-10A	C-1036				
Date Collected:		Units	2002	2004	2006	2008	2010	2002	2002	2006	2008	2008	2010
Volatile Organics													
1,2-Dichloroethene (Total)	--	ug/L	35	28	25	23	**19**	2 U	2 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	3	ug/L	1 U	1 U	0.9 U	NA	1 U	0.9 U	1 U	1 U	NA	NA	NA
Acetone	50*	ug/L	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Benzene	1	ug/L	**2 J**	1 J	1 U	1 U	0.7 J	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	5	ug/L	1 U	1 U	1 U	1 U	0.8 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	7	ug/L	1 U	1 U	1 U	1 U	0.8 U	1 U	1 U	6 J	1 U	1 U	1 U
Ethylbenzene	5	ug/L	2 U	2 U	2 U	2 U	0.8 U	2 U	2 U	2 U	2 U	2 U	1 U
Methylene Chloride	5	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Toluene	5	ug/L	2 U	2 U	2 U	2 U	0.7 U	2 U	2 U	2 U	2 U	2 U	2 U
Xylene (Total)	5	ug/L	1 U	1 U	1 U	1 U	0.8 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	ug/L	**20**	**17**	**22**	**17**	**21**	1 U	1 U	1 U	1 U	1 U	1 U
Semivolatile Organics													
Isophorone	50*	ug/L	1 U	1 U	0.9 U	1 U	0.9 U	0.9 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	10*	ug/L	1 U	1 U	0.9 U	1 U	0.9 U	0.9 U	1 U	1 U	1 U	1 U	1 U
OCPs													
4,4'-DDT	--	ug/L	0.094 U	0.0096 U	0.0096 U	0.019 U	0.019 U	0.094 U	0.094 U	NA	0.019 U	0.019 U	0.019 U
BHC-alpha	--	ug/L	0.0066 J	0.0097 J	0.0084 J	0.01 J	0.0093 U	0.047 U	0.047 U	0.013 J	0.0095 U	0.0095 U	0.0094 U
BHC-beta	--	ug/L	0.0097 J	0.014 J	0.023 U	0.024 J	0.022 J	0.047 U	0.0057 J	0.014 U	0.0095 U	0.0095 U	0.0094 U
BHC-delta	--	ug/L	0.047 U	0.0048 U	0.0048 U	0.0094 U	0.0093 U	0.047 U	0.047 U	0.0062 J	0.0095 U	0.0095 U	0.0094 U
BHC-gamma (Lindane)	--	ug/L	0.047 U	0.05 U	0.0061 J	0.0094 U	0.0093 U	0.047 U	0.047 U	0.05 U	0.0095 U	0.0095 U	0.0094 U
Herbicides													
2,4-D	--	ug/L	0.13 J	0.096 U	0.27 J	5.5	0.15 UJ	0.47 U	0.49 U	0.15 U	0.15 U	0.15 U	0.15 U
Chloropropham	--	ug/L	1.9 U	0.38 U	0.38 UJ	0.38 UJ	NA	1.9 U	1.9 U	0.38 UJ	0.38 UJ	0.38 UJ	NA
Karbutilate	--	ug/L	1.9 U	0.38 U	0.38 UJ	19 U	NA	1.9 U	1.9 U	0.38 UJ	19 U	19 U	NA
Inorganics													
Cadmium	5	ug/L	0.94 U	0.76 U	0.91 U	2 U	2 U	0.94 U	NA	0.91 U	2 U	2 U	10 U
Lead	25	ug/L	8.9 U	10 U	6.9 U	6.9 U	6.9 U	8.9 U	NA	7 B	6.9 U	6.9 U	34.5 U
Mercury	0.7	ug/L	0.079 U	0.028 U	0.056 UJ	0.056 U	0.056 U	0.079 UJ	0.079 UJ	0.056 UJ	0.54 U	0.54 U	0.28 U
Selenium	10	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2,000*	ug/L	25.1	4.8 U	12.4 B	18.5 B	10.8 B	14.6	NA	72.5	8.1 U	8.1 U	40.5 U
Arsenic													
Arsenic	25	ug/L	1.6	4 J	2.4 UJ	6.6	2.6 J	1.5	10.5 J	6.2 UJ	1.8 B	1.8 B	4.8 U
Ammonia													
Ammonia-Nitrogen	2,000	ug/L	**65,900**	**104,000**	**82,300 J**	**63,100**	**98,500**	550	**9,240**	700 J	**11,000**	**11,000**	**14,800 J**
Ethylene Thiourea													
Ethylene Thiourea	ND	ug/L	**2,400**	**3,100**	**79**	**25**	**4.8 J**	2.5 U	**6.3**	**5.2**	**18**	**18**	**15**
Carbamates													
7-Hydroxybenzofuran	--	ug/L	9.3	7.4 J	1.9 J	0.94 U	1.4 J	0.94 U	0.94 U	0.19 UJ	0.95 U	0.95 U	0.95 U
Baygon	--	ug/L	1.9 U	0.38 U	3.3 UJ	1.2 UJ	1.2 U	1.9 U	1.9 U	0.38 UJ	1.2 UJ	1.2 UJ	1.2 U
Carbaryl	--	ug/L	0.95 U	0.29 U	NA	1.6 UJ	1.6 U	0.94 U	0.94 U	0.28 UJ	1.6 UJ	1.6 UJ	1.6 U
Carbofuran	15*	ug/L	4.6	2.7 J	3.1 J	6.5 J	2.4 J	0.94 U	0.94 U	0.19 UJ	1.2 UJ	1.2 UJ	1.9 U
Total Dithiocarbamates	--	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

TABLE 4
GIPL ANALYTICAL DATA (2002 - 2010) WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Notes:

1. Results presented in micrograms per liter (ug/L) which is equivalent to parts per billion (ppb).
2. Standards and guidance values obtained from Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.
3. An asterisk (*) indicates that the value provided is a guidance value.
4. Bold values indicate results above NYSDEC Groundwater Quality Standards, provided for screening purposes of the Draft CMS Report only.
5. Data qualifiers defined below:
   - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
   - UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
   - B The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).
   - R The sample results are rejected.
   - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
   - D Concentration is based on a diluted sample analysis.

TABLE 5
AVERAGE GROUNDWATER RECOVERY RATES FOR EXTRACTION WELLS WITHIN OR NEAR PROPOSED CAMU PHASE 1 AREA
ATTACHMENT D-1A DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NEW YORK

Recovery Trench:	Trench A		Trench D						Trench E		Trench G					
Extraction Well:	A-756X		A-760X		D-EX1		D-EX2		A-757X		G-EX1		G-EX2		G-EX3	
	Volume Pumped (gallons)	Average Recovery Rate (GPM)	Volume Pumped (gallons)	Average Recovery Rate (GPM)	Volume Pumped (gallons)	Average Recovery Rate (GPM)	Volume Pumped (gallons)	Average Recovery Rate (GPM)	Volume Pumped (gallons)	Average Recovery Rate (GPM)	Volume Pumped (gallons)	Average Recovery Rate (GPM)	Volume Pumped (gallons)	Average Recovery Rate (GPM)	Volume Pumped (gallons)	Average Recovery Rate (GPM)
Jan. to Mar. 2007	186,720	1.44	81,790	0.63	103,765	0.80	69,830	0.54	158,740	1.22	164,850	1.27	116,950	0.90	34,640	0.27
Apr. to Jun. 2007	148,720	1.13	83,950	0.64	122,379	0.93	64,910	0.50	174,410	1.33	154,290	1.18	70,230	0.54	43,810	0.33
Jul. to Sep. 2007	30,580	0.23	49,950	0.38	76,010	0.57	43,149	0.33	106,590	0.80	99,140	0.75	13,140	0.10	4,410	0.03
Oct. to Dec. 2007	5,950	0.04	29,250	0.22	45,893	0.35	20,420	0.15	48,870	0.37	63,869	0.48	4,550	0.03	1,600	0.01
Jan. to Mar. 2008	104,000	0.79	76,210	0.58	28,582	0.22	93,330	0.71	110,890	0.85	24,686	0.19	94,200	0.72	66,600	0.51
Apr. to Jun. 2008	95,260	0.73	87,230	0.67	61,785	0.47	94,013	0.72	150,980	1.15	46,299	0.35	36,330	0.28	81,330	0.62
Jul. to Sep. 2008	56,034	0.42	74,080	0.56	101,904	0.77	111,967	0.85	133,100	1.00	87,744	0.66	18,670	0.14	51,430	0.39
Oct. to Dec. 2008	98,018	0.74	69,270	0.52	48,095	0.36	114,004	0.86	97,914	0.74	105,945	0.80	36,040	0.27	48,400	0.37
Jan. to Mar. 2009	169,650	1.31	66,710	0.51	187,534	1.45	37,348	0.29	85,815	0.66	186,925	1.44	131,630	1.02	88,800	0.69
Apr. to Jun. 2009	195,530	1.49	91,400	0.70	289,883	2.21	55,992	0.43	112,529	0.86	176,228	1.34	80,240	0.61	82,100	0.63
Jul. to Sep. 2009	84,759	0.64	51,470	0.39	282,133	2.13	32,429	0.24	58,153	0.44	118,972	0.90	22,046	0.17	48,000	0.36
Oct. to Dec. 2009	222,472	1.72	82,480	0.64	191,737	1.48	90,219	0.70	106,947	0.83	191,079	1.47	75,728	0.58	81,818	0.63
Average Yield:		**0.89**		**0.54**		**0.98**		**0.53**		**0.85**		**0.90**		**0.45**		**0.40**

Note:

GPM = gallons per minute, averaged over the total number of days in the calendar quarter

LEGEND:

- FMC PROPERTY BOUNDARY
- EXISTING FMC SECURITY FENCE
- EXTRACTION WELL
- BLAST FRACTURED TRENCH

NOTES:

1. BASEMAP INFORMATION BASED ON APRIL 15, 2002 AERIAL SURVEY PROVIDED BY ABRAMS AERIAL SURVEY CORPORATION AND INFORMATION COMPILED FROM FIELD SURVEYS PERFORMED BY MCINTOSH AND MCINTOSH, P.C. ON SEPTEMBER 18, 1999; MARCH 28, 20001; APRIL 29, 2004; AUGUST 13, 2004; APRIL 7, 2005; SEPTEMBER 9, 2005; OCTOBER 12, 2005; JUNE 16, 2007; MAY 10, 2007; DECEMBER 13, 2007; OCTOBER 6, 2008; AND OCTOBER 8, 2008. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM 1983 (NAD83). ELEVATIONS AREA BASED ON NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD29).
2. PROPOSED CORRECTIVE ACTION MANAGEMENT UNIT (CAMU) WOULD BE CONSTRUCTED IN TWO PHASES (PHASE 1 AND PHASE 2). PHASE 1 CONSISTS OF CONTINUED USE OF THE ESI FILL AREA AND SOLID WASTE MANAGEMENT UNIT (SWMU) GROUP C; AND PHASE 2 CONSISTS OF PLACEMENT OF REMEDIATION SOIL/DEBRIS WITHIN THE AREA SOUTH OF THE ESI FILL AREA AND SWMU GROUP C.
3. THE TOTAL HEIGHT OF THE PROPOSED CAMU IS 28 FEET (ELEVATION 565.0 FEET).
4. THIS FIGURE IS AN UPDATE OF FIGURE 7 OF THE DRAFT CAMU APPLICATION (MARCH 2008).
5. ALL LOCATIONS ARE APPROXIMATE.

0 100' 200'
GRAPHIC SCALE

DRAFT - MAY 2011

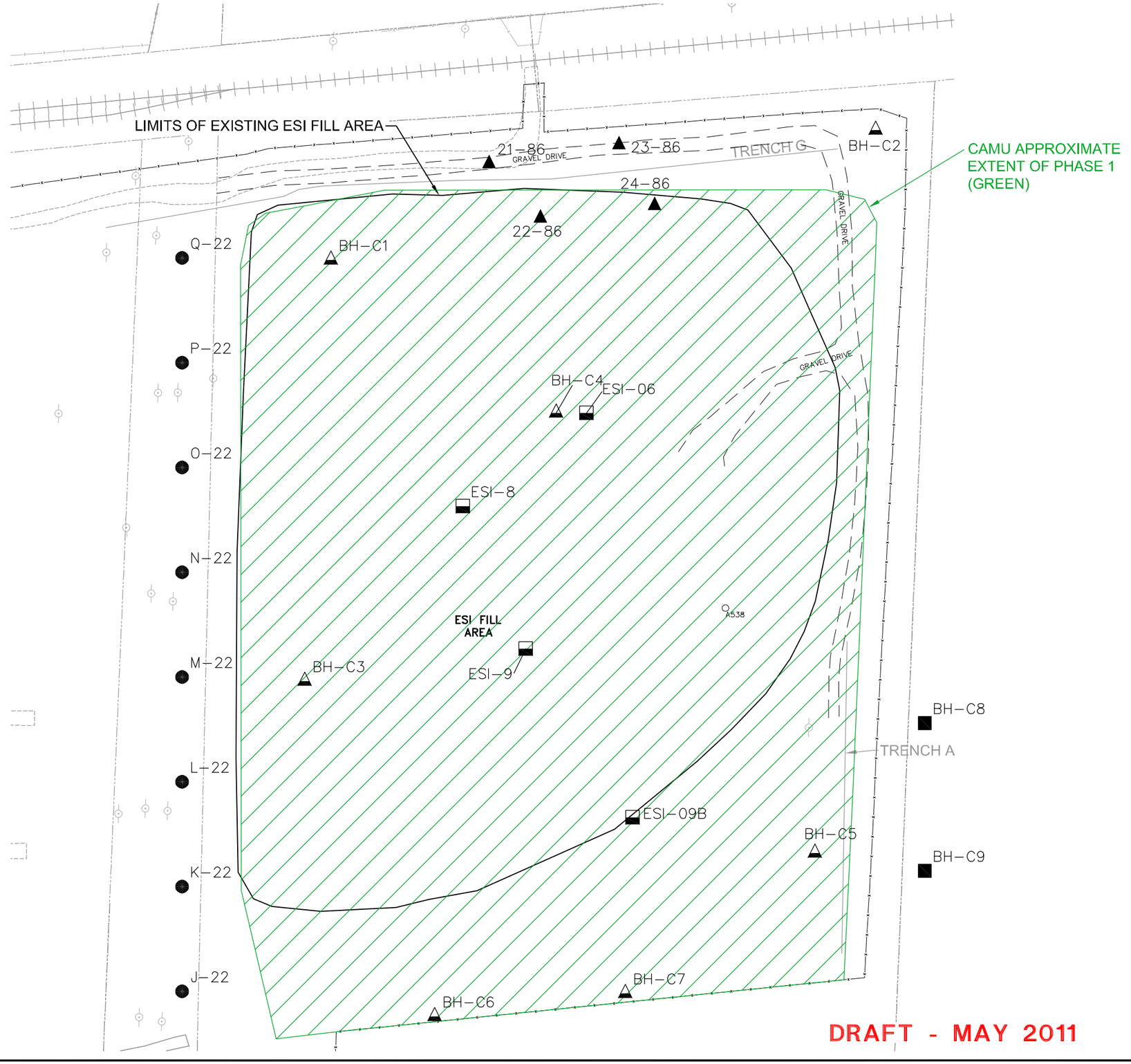
FMC CORPORATION - MIDDLEPORT, NEW YORK
CORRECTIVE MEASURES STUDY REPORT ATTACHMENT D-1A

PROPOSED CAMU LOCATION AND PROXIMATE GROUNDWATER RECOVERY TRENCHES

ARCADIS

FIGURE 1

CITY:SYRACUSE, NY GROUP:ENVCAD DB:A.SAMONS, P_LISTER LD:P_LISTER PM:D.WRIGHT LYRON=OFF=REF: (FRZ)
G:\ENVCAD\SYRACUSE\ACTIVE\03773600\600027\DWG\CMSR\377360B09.DWG LAYOUT: 1 SAVED: 5/10/2011 8:59 AM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---
XREFS: 377360X00, 377360X02 IMAGES: PROJECTNAME: ---
PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 5/10/2011 8:59 AM BY: LISTER, PAUL



LEGEND:

- PROPERTY LINE
- RAILROAD
- FENCE
- ACCESS ROAD
- OVERHEAD UTILITY AND POLE
- SOIL SAMPLE (1973)
- SOIL SAMPLE (1986)
- SOIL SAMPLE (1993)
- SOIL SAMPLE (1995–1996)
- SOIL SAMPLE (1996)
- BLAST FRACTURED TRENCH

NOTES:

1. BASEMAP INFORMATION SHOWN ON THIS FIGURE WAS COMPILED FROM FIELD SURVEYS PERFORMED BY McINTOSH AND McINTOSH, P.C. DATED SEPTEMBER 9, 2005 (PHASE 1 ICM AS–BUILT); SEPTEMBER 18, 1999; MARCH 28, 2001; APRIL 29, 2004; AUGUST 13, 2004; AND APRIL 7, 2005.
2. ADDITIONAL BASEMAP INFORMATION OBTAINED FROM A FIGURE BY CONESTOGA–ROVERS AND ASSOCIATES TITLED "HISTORIC ARSENIC SOIL/SEDIMENT DATA – NORTH RAILROAD PROPERTY" DATED OCTOBER 2003 AT A SCALE OF 1" = 120'.
3. CONTOUR INTERVAL EQUALS 1 FOOT.

0 50' 100'
GRAPHIC SCALE

DRAFT - MAY 2011

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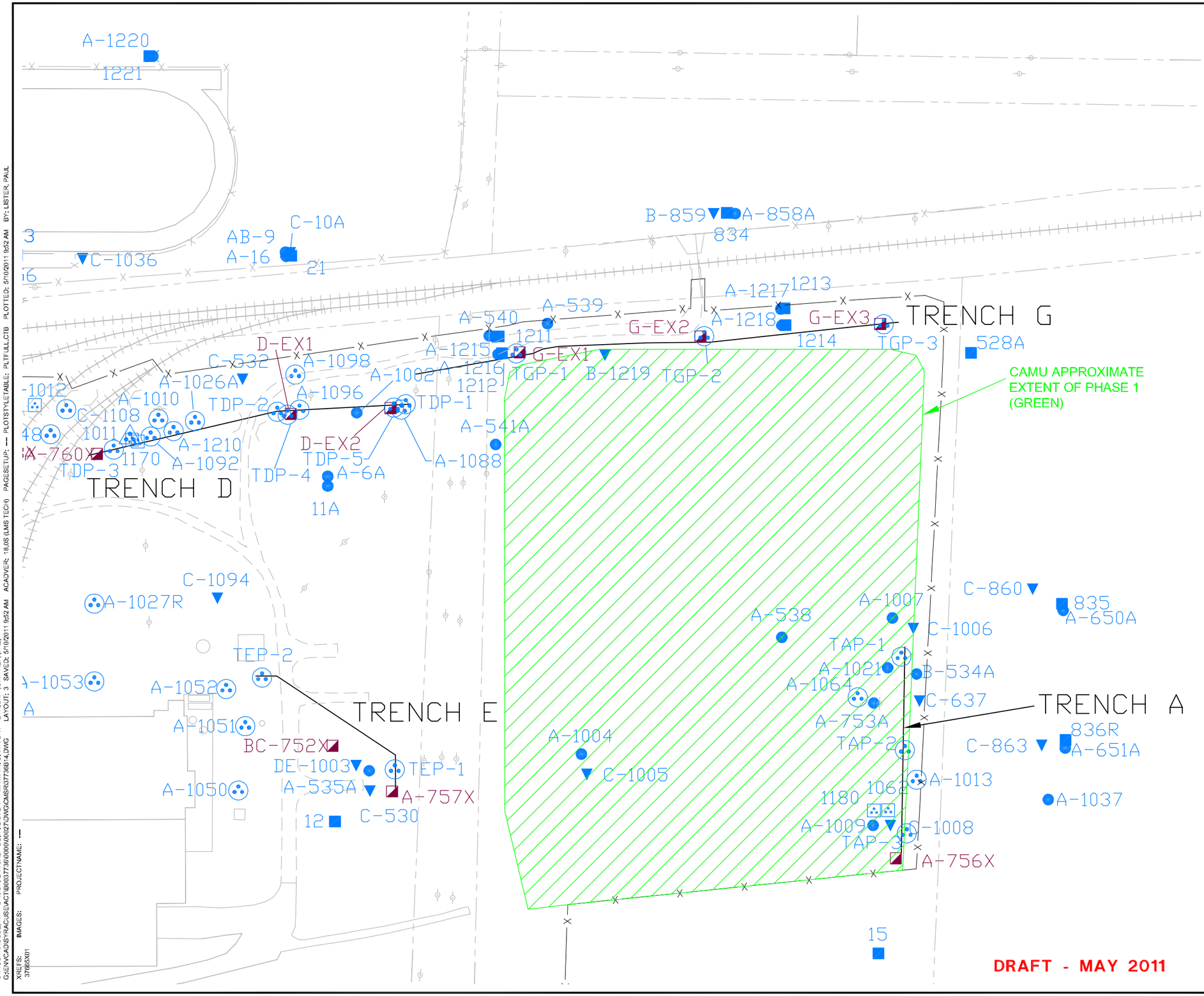
CORRECTIVE MEASURES STUDY REPORT ATTACHMENT D-1A

PREVIOUS SOIL SAMPLE LOCATIONS WITHIN OR ADJACENT TO PROPOSED CAMU PHASE 1 AREA

ARCADIS

FIGURE 2



LEGEND:

- SHALLOW BEDROCK MONITORING WELL
- OVERBURDEN MONITORING WELL
- DEEP BEDROCK MONITORING WELL
- EXTRACTION WELL
- SHALLOW BEDROCK PIEZOMETER
- OVERBURDEN PIEZOMETER
- DEEP BEDROCK PIEZOMETER
- A-17 'A' BEDROCK ZONE
- B-867 'B' BEDROCK ZONE
- C-532 'C' BEDROCK ZONE
- DE-1003 'D/E' BEDROCK ZONE
- BLAST FRACTURED TRENCH

NOTES:

1. BASE MAP PREPARED FROM ELECTRONIC CAD FILE FROM CLIENT MADE BY "CONESTOGA-ROVERS & ASSOCIATES", DRAWING I.D. 04798-00(011GN-NF003, DATED MAY 9, 2003, AT A SCALE OF 1"= 300'.
2. ALL LOCATIONS ARE APPROXIMATE.
3. THIS FIGURE IS DUPLICATED FROM FIGURE F-1 OF THE DRAFT CAMU APPLICATION (MARCH 2008).

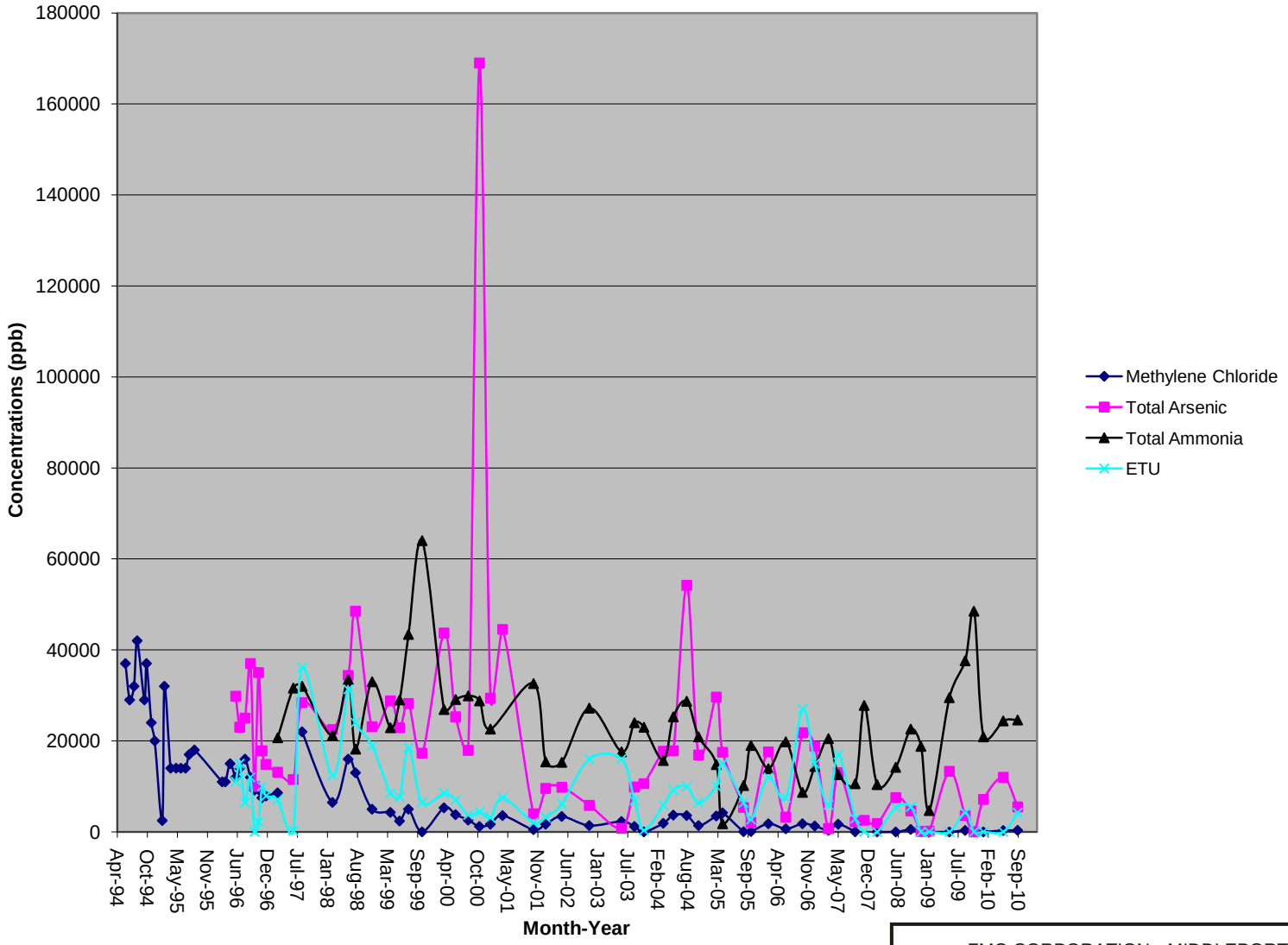
0 140' 280'
GRAPHIC SCALE

FMC CORPORATION - MIDDLEPORT, NEW YORK
CORRECTIVE MEASURES STUDY REPORT ATTACHMENT D-1A

EXISTING SITE WELLS AND TRENCHES NEAR PROPOSED CAMU PHASE 1 AREA

ARCADIS

FIGURE 3



NOTE:
FIGURE DUPLICATED FROM FIGURE 8 OF THE MIDDLEPORT FACILITY FOURTH QUARTER 2009/2010 PROGRESS REPORT (JULY 1, 2010 THROUGH SEPTEMBER 30, 2010), DATED NOVEMBER 2010.

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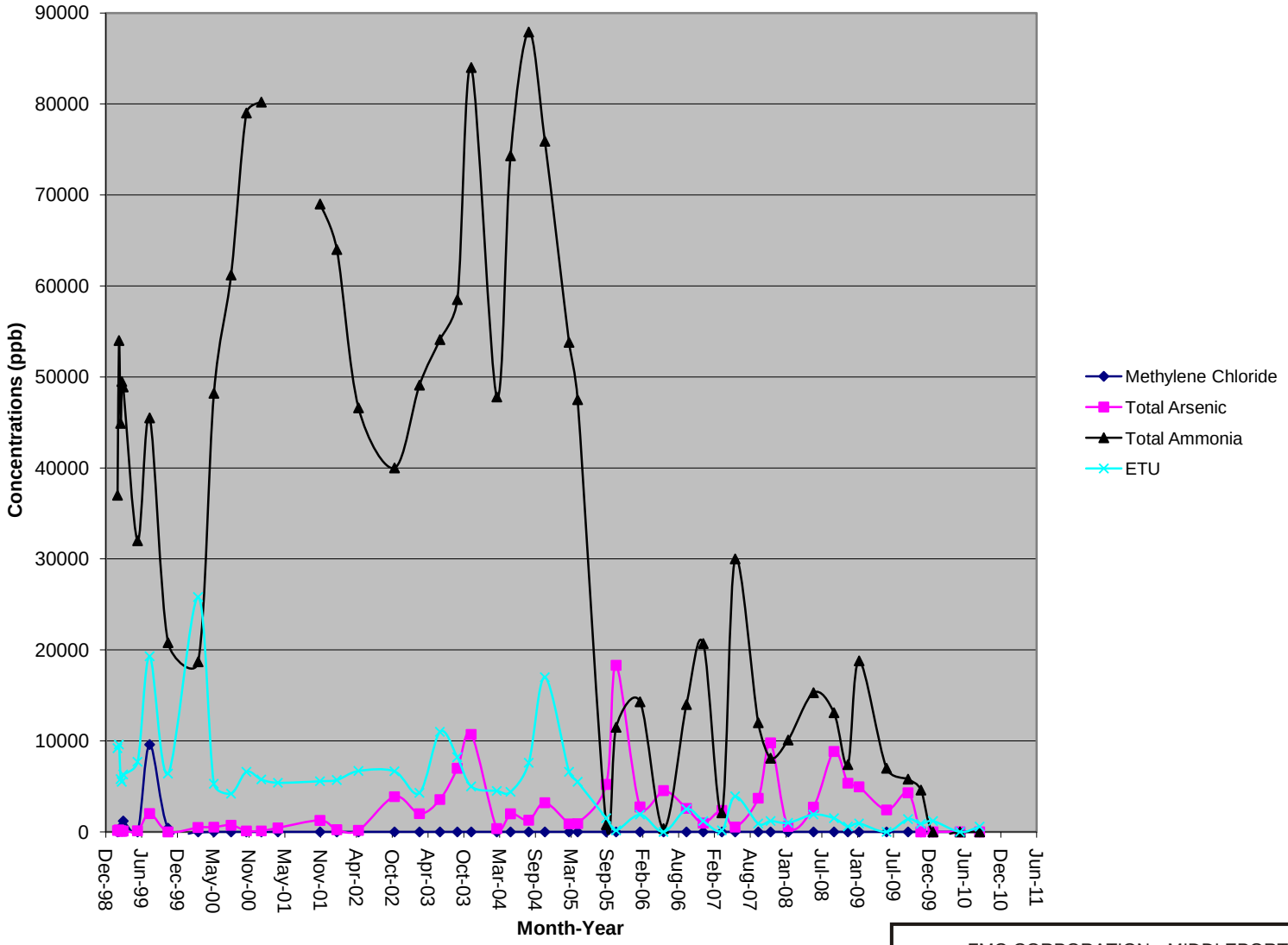
FOUR INDICATOR CONCENTRATIONS VERSUS TIME QUARTERLY SAMPLING RESULTS - EXTRACTION WELL A-756X (TRENCH A)

ARCADIS

FIGURE
4A



NOTE:
FIGURE DUPLICATED FROM FIGURE 15 OF THE MIDDLEPORT FACILITY FOURTH QUARTER 2009/2010 PROGRESS REPORT (JULY 1, 2010 THROUGH SEPTEMBER 30, 2010), DATED NOVEMBER 2010.

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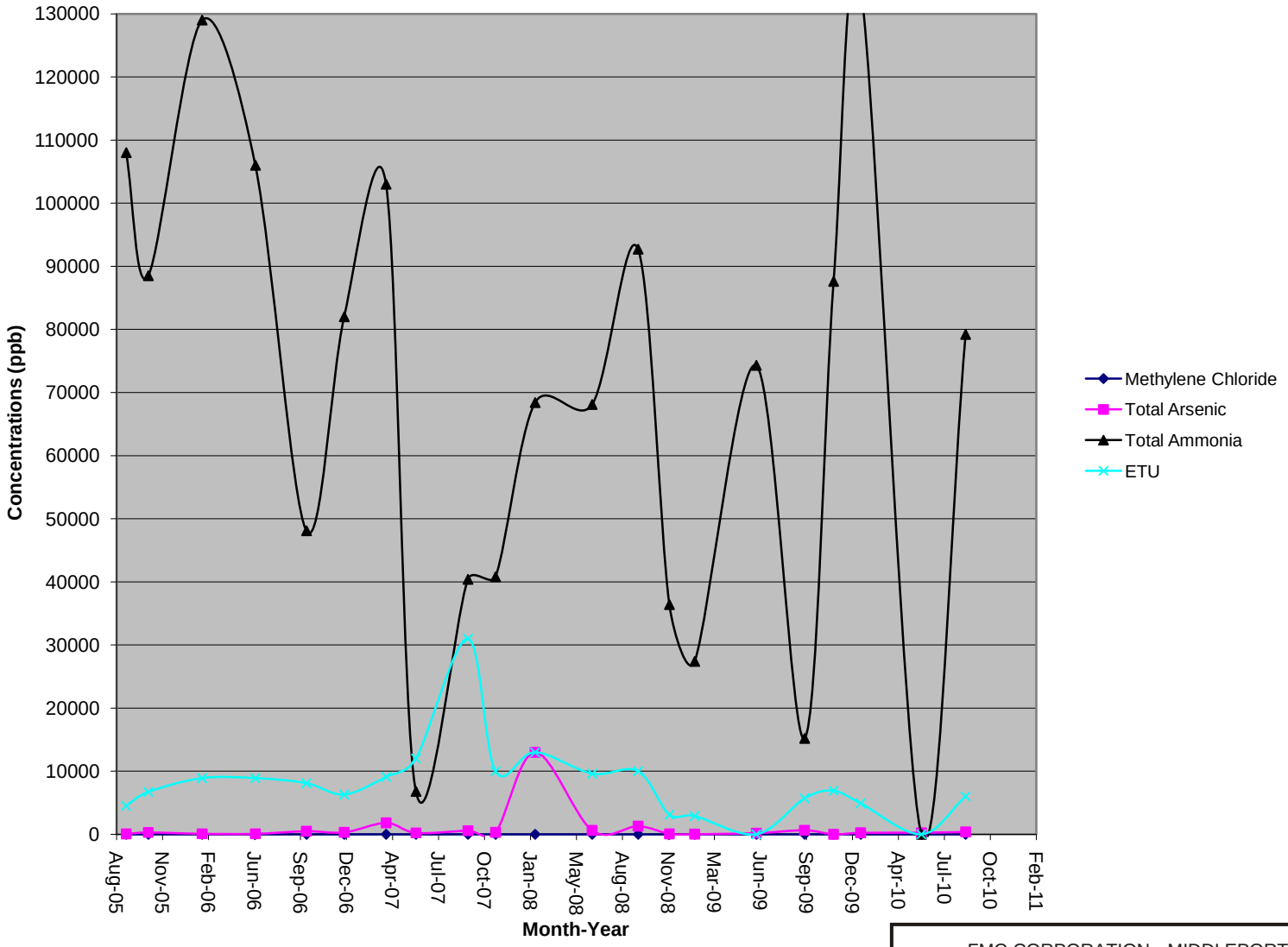
FOUR INDICATOR CONCENTRATIONS VERSUS TIME QUARTERLY SAMPLING RESULTS - EXTRACTION WELL A-760X (TRENCH D)

ARCADIS

FIGURE
4B



NOTE:
FIGURE DUPLICATED FROM FIGURE 18 OF THE MIDDLEPORT FACILITY FOURTH QUARTER 2009/2010 PROGRESS REPORT (JULY 1, 2010 THROUGH SEPTEMBER 30, 2010), DATED NOVEMBER 2010.

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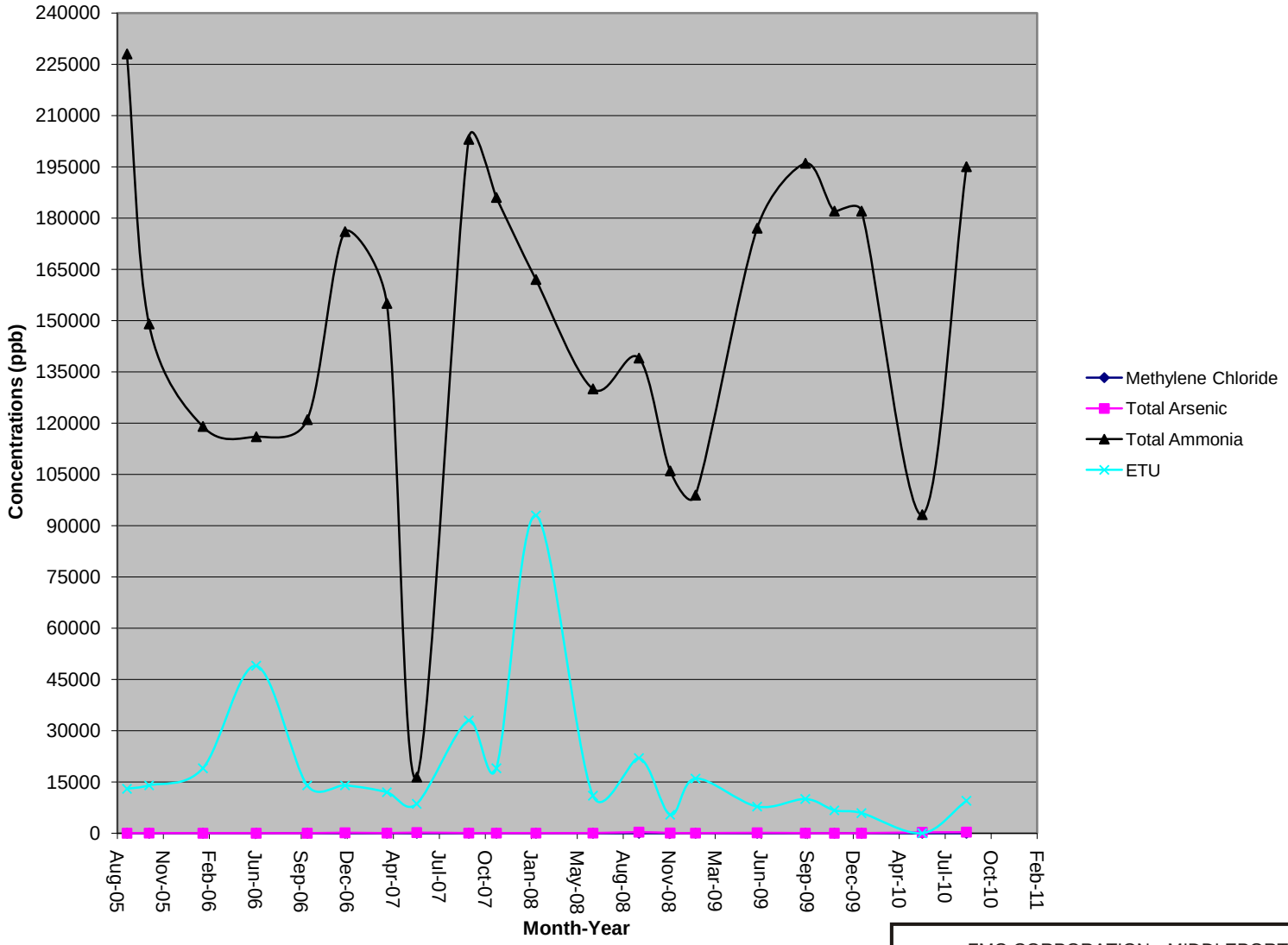
FOUR INDICATOR CONCENTRATIONS VERSUS TIME QUARTERLY SAMPLING RESULTS - EXTRACTION WELL D-EX1 (TRENCH D)

ARCADIS

FIGURE
4C



NOTE:
FIGURE DUPLICATED FROM FIGURE 19 OF THE MIDDLEPORT FACILITY FOURTH QUARTER 2009/2010 PROGRESS REPORT (JULY 1, 2010 THROUGH SEPTEMBER 30, 2010), DATED NOVEMBER 2010.

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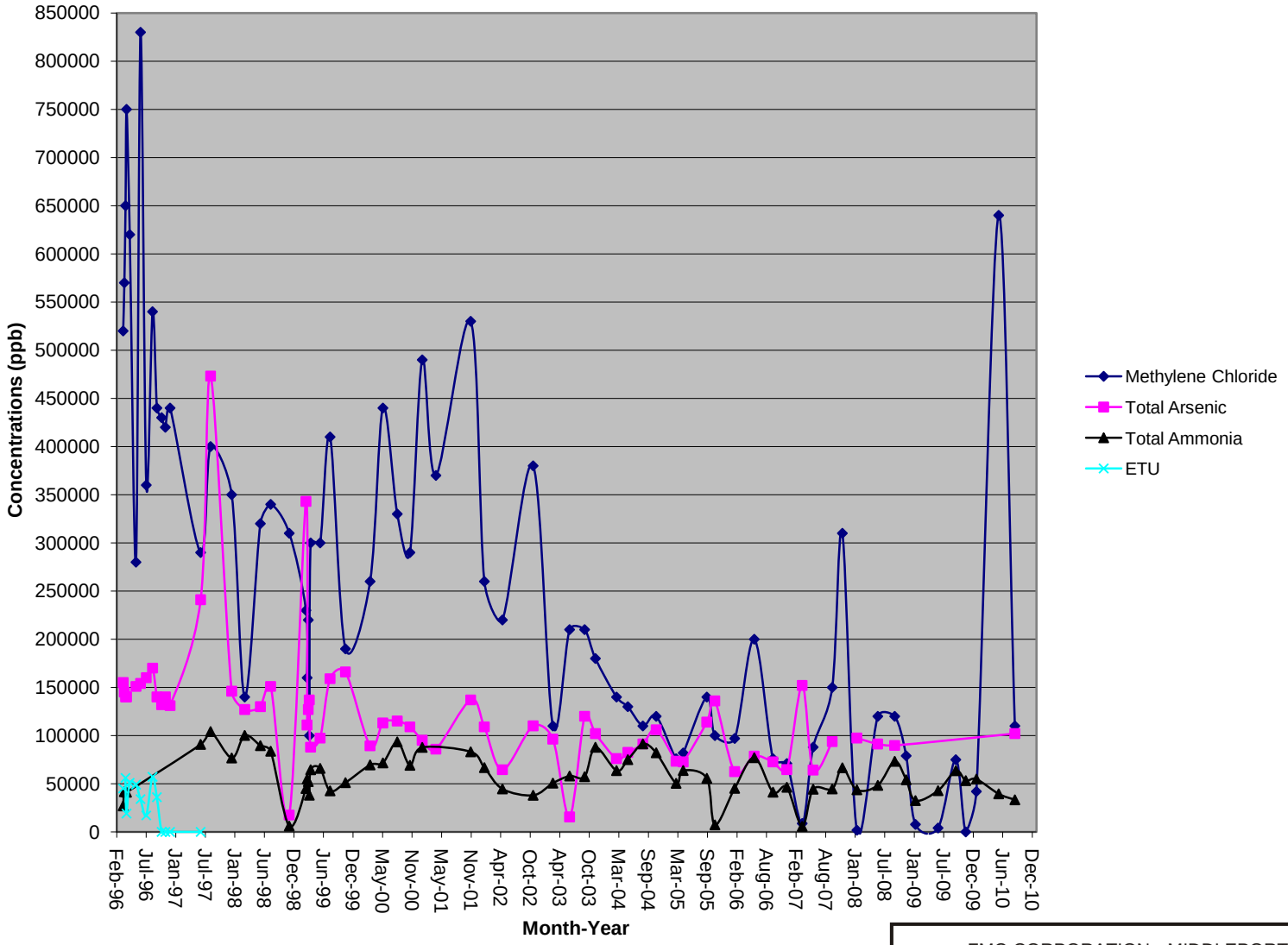
FOUR INDICATOR CONCENTRATIONS VERSUS TIME QUARTERLY SAMPLING RESULTS - EXTRACTION WELL D-EX2 (TRENCH D)

ARCADIS

FIGURE
4D



NOTE:
FIGURE DUPLICATED FROM FIGURE 11 OF THE MIDDLEPORT FACILITY FOURTH QUARTER 2009/2010 PROGRESS REPORT (JULY 1, 2010 THROUGH SEPTEMBER 30, 2010), DATED NOVEMBER 2010.

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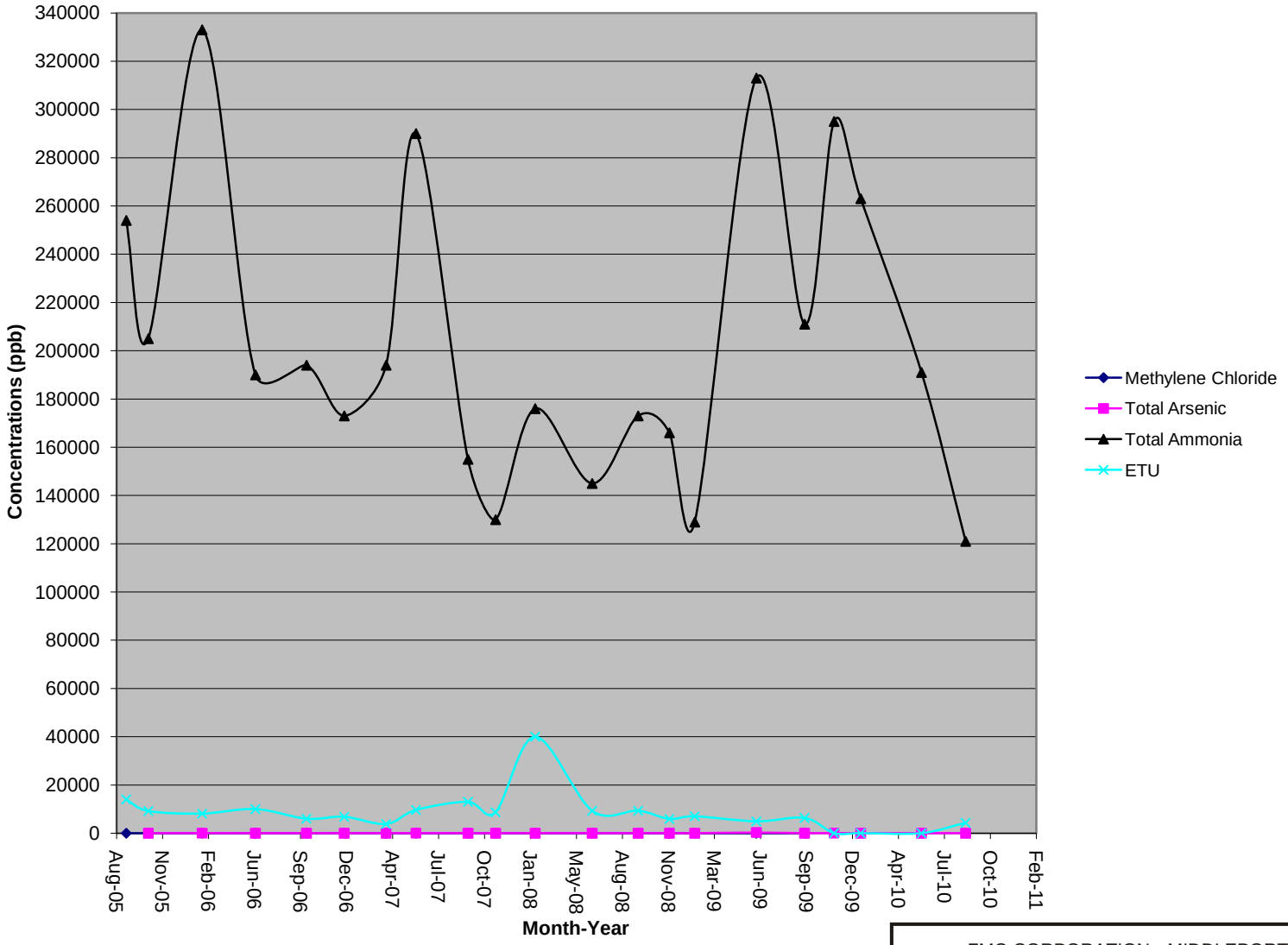
FOUR INDICATOR CONCENTRATIONS VERSUS TIME QUARTERLY SAMPLING RESULTS - EXTRACTION WELL A-757X (TRENCH E)

ARCADIS

FIGURE
4E



NOTE:
FIGURE DUPLICATED FROM FIGURE 20 OF THE MIDDLEPORT FACILITY FOURTH QUARTER 2009/2010 PROGRESS REPORT (JULY 1, 2010 THROUGH SEPTEMBER 30, 2010), DATED NOVEMBER 2010.

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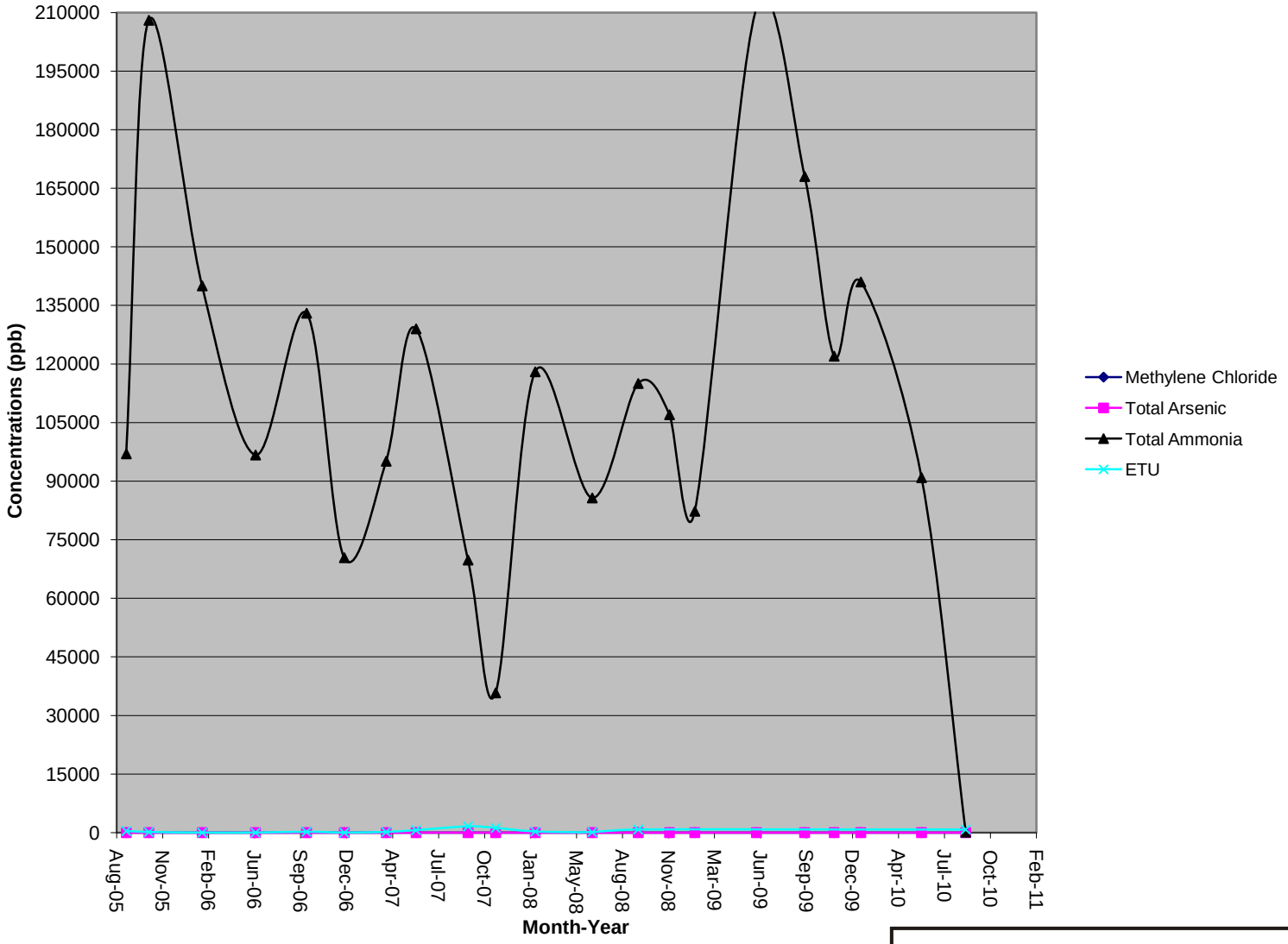
CORRECTIVE MEASURES STUDY REPORT ATTACHMENT D1-A

FOUR INDICATOR CONCENTRATIONS VERSUS TIME QUARTERLY SAMPLING RESULTS - EXTRACTION WELL G-EX1 (TRENCH G)

ARCADIS

FIGURE
4F



NOTE:
FIGURE DUPLICATED FROM FIGURE 21 OF THE MIDDLEPORT FACILITY FOURTH QUARTER 2009/2010 PROGRESS REPORT (JULY 1, 2010 THROUGH SEPTEMBER 30, 2010), DATED NOVEMBER 2010.

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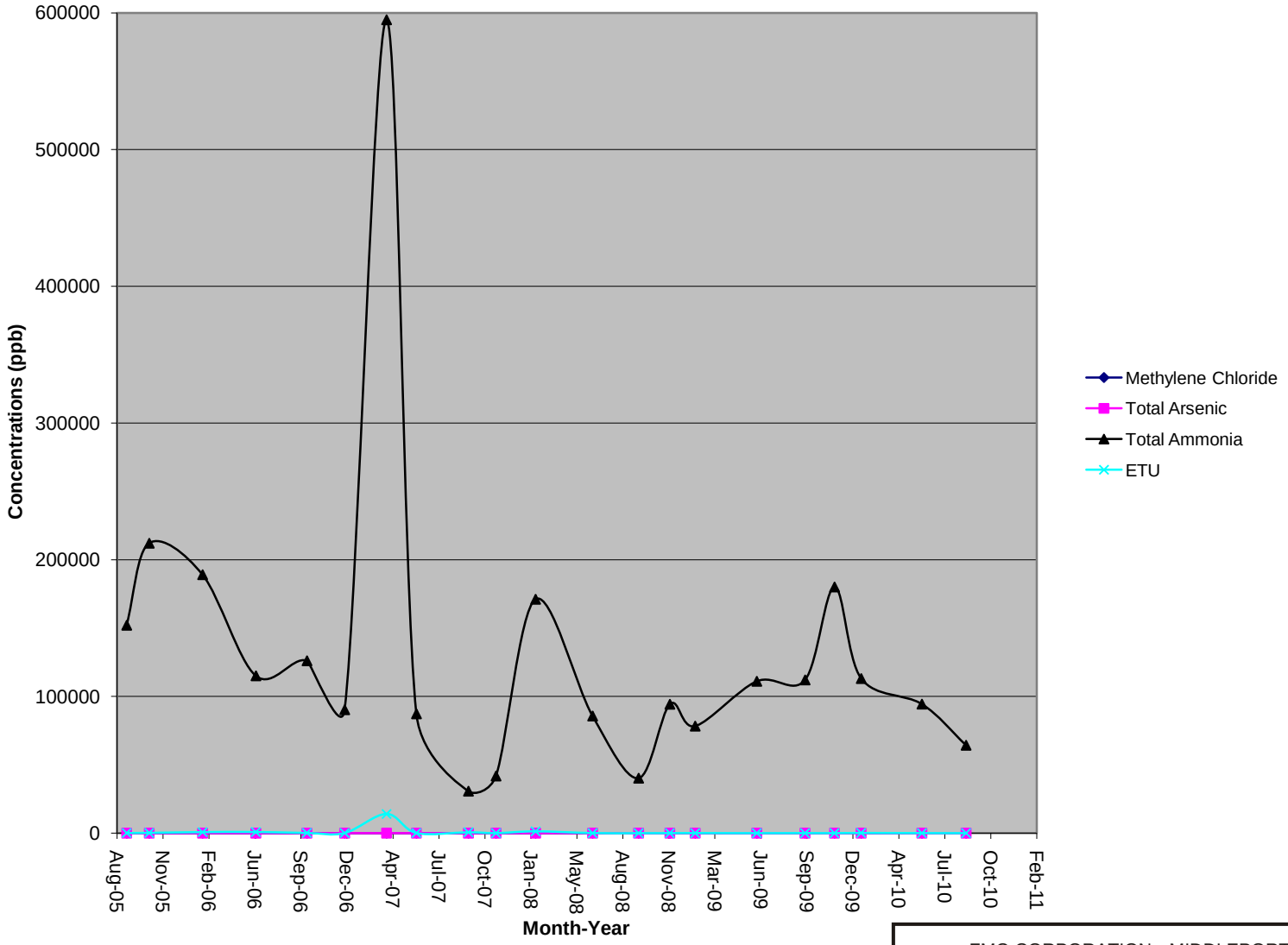
CORRECTIVE MEASURES STUDY REPORT ATTACHMENT D1-A

FOUR INDICATOR CONCENTRATIONS VERSUS TIME QUARTERLY SAMPLING RESULTS - EXTRACTION WELL G-EX2 (TRENCH G)

ARCADIS

FIGURE
4G



NOTE:
FIGURE DUPLICATED FROM FIGURE 23 OF THE MIDDLEPORT FACILITY FOURTH QUARTER 2009/2010 PROGRESS REPORT (JULY 1, 2010 THROUGH SEPTEMBER 30, 2010), DATED NOVEMBER 2010.

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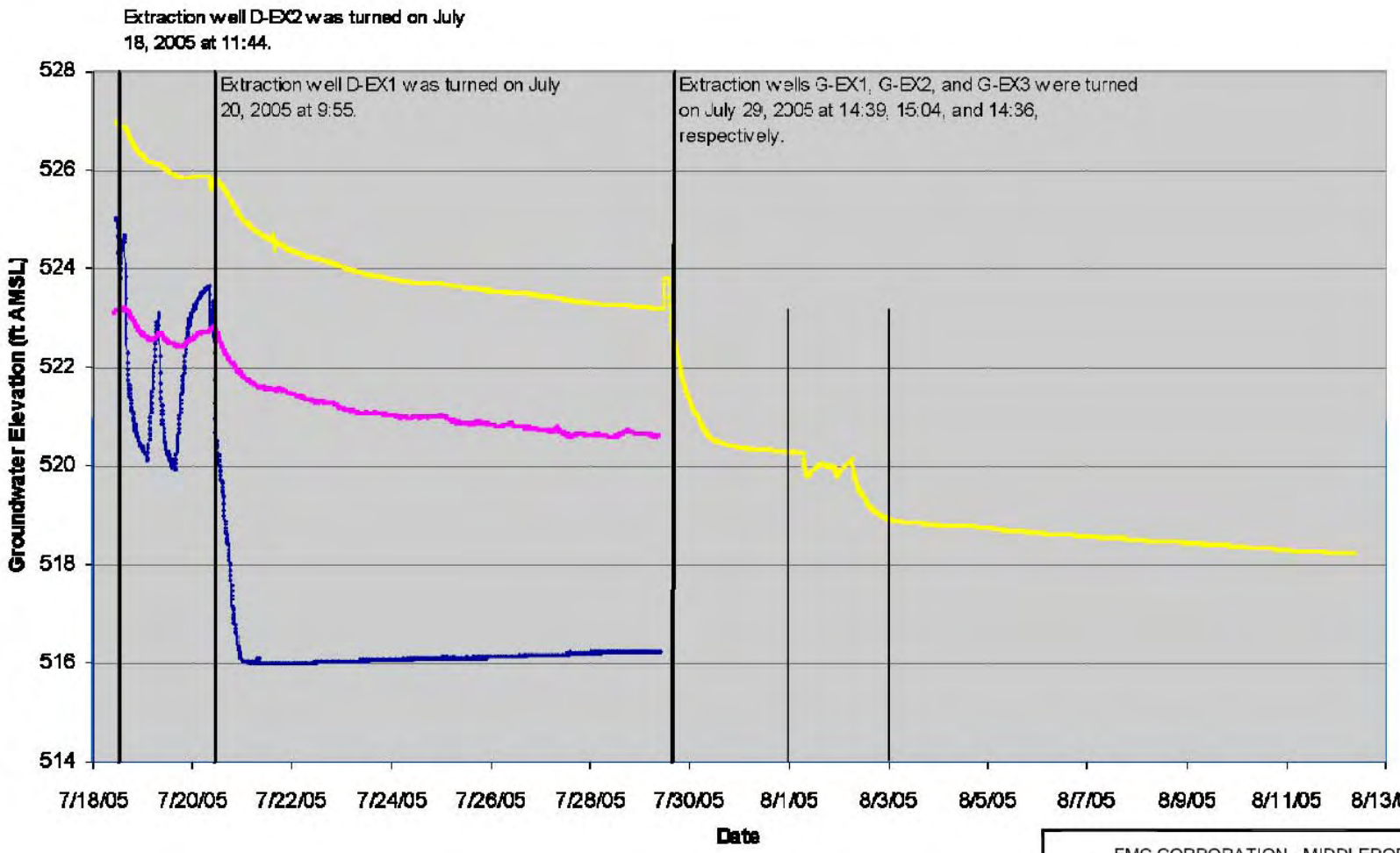
CORRECTIVE MEASURES STUDY REPORT ATTACHMENT D-1A

FOUR INDICATOR CONCENTRATIONS VERSUS TIME QUARTERLY SAMPLING RESULTS - EXTRACTION WELL G-EX3 (TRENCH G)

ARCADIS

FIGURE
4H



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CORRECTIVE MEASURES STUDY REPORT
ATTACHMENT D-1A

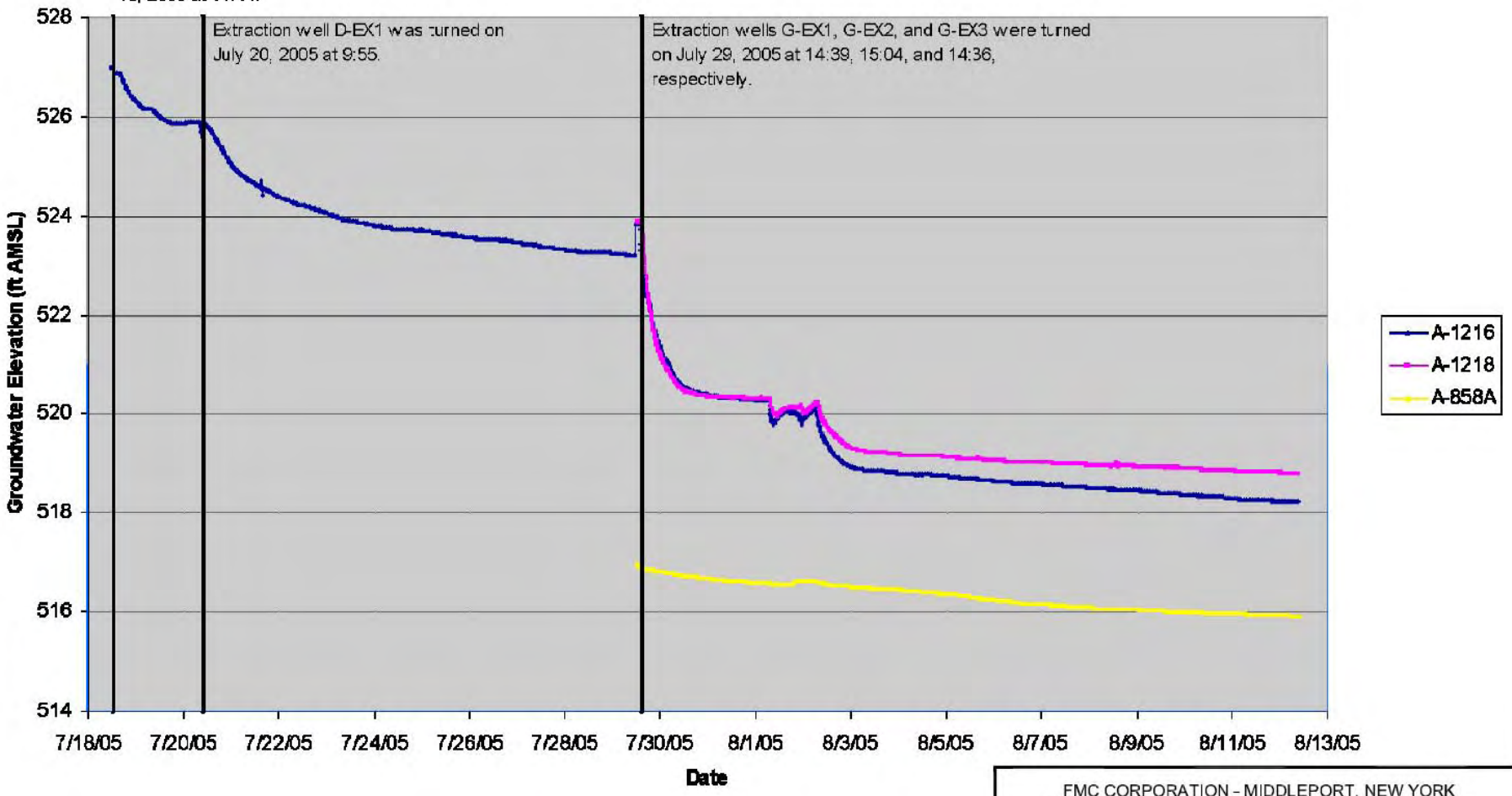
TRENCH D TRANSDUCER DATA

DRAFT - MAY 2011

Note: Figure duplicated from the 2005 Groundwater ICM Construction and Performance Report (December 2005).

ARCADIS

FIGURE
5a



FMC CORPORATION - MIDDLEPORT, NEW YORK
CORRECTIVE MEASURES STUDY REPORT
ATTACHMENT D-1A

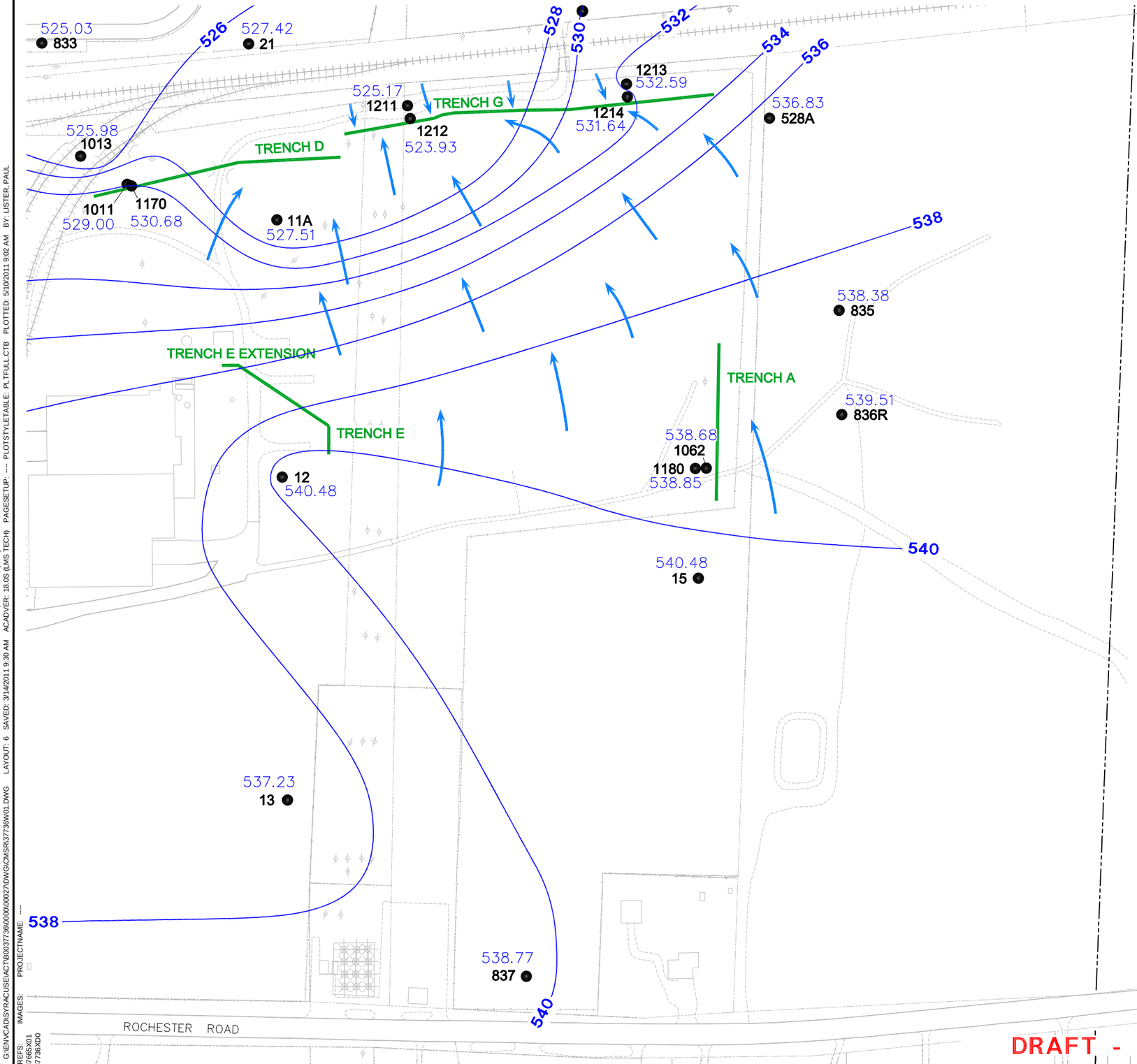
TRENCH G TRANSDUCER DATA

DRAFT - MAY 2011

Note: Figure duplicated from the 2005 Groundwater ICM Construction and Performance Report (December 2005).

ARCADIS

FIGURE
5b



LEGEND:

- 8 ● GROUNDWATER MONITORING LOCATION
- 538 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (FT. AMSL)
- 538.38 GROUNDWATER ELEVATION (FT. AMSL)
- BLAST FRACTURE TRENCH
- DIRECTION OF GROUNDWATER FLOW

NOTES:

1. BASE MAP PREPARED FROM ELECTRONIC CAD FILE FROM CLIENT MADE BY "CONESTOGA–ROVERS & ASSOCIATES", DRAWING I.D. 04798–00(011GN–NF003, DATED MAY 9, 2003, AT A SCALE OF 1"= 300'.
2. ALL LOCATIONS ARE APPROXIMATE.
3. GROUNDWATER ELEVATION DATA OBTAINED ON FEBRUARY 24, 2010 BY ARCADIS.

0 200' 400'

GRAPHIC SCALE

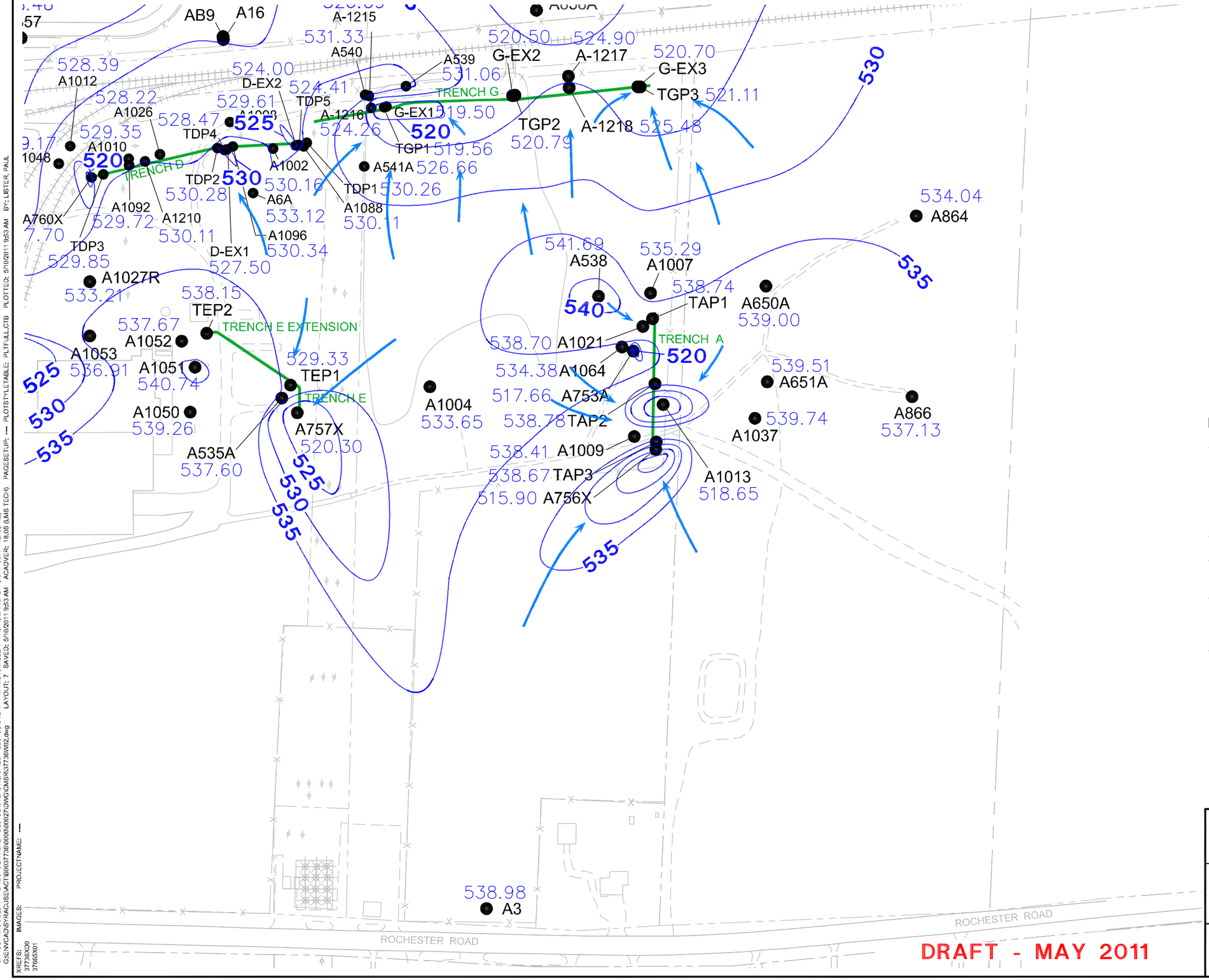
DRAFT - MAY 2011

FMC CORPORATION - MIDDLEPORT, NEW YORK
CORRECTIVE MEASURES STUDY REPORT ATTACHMENT D-1A

GROUNDWATER CONTOURS FEBRUARY 2010 OVERBURDEN UNIT

ARCADIS

FIGURE 6



LEGEND:

- SDGIB1 ● — GROUNDWATER MONITORING LOCATION
- 520 — GROUNDWATER ELEVATION CONTOUR (INTERVAL VARIES)
- 539.74 — GROUNDWATER ELEVATION (FT. AMSL)
- BLAST FRACTURE TRENCH
- DIRECTION OF GROUNDWATER FLOW

NOTES:

1. BASE MAP PREPARED FROM ELECTRONIC CAD FILE FROM CLIENT MADE BY "CONESTOGA–ROVERS & ASSOCIATES", DRAWING I.D. 04798–00(011GN–NF003, DATED MAY 9, 2003, AT A SCALE OF 1"= 300'.
2. ALL LOCATIONS ARE APPROXIMATE.
3. GROUNDWATER ELEVATION DATA OBTAINED ON FEBRUARY 24, 2010 BY ARCADIS.
4. WATER LEVEL COLLECTED AT A1200 NOT USED FOR THIS CONTOUR DUE TO ITS LOW RESPONSE TO PUMPING.
5. CONTOUR INTERVALS VARIED.

0 200' 400'

GRAPHIC SCALE

DRAFT - MAY 2011

FMC CORPORATION - MIDDLEPORT, NEW YORK
CORRECTIVE MEASURES STUDY REPORT
ATTACHMENT D-1A

GROUNDWATER CONTOURS FEBRUARY 2010 SHALLOW BEDROCK UNIT

ARCADIS

FIGURE 7

CITY: SYRACUSE, NY GROUP: ENVCAD DB: P. LISTER, W. JONES LD: P. LISTER PM/TM: T. MILLER TR: R. GANG LYR: ON=*;OFF=*REF*,(FRZ)
G:\ENVCAD\SYRACUSE\ACT@\00377360000\00027\DWG\MSR\377360W02.dwg LAYOUT: 7 SAVED: 5/10/2011 9:53 AM ACADVER: 18.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 5/10/2011 9:53 AM BY: LISTER, PAUL
XREFS: 377360XD0 376852X01 IMAGES: PROJECTNAME: ---

Attachment D-1B

Referenced Correspondence between FMC and the Agencies

Contents:

- Copy of Agencies' Letter to FMC Dated November 23, 2009
- Copy of FMC's Letter to Agencies Dated March 5, 2010
- Copy of Agencies' Letter to FMC Dated December 2, 2010

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials
Bureau of Hazardous Waste and Radiation Management, 9th Floor
625 Broadway, Albany, New York 12233-7258
Phone: (518) 402-8594 • **Fax:** (518) 402-9024
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

November 23, 2009

Mr. Brian McGinnis
FMC Corporation, Remediation Department
1735 Market Street
Philadelphia, Pennsylvania 19103

Dear Mr. McGinnis:

Re: FMC Corporation, Middleport, NY
EPA ID No. NYD002126845
RCRA Corrective Action Management Unit (CAMU) Application

The United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC) have received FMC's March 27, 2008 application for a Corrective Action Management Unit (CAMU) at its Middleport, New York facility. Before entering into an evaluation and discussion of this application's content, some clarification regarding this CAMU application and its relationship to the overall corrective measures selection process is necessary.

On August 30, 2009, the NYSDEC received authorization from the USEPA for the RCRA regulations pertinent to the establishment of CAMUs at RCRA sites. As a result of this authorization, the NYSDEC can now designate (i.e., approve) CAMUs at RCRA sites in New York, without the need for a separate designation by USEPA in order to establish a CAMU. Therefore, NYSDEC has reviewed FMC's CAMU application and will be the agency making the formal determination on whether to designate the proposed FMC CAMU. However, be advised NYSDEC's review has been conducted in consultation with the USEPA and the New York State Department of Health (NYSDOH). Any future revisions or revised CAMU applications should be directed to the NYSDEC with copies provided to USEPA and NYSDOH.

As FMC is aware, an on-site CAMU is one of three options currently being evaluated in the Corrective Measures Study (CMS) for disposition of any contaminated soils that may be excavated from Air Deposition Area 1 and Culvert 105 properties, as expressed in FMC's approved CMS Work Plan for these areas. This CMS is being conducted in accordance with the joint USEPA/NYSDEC 1991 Administrative Order on Consent (AOC) signed by FMC, and as such the review of this CMS will be conducted jointly by USEPA and NYSDEC, in consultation with NYSDOH. As a result, a final decision on the selection of a disposition option for any contaminated soils to be excavated from Air Deposition Area 1 and Culvert 105 properties (if, and where such excavation is deemed necessary as part of the final corrective measures) will be made jointly by the USEPA and NYSDEC in accordance with the 1991 AOC. Therefore, although the NYSDEC is the agency responsible for determining whether to designate a CAMU for this FMC site as indicated above, the determination of whether

or not such a CAMU would be the selected disposition option for off-site FMC contaminated soils will be a joint USEPA/NYSDEC decision made in consultation with NYSDOH.

To further clarify the above with respect to the relationship between FMC's Off-site Soil CMS and CAMU application, the Agencies (USEPA & NYSDEC, in consultation with NYSDOH) consider it appropriate that FMC's CMS provide a complete and thorough evaluation of each soil disposition option (including the proposed CAMU) and present all the "pros & cons" of each option with consideration of all the evaluation criteria described in FMC's approved CMS Work Plan (environmental protection, community acceptance, etc.). FMC's CMS should provide the Agencies the information we need to determine whether or not a CAMU is an appropriate disposition option for any contaminated soils generated from off-site FMC Corrective Measures. With regard to the FMC CAMU application, it should focus on presenting all the necessary technical information on the proposed CAMU, including its design, construction, operation, closure and post-closure care, as required by 6 NYCRR Subpart 373-2.19(c)). This will provide the information the NYSDEC requires to determine whether or not to designate a CAMU on the FMC property.

The CAMU and Corrective Measures Selection both entail similar formal public involvement and governmental review/decision processes. While the processes for each originate from their own regulations, there is no requirement that they be conducted separately. In fact, the USEPA preamble to the present CAMU regulations (Federal Register; January 22, 2002; EPA 40 CFR Parts 260, 264 and 271; Amendments to the Corrective Action Management Unit Rule; Final Rule; pg. 3005) states as follows:

> "The Agency [USEPA] believes that placing CAMUs in context of the broader remedies of which they are a part will be helpful to the public reviewing CAMU proposals."

In general, the Agencies agree with this approach and believe that applying it to the FMC case may help to avoid public confusion that may arise from conducting separate CAMU and Corrective Measures Selection processes. Therefore, if the Agencies make a preliminary (i.e., draft) determination after completing our review of FMC's CMS, that a CAMU should be part of the site's corrective measures, the Agencies would consider combining the CAMU and Corrective Measures Selection formal public involvement processes. This formal public process would be conducted subsequent to completion of the FMC CMS and CAMU application review processes, but before the Agencies make a final decision on the Corrective Measures Selection for off-site Air Deposition Area 1 and Culvert 105 soils and NYSDEC makes a final decision on FMC's CAMU application. This should not be interpreted to mean that the combining of these public processes is in any way intended to truncate public involvement. The Agencies would conduct combined formal public involvement activities that are equal to or in excess of the activities that would have been conducted separately for the CAMU and Corrective Measures Selection processes. Also, the Agencies intend to conduct and/or participate in informal public involvement activities during the governmental review process of the FMC CMS and CAMU application.

With respect to this CAMU application, the NYSDEC, in consultation with the USEPA and the NYSDOH, has completed its review and enclosed some administrative and technical comments on FMC's application. Since the 1991 AOC does not contain any requirements or make any reference to a CAMU, the document review and approval/disapproval processes prescribed in this AOC are not applicable to FMC's CAMU application. However, if FMC chooses to pursue the designation of a CAMU on its Middleport Plant site, they must revise the application in accordance with the enclosed comments, and submit the revised CAMU application to the NYSDEC with copies provided to USEPA and NYSDEC.

If you have questions concerning this letter or its enclosure, you may contact Mr. Matt Mortefolio (NYSDEC) at (518) 402-8594.

Sincerely,

Matt Mortefolio, P.E.
NYSDEC Project Coordinator
Bureau of Solid Waste & Corrective Action

Enclosures

cc: w/enc. - D. Watts, New Jersey Institute
W. Arnold, MCIG Chairperson
D. Seaman, Seaman, Jones, Hogan & Brooks

ecc: w/enc. - M. Hinton, NYSDEC Region 9 Buffalo
M. Infurna, USEPA, Region II, New York
N. Freeman, NYSDOH

bcc: w/enc. - M. Mortefolio, NYSDEC Albany

ebcc: w/enc. - G. Sutton, NYSDEC Region 9 Buffalo
J. Ridenour, NYSDOH
W. Mugdan, USEPA
J. Reidy, USEPA
E. Dassatti, NYSDEC Albany
D. Radtke, NYSDEC Albany
R Quail, NYSDEC Albany
D. David, NYSDEC Region 9 Buffalo
G. Litwin, NYSDOH
R. Fedigan, NYSDOH

ENCLOSURE

NYSDEC's Comments on
FMC's 2008 CAMU Application
November 2009

General Comments:

1. Administrative Process & Mechanism

For reasons indicated in the cover letter, FMC's CAMU application should be revised so that it is directed to NYSDEC, as opposed to USEPA and NYSDEC, and should include only NYSDEC regulatory citations.

In the NYSDEC regulations pertaining to CAMUs, 6 NYCRR Subpart 373-2.19(c)(5) states that: "The Department [NYSDEC] shall specify, in the permit or order, requirements for CAMUs…". As stated in the cover letter, the current 1991 USEPA/NYSDEC Administrative Order does not contain CAMU requirements. Therefore, if the NYSDEC decides to designate a CAMU on the FMC site, prior to implementation/construction of the designated CAMU, FMC must either apply for and receive a NYSDEC Part 373 (post-closure) Permit or sign an Order under ECL § 71-2727(3), containing the appropriate CAMU requirements. FMC's CAMU application should include a discussion of this administrative process. Also, while it is NYSDEC's discretion as to whether a Permit or Order is used as an implementation mechanism for a CAMU, FMC may want to express a preference and provide a supporting discussion.

2. Coordination with Eastern Surface Impoundment (ESI) Closure

In 1988, the NYSDEC approved a Closure Plan for the ESI, which is a RCRA regulated hazardous waste surface impoundment under 6 NYCRR Subpart 373-3.7 (Interim Status regulations). This approved ESI Closure Plan requires the placement of "clean" fill in the ESI to a 3% grade and the installation of an engineered cover system consisting of 24 inches of compacted clay, a geotextile fabric, a 30 mil thick HDPE FML, a 12 inch sand drainage layer, a geotextile fabric, 18 inches of "clean" fill, 6 inches of topsoil and vegetation. Although, the 1991 AOC allows FMC to delay implementation of this Closure Plan pending the completion of the RFI and CMS for the ESI and SWMU Group C, it does not allow for the creation of a CAMU within the ESI which does not conform to the presently approved ESI Closure Plan. Therefore, in order to allow for the designation of a CAMU within the ESI, FMC must submit a modification to the approved 1988 Closure Plan for the ESI which reflects proposed CAMU waste and unit design for the ESI area. This can be submitted as a separate document or as an addendum to the CAMU application. Also, as required by 6 NYCRR Subpart 373-2.19(c)(2), FMC must provide information justifying that the inclusion of the regulated unit (ESI) into the CAMU will enhance implementation of effective, protective and reliable remedial actions for the facility, and how continued compliance with the regulations listed in Section (ii) of this subpart which are pertinent to the regulated unit, will be maintained after incorporation of the ESI into the proposed CAMU. It should be noted that the ESI will maintain its status as a RCRA regulated unit even after completion of any designated CAMU at its location.

3. CAMU Liner System Requirements

NYSDEC regulations [6 NYCRR Subpart 373-2.19(c)(5)] require that the Department (NYSDEC) specify in a permit or order, the requirements for a CAMU. Among these requirements, the regulations [6 NYCRR Subpart 373-2.19(c)(5)(iii)('a')] specify that a new CAMU must be constructed with a liner system that meets minimum design requirements as specified in this referenced regulation. However, the regulations [6 NYCRR Subpart 373-2.19(c)(5)(iii)('b')('2')] also state that the Department may approve alternative requirements for a CAMU, including a design that does not include a liner, if the Department finds that the CAMU is to be established in an area of significant levels of contamination and that this non-liner design would still prevent migration of contaminants from the unit in excess of long-term remedial goals. As discussed in Section 3 and Appendix C of FMC's CAMU application, FMC is seeking Department approval of an alternate CAMU design that does not include a liner system, based on the previously mentioned allowance under the cited NYSDEC regulation.

The NYSDEC regulations cited above are derived from and analogous to, USEPA RCRA regulations which were promulgated as a final rule by USEPA were noticed in the Federal Register dated January 22, 2002 previously cited in the cover letter. Besides presenting the final regulations, this Federal Register contains a preamble which fully explains the intent of the regulations to guide regulators on their implementation. Excerpts from this Federal Register preamble regarding the above indicated regulations on CAMU liners, state the following:

- Page 2977 - "*In practice, pursuant to the 1993 CAMU rule [regulations in effect prior to January 22, 2002], Regional Administrators have required liners on a site-specific basis for most new, replacement, or laterally expanded CAMUs.*"
- Page 2977 & 2978 – "*...the 1993 CAMU rule standard, while implemented appropriately in practice to date, was too open-ended and would benefit from increased detail to better ensure that liners are designed adequately and used where appropriate. This approach would also make CAMU design more predictable for the public.*"
- Page 2978 – "*The Agency [USEPA] believes that these standards [composite liner and leachate collection system] are appropriate minimum national standards for new, replacement, or laterally expanded CAMUs in which wastes will remain after closure, because they will, among other things, be protective across a wide range of waste and site conditions. They also reflect what has generally been EPA and state practice at CAMUs to date.*"

Based on these excerpts and other descriptive language in this Federal Register, the NYSDEC concludes that it is clearly the USEPA's intent to require composite liners and leachate collection systems at new CAMUs as a general rule, with CAMUs without such engineered containment systems being the rare exception. Therefore, this is the perspective from which NYSDEC will evaluate whether to allow FMC's request and grant an exception to this liner/leachate collection system rule in this case.

The above regulation [6 NYCRR Subpart 373-2.19(c)(5)(iii)('b')('2')] which allows the NYSDEC to designate a CAMU without a liner system, as requested by FMC in this case, is predicated on the CAMU being established in an area where significant levels of contamination already exist. The above cited Federal Register provides the following descriptive example of such a case:

- Page 2979 – "*For example, at some highly contaminated facilities, CAMUs may be located in areas of significant contamination [that] is pervasive throughout the subsurface. At such facilities, remedial approaches may involve long-term groundwater pump and treat systems, or subsurface soil contamination may be expected to remain in place as a source of groundwater contamination. At these types of facilities, a liner and leachate collection system to reduce migration of hazardous constituents into an already significantly contaminated subsurface likely would not meaningfully increase protection of human health or the environment and would not be the best use of cleanup resources.*"

The NYSDEC considers it important to note that the standard in this descriptive example of cases where a liner system would not be warranted, refers to areas of significant contamination that are pervasive throughout the subsurface, and not just localized areas where some pre-existing contamination is present.

FMC's CAMU application proposes a single CAMU which would cover both the pre-existing Solid Waste Management Units (SWMUs) known as SWMU Group C (which includes the Former Carbofuran Pond, as well as the ESI regulated unit within this pond), and the area to the south where no known SWMUs exist. Since these two areas are different in terms of their historic nature, the NYSDEC has evaluated them separately below using the above indicated contamination standard with respect to the question of NYSDEC approving a liner system exception for the proposed FMC CAMU.

a) <u>Proposed CAMU Phase 1 - Within SWMU Group C (SWMU #3 - Former Carbofuran Pond)</u>: SWMU Group C, containing the Former Carbofuran Pond (SWMU #3), extends 650 feet to the west from the facility's eastern property boundary, and 800 feet to the south from the facility's northern property boundary (Figure I2.11 in Volume I of FMC's RFI Report). The ESI (SWMU #50), which is a RCRA Interim Status surface impoundment, is located entirely within SWMU Group C. These two SWMUs, a potential SWMU identified in the southeast corner of SWMU Group C during installation of Groundwater Migration Control Trench A, and impacts from past arsenic air deposition within SWMU Group C, are what the NYSDEC would consider as pre-existing waste disposal/contamination upon which we would evaluate whether significant levels of pervasive contamination exist within SWMU Group C. Section 3.3 of FMC's CAMU application also characterizes SWMU #53 & 54 within SWMU Group C, which are the result of past off-site IRMs/ICMs (1987-2007), as part of the "existing contamination at [the] proposed CAMU location". The NYSDEC disagrees with this characterization. The NYSDEC considers FMC's CAMU application as proposing that these contaminated soils from off-site locations be considered as "CAMU-Eligible Wastes" to be placed in the CAMU if one is designated by NYSDEC. Therefore, since these wastes are proposed for placement in the CAMU, the NYSDEC does not consider them to be a part of the existing land base upon which the proposed CAMU would be constructed.

   In reviewing the soil and groundwater data provided in the application for locations within SWMU Group C, the NYSDEC would agree that data from some of these locations indicate significant levels of soil and groundwater contamination. However, due to a lack of detailed discussion of each location's data in the application and the absence of a detailed comparison of each location's data to appropriate NYSDEC comparison criteria (i.e., Subpart 375-6, Table 375-6.8(b) Industrial SCOs for soil; Part 703 Surface Water and Groundwater Quality Standards for groundwater), it is difficult for the NYSDEC to determine if the significant contamination is pervasive throughout the entire area of SWMU Group C. Therefore, the application should be revised to include such detailed data discussions and comparisons for all soil and groundwater sample locations within SWMU Group C in order for the NYSDEC to be

able to determine if the significant contamination is pervasive throughout SWMU Group C or only localized around certain sample locations.

As indicated in the above Federal register quotation (Page 2979), it is appropriate to consider groundwater pump & treat systems in the area of the proposed CAMU when considering a liner system exception for the proposed CAMU. The NYSDEC acknowledges that FMC's continued operation of Groundwater Migration Control Trenches A, D, E & G would likely provide the Phase 1 area of the proposed CAMU some migration control of releases to groundwater. However, FMC's application does not provide a detailed evaluation of the Trench A, D, E & G systems as to their effectiveness in controlling groundwater releases from proposed CAMU Phase 1. Therefore, the application should be revised to include a summary of past hydraulic and chemical data associated with the operation of the Trench A, D, E & G systems and an evaluation of the areal span of influence of these systems, especially with regard to the facility boundary area between trenches A & G, in order for the NYSDEC to determine how effective these systems would be in controlling releases to groundwater from a proposed unlined CAMU Phase 1.

As a result of the application information deficiencies noted in the above two paragraphs, the NYSDEC cannot make any judgments at this time regarding whether or not it is appropriate for us to approve alternate design requirements (i.e., approve a liner system exception) for CAMU Phase 1 in accordance with 6 NYCRR Subpart 373-2.19(c)(5)(iii)('b') of the NYSDEC regulations, as requested in FMC's current CAMU application. Therefore, if FMC choose to pursue CAMU Phase 1 and a liner system exception for it, FMC's CAMU application should be revised to include the above described information.

b) Proposed CAMU Phases 2 & 3 – South of SWMU Group C:
The NYSDEC has evaluated FMC's CAMU application request for approval of an alternate CAMU design that does not include a liner system for CAMU Phases 2 & 3 in accordance with 6 NYCRR Subpart 373-2.19(c)(5)(iii)('b')('2'), through a review of the known historic usage and analytical data from the area of proposed CAMU Phases 2 & 3.

From the information currently available, there are no known SWMUs located south of SWMU Group C or other indications of waste disposal practices. Volume I of FMC's approved RFI Report states the following regarding the historic nature of the southern portion of the Plant property, of which the area south of SWMU Group C is a part:

- Pages 19 & 20 – "*The "southern half" of the facility property comprises approximately 39 acres and consists of maintained grassy fields, parking lots, roads, a maintenance building, and office buildings. Pesticide formulating activities are not conducted and historically pesticide manufacturing or formulating activities were not conducted on this portion of the facility.*"

While FMC's CAMU application contains an May 1978 aerial photo which shows an area of soil disturbance south of SWMU Group C, the NYSDEC does not consider this as conclusive proof of past waste disposal activities. This photo was apparently taken during the closure process for SWMU #3. While FMC may consider it possible that waste residues from SWMU #3 were re-graded onto to the area south of this SWMU during its closure, the NYSDEC considers it equally, if not more likely that the soils south of SWMU #3 were re-graded into SWMU #3 to fill it in during closure. A comparison

of 1972 and 1978 topographic maps indicate that the southern half of SWMU #3 has elevations which are approximately 9 feet higher in the 1978 map than they are in the 1972 map (530' to 539'), which appears to support the scenario that soil was re-graded into, and not out of SWMU #3 during its closure.

The NYSDEC has reviewed the analytical data for soil and groundwater south of SWMU Group C (south of Sample Locations BHC6 & BHC7). The soil data for this area consists of arsenic results from borings taken along grid lines A through I from line 23 to 28. Only 8 out 272 samples taken at 41 grid locations had arsenic concentrations above 20 ppm, (arsenic concentrations at or below 20 ppm are considered by the NYSDEC to be indicative of site specific background). As a result, at least 97% of the soil data from this area has arsenic concentrations indicative of background (i.e., do not indicate arsenic contamination). Also, the highest arsenic concentration in this area is 39 ppm, and 6 of the 8 samples have arsenic concentrations between 20 & 30 ppm. The groundwater data in this area is represented by Monitoring Wells 15, 837 & A-3. The vast majority of the groundwater data from Wells 15, 837 & A-3, indicate "non-detect" or detections below NYSDEC groundwater standards for the monitored hazardous constituents. It is also important to note that the surface water run-off from the area south of SWMU Group C flows untreated through FMC's SPDES monitored discharge. To date, the NYSDEC is unaware of any exceedence of contaminant levels specified in FMC's SPDES Permit that are linked to this untreated surface water. In addition, Volume I of FMC's approved RFI Report states the following regarding the outcome of on-site soil investigations:

- Page 30 – "*Soil investigations conducted at the Facility confirm that handling/disposal of pesticide materials were limited to the northern half of the Plant site.*"

Based on the known information and soil/groundwater data described above, the NYSDEC has concluded that there is no evidence of significant contamination pervasive throughout the subsurface of the area south of SWMU Group C. Therefore, NYSDEC has determined that any CAMU which it may designate in the area south of SWMU Group C (Proposed CAMU Phase 2 and southern half of CAMU Phase 3), must meet or exceed the Minimum Design Requirements for CAMU liner and leachate collection systems as spelled out in 6 NYCRR Subpart 373-2.19(c)(5)(iii)('a') of the NYSDEC regulations.

As a result of the above determination, if FMC chooses to pursue a CAMU for the area south of SWMU Group C, they must submit a revised application which contains the following:

- A detailed grading plan for the liner subgrade with sufficient slope to promote leachate collection in a manner that will maintain less than 30-cm (1.0-ft) of leachate head on the liner;
- Detailed design specifications for all liner and leachate collection system materials (equivalent to those required in 6 NYCRR Part 360-2.13);
- Detailed Construction Specifications and a Construction Quality Assurance Plan for the installation of all liner and leachate collection system materials (equivalent to those required in 6 NYCRR Part 360-2.13); and
- Detailed design information demonstrating that the leachate removal, transport and treatment systems which are designed to maintain less than 30-cm (1.0-ft) of leachate head on the liner.

4. CAMU Cap (Cover) Requirements

The NYSDEC regulations contain performance based final cover requirements for CAMUs. Among these requirements 6 NYCRR Subpart 373-2.19(c)(5)(vi)('d')('1')('v') states that CAMU final covers must be designed and constructed to "have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present." This performance requirement is intended to help prevent precipitation from infiltrating CAMU wastes and building up as leachate at the base of the CAMU due to a liner or subsoils of low permeability. Such a buildup can cause excessive leachate heads that can increase the migration of leachate to groundwater and/or create leachate seeps to surface water along the CAMU's perimeter. The NYSDEC finds that FMC's proposed final cover design using only a "permeable, vegetated soil cover", does not meet this requirement.

With regard to CAMU Phases 2 & 3 on the area south of SWMU Group C, General Comment 3 above requires the CAMU in this area to meet or exceed the Minimum Design Requirements for CAMU liner and leachate collection systems as spelled out in 6 NYCRR Subpart 373-2.19(c)(5)(iii)('a') of the NYSDEC regulations. As a result, the FMC proposed cover for the CAMU in the area south of SWMU Group C does not have a permeability less than or equal to the permeability of the bottom liner materials, and therefore does not meet the 6 NYCRR Subpart 373-2.19(c)(5)(vi)('d')('1')('v') regulatory requirement.

With regard to CAMU Phase 1 within SWMU Group C, General Comment 3 above indicates that the NYSDEC requires more information before it can decide on whether to grant FMC's request for a liner system exception. If such an exception is not granted, than the result with regard to the final cover system design is the same as described in the previous paragraph. However, if an exception is granted for the SWMU Group C area, the permeability of the natural subsoils must be considered in order to specify the permeability of the final cover design to meet the regulatory requirement. Volume I of FMC's approved 2009 RFI Report and Volume I of FMC's 1999 Draft RFI Report describe the site's natural overburden soils as follows:

- 2009 RFI Report, Volume I, Page 120 – "*The overburden, due to its high clay content, is relatively impermeable in the Middleport area.*"
- 1999 RFI Report Volume I, Page 6-10 – "*The silty clay character of the overburden yields low hydraulic conductivities [in] test results. The Description of Current Conditions Report (CRA 1991) reported estimated horizontal hydraulic conductivities [permeabilities] based on in situ testing of* $3.5x10^{-6}$ *cm/sec to* $3.9x10^{-3}$ *cm/sec...*"

Based on the above natural subsoil permeability characteristics, the FMC proposed final cover for the CAMU within SWMU Group C without a liner system, does not have a permeability less than or equal to the permeability of the natural subsoils, and therefore does not meet the 6 NYCRR Subpart 373-2.19(c)(5)(vi)('d')('1')('v') regulatory requirement.

Regardless of whether or not a liner system will be required for Proposed CAMU Phase 1, an engineered cover system constructed of low permeable materials will be required of the entire surface of any CAMU which may be designated by the NYSDEC within and south of SWMU Group C. As a result, if FMC chooses to pursue a CAMU for the area within and south of SWMU Group C, they must submit a revised application which contains a new final cover system that meets or exceeds the 6 NYCRR Subpart 373-2.19(c)(5)(vi)('d')('1')('v') regulatory requirement.

Based on the nature of FMC's proposed CAMU-Eligible wastes, the NYSDEC would consider an engineered final cover that utilizes a composite barrier layer as typically required for solid waste landfills in New York State, as meeting this regulatory requirement and acceptable for FMC's proposed CAMU. Such a typical final cover system would consist of the following (starting from the waste surface):

- A layer of soil material with low permeability consisting of either 2-feet of compacted clay or a Geosynthetic Clay Liner (GCL);
- A synthetic Flexible Membrane Liner (FML) with a thickness of 30-mil or greater (60-mil or greater if HDPE geomembrane is used);
- A natural or synthetic drainage layer having a sufficient hydraulic conductivity to support veneer cover system stability;
- A "clean" fill and topsoil layer of sufficient thickness to prevent root penetration into the drainage layer; and establishment of vegetation to hold cover soils in place.

5. CAMU Cost Estimate and Financial Assurance

NYSDEC regulations require assurances of financial responsibility for corrective measures. Since the CAMU in and of itself is a corrective measure and FMC is proposing it as such, FMC must provide financial assurance for the construction, operation, closure and long-term post-closure care of any CAMU designated by NYSDEC for the FMC site. As a result, FMC's application should contain a detailed, itemized cost estimate of these CAMU activities as detailed below:

- Construction – All costs related to grading/preparing the sub-grade and installing the liner and leachate collection systems;
- Operation – All costs related to leachate removal/treatment and application of an interim cover during waste placement;
- Closure – All costs related to final cover system materials and installation; and
- Post-Closure – All costs related to long-term leachate removal/treatment and final cover maintenance, as well as costs involved in CAMU-related groundwater pump/treat systems and groundwater monitoring.

FMC's application should also contain a description of the financial assurance mechanism (instrument) which they will provide should the NYSDEC decide to designate a CAMU on the FMC site. Any such mechanism should be for the total amount of the above described cost estimate and selected from those specified in 6 NYCRR Subpart 373-2.8 of the NYSDEC regulations. FMC must provide and the NYSDEC must accept such a financial assurance mechanism subsequent to CAMU designation but prior to CAMU construction and new waste placement.

Specific Comments:

1. Sections 2.1-2.17, Pages 7 - 10 – **Rationale for a CAMU at the Facility**
Sections 2.1 through 2.17 contain FMC's rationale intended to address 6 NYCRR Subpart 373-2.19(c)(3) of the NYSDEC regulations, which presents a set of factors the NYSDEC must address to designate a CAMU at a RCRA facility, but FMC has presented only what it considers to be the positive aspects of designating a CAMU at its facility. As indicated in the cover letter, FMC's CMS should provide a complete and thorough evaluation of each soil disposition option (including the proposed CAMU) and present all the "pros & cons" of each option. FMC's CAMU application should focus on presenting all the necessary technical information on the proposed CAMU, including its design, construction, operation, closure and post-closure care. While FMC should address the above cited regulation in their CAMU application, NYSDEC considers it appropriate for the CAMU application to simply reference the FMC CMS with respect to this regulation, where we would expect to see a more comprehensive evaluation of the proposed CAMU disposal option in comparison to other disposal options.

2. Section 2.1.3, Page 8 – **Inclusion of Unaffected Areas in the CAMU**
The NYSDEC disagrees with the first sentence in this section that states the CAMU is in an area of the facility with significant soil and groundwater contamination as explained in General Comment 3, above. In addition to the application revisions specified in General Comment 3, FMC must provide justification in the application that managing CAMU-eligible wastes in the uncontaminated area south of SWMU Group C is more protective than management of such wastes at contaminated areas of the facility, as stipulated by 6 NYCRR Subpart 373-2.19(c)(3)(iii).

3. Section 2.3, Pages 13-15 – **Proposed CAMU Eligible Waste**
This section needs to clearly indicate that only remedial wastes which originated from FMC-Middleport Plant site past releases to environmental media, will be disposed of in the proposed CAMU. NYSDEC regulations do not allow remedial waste from other origins to be disposed of in an FMC CAMU. Also, it should be clarified that the listed debris items in this section will not be allowed to be disposed of in the CAMU unless they are contaminated by past FMC releases and it can be shown that decontamination is not feasible. For example, surface debris that is not intermixed with contaminated soil cannot be placed in the CAMU.

   This section indicates that future remediation wastes to be placed in the proposed CAMU would not include RCRA characteristic or listed hazardous waste. If FMC chooses to exclude such wastes, FMC must propose methodologies for screening out these hazardous wastes. With regard to arsenic, FMC should propose a total arsenic screening level, above which FMC would perform TCLP testing to determine the presence or absence of characteristic hazardous waste. Such a screening level should be supported by a comparison of total and TCLP results for the same set of samples. This section should also indicate that remedial wastes from the 1987-1988 Northern Ditches IRM in the ESI area, contain characteristic hazardous waste (for arsenic) based on past testing results. This section should describe the location of these wastes, their present containment, whether they are to be considered as CAMU-eligible waste and whether they will undergo any further management/treatment in conjunction with their disposal in the proposed CAMU.

   This section of the application and 6 NYCRR 373-2.19(c)(1)(iii), bans placement of liquids in CAMUs. In accordance with 6 NYCRR Subpart 373-2.19(c)(1)(iii)('d'), this section should also describe how FMC will screen out free liquids in bulk wastes in accordance with 6 NYCRR Subpart 373-2.14(j)(3), and how any

sorbents used to treat free liquids in the waste will meet the requirements of 6 NYCRR Subpart 373-2.14(j)(3). In addition, the application must describe how any placement of non-hazardous liquids into a CAMU, such as for dust suppression, is in compliance with 6 NYCRR Subpart 373-2.19(c)(1)(iii)('c').

It is not clear from the FMC's subsections entitled "Off-Site Remediation Waste Origin" and "On-Site Remediation Waste Origin" what specific off-site and on-site areas of FMC-related contaminated soil/sediment FMC is proposing to be considered as "CAMU-Eligible Waste" for possible disposal of in the proposed CAMU. The application should clearly state whether all the areas listed in this section are to be considered as areas from which CAMU-Eligible Waste could originayte or if some will be excluded.

4. Sections 3 – 3.7, Pages 16-34 - **CAMU Design Basis**
General Comments #3 & #4 applies to Sections 3 through 3.7.

5. Section 3.6.5, Pages 31&32 – **Groundwater Monitoring Program**
FMC's application must indicate that additional monitoring wells should be placed along the eastern boundary of the proposed CAMU to demonstrate that the additional contaminated soils and expanded boundaries of disposal do not impact groundwater beyond a given line of "clean" wells. These additional wells are recommended for installation to the north and south of Groundwater Extraction Trench A. The new wells should augment a selected set of existing monitoring wells to fulfill CAMU groundwater monitoring requirements in 6 NYCRR Subpart 373-2.19(c)(5)(v) of the regulations. The application should indicate the specific monitoring wells (existing and proposed) to be used for this purpose.

Monitoring wells located to the north and east of the proposed CAMU are located off-site on School District property and private property, respectively. Most of these wells will be critical for successfully monitoring the CAMU, but continued use of the wells, or permission for the installation and access of future wells, is at the discretion of the property owners. FMC should attempt to make permanent legal arrangements to ensure that such wells will be available and accessible into the future.

6. Section 4.1, Pages 35&36 – **Conceptual Design Components**
General Comments #3 & #4 applies to Section 4.1. Also, the application should include stability analyses of the proposed CAMU slopes in consideration of both static and seismic conditions, to justify long-term containment of the CAMU wastes.

7. Section 4.3, Page 38 – **CAMU Siting**
General Comment #3.a applies to this Section 4.3 with regard to FMC's claim that the proposed CAMU is within the capture zone of the existing groundwater extraction systems. In addition to CAMU Phase 1 addressed in General Comment #3.a, FMC must provide appropriate groundwater hydraulic and chemical data with respect to CAMU Phases 2 & 3 to support their claim of groundwater control for these CAMU phases.

As discussed in Specific Comment #1, the FMC CMS should include a thorough evaluation of the factors involved in determining if a CAMU at this site is an appropriate remedial option. Therefore, with regard to the visibility consideration discussed in this section, the FMC CMS should present visibility perspectives from the various public vantage points, including the School athletic fields, and fully describe the potential aesthetic impacts on the community.

8. Section 4.4, Page 39 - **CAMU Construction**
General Comment #3 applies to Section 4.4 with respect to liner and leachate collection system construction.

9. Section 4.4.1, Pages 39 & 40 - **Fill-Placement Activities**
Specific Comment #3 applies to the first bullet in Section 4.4.1 with respect to debris allowed in the CAMU. Specific Comment #3 applies to the second bullet in Section 4.4.1 with respect to liquids allowed in the CAMU.

The fifth bullet in Section 4.4.1, states that soil waste will be placed and compacted in lifts of a maximum thickness of 2 feet. The NYSDEC considers this lift thickness to be excessive. Soil wastes should be placed at thinner lift thickness prior to compaction so as to maximize the CAMU's capacity and as a result, its efficiency. Also, this section should provide details on the specific compaction equipment and effort that would be used.

10. Section 4.4.5, Page 42 - **Interim Stormwater Management**
It appears that the bullet items on this page are indicating that "non-contact" surface water run-off from areas of interim cover will be directed through the facility's southern drainage culvert to be discharged through the FMC SPDES out fall without treatment. The NYSDEC is concerned that erosion of the 6-inch thick interim cover could allow stormwater to contact CAMU wastes and transport contaminants off-site without treatment. Therefore, as a preventative measure, stormwater from interim cover areas should continue to be directed towards the WSI for collection and treatment, or collected and treated through other methods previously described in this section. Alternatively, in its application, FMC could propose a sampling and analysis program for interim cover run-off to demonstrate that it meets appropriate surface water quality criteria without treatment. If sufficient data collected over time consistently demonstrates that the run-off meets these quality criteria, FMC could request, and the NYSDEC could grant, approval for its discharge without treatment through FMC's proposed South Basin.

11. Sections 5.1 – 5.1.2, Pages 44-47 - **Closure Activities**
General Comment #4 applies to Sections 5.1 through 5.1.2.

12. Section 5.1.3, Pages 47&48 - **Stormwater Management Following Final Closure**
FMC's CAMU application should include design details and capacity calculations for the proposed South Basin which demonstrate it has sufficient capacity to attenuate CAMU drainage area run-off using NYSDEC's Stormwater Management Design Manual and New York Standards and Specifications for Erosion and Sediment Control.

13. Section 5.2, Pages 48&49 - **Post-Closure Activities**
Section 5.2 indicates that a detailed post-closure plan will be developed and submitted for approval at the time of final closure. The NYSDEC requires such a plan to be submitted with this application since the adequacy of post-closure care plays an important role in NYSDEC's decision on whether to designate a CAMU, and it is necessary to prepare a detailed cost estimate as described in General Comment #5. Also, leachate removal and treatment for the lined CAMU must be included in the list of post-closure activities and fully described in the post-closure plan.

14. Figures & Appendices
Although the NYSDEC does not have any specific comments on the figures and appendices in this

application, revisions to some of these figures and appendices, as well as additional figures and appendices, are required as a result of some of the previous general and specific comments.

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March 5, 2010

Via E-Mail and Overnight Mail

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NYSDEC Project Coordinator
Bureau of Solid Waste & Corrective Action
Division of Solid and Hazardous Waste Materials
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Mr. Michael Infurna
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PROTECTION AGENCY, Region II
290 Broadway – 20th Floor
New York, NY 10007-1866

Re: RCRA Section 2008(h) Administrative Order on Consent
Docket No. II-RCRA-90-3008(h)-0209
FMC Corporation, Middleport, NY Facility
EPA I.D. No. NYD002126845
Submittal of Meeting Agenda and Draft Responses to Agencies'
November 23, 2009 Comments on FMC's
March 2008 Corrective Action Management Unit (CAMU) Application

Dear Messrs. Mortefolio and Infurna:

By letter dated November 23, 2009, the New York State Department of Environmental Conservation (NYSDEC), in consultation with the United States Environmental Protection Agency (USEPA) and the New York State Department of Health (NYSDOH), responded to and provided comments on the above-referenced application that FMC Corporation (FMC) submitted to NYSDEC and USEPA by transmittal letter dated March 27, 2008. In accordance with the provisions (Section XI.1.) of the 1991 Administrative Order on Consent (AOC), referenced above, which AOC was entered into by FMC Corporation (FMC), NYSDEC and USEPA (the latter two entities are referenced hereinafter as "Agencies"), by letter dated December 10, 2009, FMC requested a meeting with the Agencies and NYSDOH to discuss the NYSDEC November 23, 2009 letter, the comments enclosed with that letter, and the determinations and directives that are variously included in the letter and enclosed comments. In preparation for this meeting, FMC has prepared the following enclosed documents:

- Attachment 1 – Proposed Meeting Agenda
- Attachment 2 – FMC's Draft Responses to the NYSDEC November 23, 2009 Letter and Comments.

FMC requested that this meeting include representatives of the "Advisory Group" (senior management) as well as the "Technical Group" and legal representatives in order to facilitate discussion and timely decisions relative to key legal, administrative and technical issues concerning the proposed designation and use of a CAMU. With reference to FMC's draft responses (Attachment 2), FMC believes that these key issues are as follows:

1. **Administrative Process & Mechanism for CAMU Designation, Design, Construction and Use:** As discussed in Item 1 of Attachment 2, FMC proposes that the existing AOC be modified or supplemented to provide for a CAMU and to satisfy the provisions of the regulations with respect to the requirements of the CAMU (e.g., 6 NYCRR Section 373-2.19(c)(5)).

2. **Timing and Role of the Corrective Measures Study (CMS) for the Suspected Air Deposition and Culvert 105 Study Areas in the CAMU Designation Process:** FMC is currently conducting the CMS for the air deposition and Culvert 105 study areas. The Agencies' target date for submittal of a preliminary Draft CMS Report is June 15, 2010. The NYSDEC November 23, 2009 letter and enclosed comments direct FMC to provide substantial additional information and design details in a revised CAMU Application. One of the corrective measures alternatives (CMAs) to be evaluated in the CMS is use of a CAMU situated on the FMC plant property. In order to enable timely completion of the CMS consistent with the Agencies' target dates, the timing and role of the CMS and the CAMU designation/application process need to resolved and understood. FMC has proposed a process in Item 2 of Attachment 2. FMC believes that there needs to be clear understanding between the Agencies and FMC as to what CAMU information should be presented in the CMS in support of the disposal option evaluation. In addition, FMC is concerned that the decision on the designation of a CAMU would be made based only on the CMS for the air deposition and Culvert 105 study areas, without consideration of possible corrective measures for other off-site study areas (e.g., Tributary One and Flood Plain South of Pearson/Stone Roads).

3. **Coordination with Eastern Surface Impoundment (ESI) Closure:** As discussed in Item 3 of Attachment 2, FMC will submit a modification to the ESI Closure Plan 180 days after the Agencies have reached a decision on the designation of the CAMU. If the Agencies decide that a CAMU can not be designated at the Site, FMC will submit a closure plan modification as specified in Section VI, item 4a) of the AOC. The modifications to the ESI closure plan will propose that the existing material in the ESI Fill Area remain as fill beneath a final cover to be constructed over the ESI Fill Area. Such revised plan will also propose that surface water runoff from the final cover be redirected to a new south storm water attenuation basin. While the RFI (and any CMS, if determined to be required) has not been completed for the plant site, FMC believes that this is an appropriate corrective measure to address the soil, groundwater and surface water issues associated with SWMU Group C and to reduce the volume of surface water runoff draining to the Western Surface Impoundment (WSI).

4. **CAMU Liner System Requirements and Modification of CAMU Phases:** FMC believes that a liner should not be required within the limits of SWMU Group C based on (a) the existing solid waste management units, including the ESI Fill Area, in this area, such that a CAMU situated here would not be a new, replacement or laterally expanded unit; and (b) the presence of existing contamination throughout this area, as discussed in Item 4 of Attachment 2. With respect to the area south of SWMU Group C, FMC will propose a liner and leachate collection system, as described in Item 5 of Attachment 2. In addition, FMC intends to propose construction/use of the CAMU in two phases instead of three phases. The first phase would consist of the unlined portion of the CAMU and the second would consist of the lined portion. The overall footprint would be the same as that which was described in the March 2008 application.

5. **CAMU Cap (Cover) Requirements:** FMC will revise the design of the final cover for the CAMU to provide for construction with low permeable materials, as discussed in Item 6 of Attachment 2.

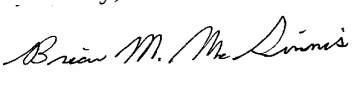
6. **CAMU Cost Estimate and Financial Assurance:** FMC agrees that provision of financial assurance for the closure (e.g., construction of the final cap) and long-term post-closure care (e.g., leachate removal/treatment, cover maintenance, inspection and monitoring of the CAMU) is appropriate. However, financial assurance for the construction and operation of the CAMU is not warranted nor required by the applicable regulations.

The items above, and agenda items A1-A6, warrant Advisory Group (and legal) review and discussion. The other agenda items (those listed under B) and draft responses Items Nos. 8-16 can be taken up in a separate meeting of Technical Group representatives only – at least assuming agreement on critical issues such as the contents and timing of a revised CAMU application or applications.

FMC will follow up shortly with both the technical contacts and members of the Advisory Group concerning the scheduling of a meeting.

If there are any questions or if additional information is needed at this time, please contact me at (215) 299-6047 or at the above address.

Sincerely,



Brian M. McGinnis
Remediation Project Manager

Attachments

pc: W. Mugdan, USEPA, NYC
B. Finazzo, USEPA, NYC
E. Dassatti, NYSDEC, Albany
R. Phaneuf, NYSDEC, Albany
G. Litwin, NYSDOH, Troy
R. Fedigan, NYSDOH, Troy
N. Freeman, NYSDOH, Troy
T. Girard, NYSDOH, Troy
J. Ridenour, NYSDOH, Troy
D. King, NYSDEC, Buffalo
G. Sutton, NYSDEC, Buffalo
M. Hinton, NYSDEC, Buffalo
Mayor Julie Maedl, Village of Middleport
Daniel E. Seaman, Esq., Village of Middleport Attorney, Lockport office
Dan Watts, MRAG/MCIG Technical Advisor
Bill Arnold, Middleport Community Input Group (MCIG)
Patt Cousins, Middleport Remedial Action Group (MRAG)
Richard Lang, Town of Royalton Supervisor
Senator George Maziarz, Lockport (without attachments)
Assemblywoman Jane Corwin, Elma (without attachments)
Congressman Chris Lee, Williamsville (without attachments)
R. Forbes, FMC Philadelphia

ATTACHMENT 1

PROPOSED MEETING AGENDA
Agencies' November 23, 2009 Comments on FMC's March 2008 Corrective Action Management Unit (CAMU) Application
FMC Corporation, Middleport, NY

Meeting Date/Time: *To be determined*

Meeting Place: *To be determined*

Meeting Purpose: Discuss major issues associated with FMC's proposed CAMU and FMC's Draft Responses to the Agencies' November 23, 2009 letter and comments on FMC's March 2008 CAMU Application.

Agenda:

A. Advisory Group and Technical Group Topics

A1. Administrative Process & Mechanism for CAMU Designation, Design, Construction and Use

- Use of the existing Administrative Order on Consent, with modification or supplementation for the CAMU

A2. Timing and Role of the Corrective Measures Study (CMS) for the Suspected Air Deposition and Culvert 105 Study Areas in the CAMU Designation Process

- Timing for CAMU designation and CMS for the air deposition and Culvert 105 study areas.
- CAMU information required for completion of the CMS for the air deposition and Culvert 105 study areas (Proposed CAMU Application Part 1)
    i. Based on level of detail in the March 2008 CAMU Application
    ii. Consideration and accommodation of remediation wastes that may be generated from other off-site study areas (e.g., Tributary One and Flood Plain South of Pearson/Stone Roads)
    iii. Pros versus Con with respect to impacts on health and environment, costs, economics, aesthetics
- Timing for preparation of CAMU details regarding design and operational information (Proposed CAMU Application Part 2)

A3. Coordination with Eastern Surface Impoundment (ESI) Closure

- Modification to the ESI Closure Plan to propose that the existing material in the ESI Fill Area remain, whether as part of a designated CAMU or closure of the ESI if a CAMU is not designated in this area. Timing issues.

A4. CAMU Liner System Requirements and Modification of CAMU Phases

- New Phase 1 – Area within the limits of SWMU Group C – no liner
- New Phase 2 – Area south of SWMU Group C – liner
- Overall footprint same as proposed in March 2008 application
- Liner design

A5. CAMU Cap (Cover) design

A6. CAMU Cost Estimate and Financial Assurance – applicability and scope

B. Technical Group Topics

B1. FMC's Draft Responses under Items 8-16 to Agencies' November 23, 2009 specific comments

ATTACHMENT 2

FMC DRAFT RESPONSES TO AGENCIES' NOVEMBER 23, 2009 LETTER AND ENCLOSED COMMENTS
PROPOSED CORRECTIVE ACTION MANAGEMENT UNIT (CAMU)
FMC MIDDLEPORT, NEW YORK FACILITY
March 5, 2010

Item No.	Excerpt or Summary of Agencies' November 23, 2009 Comment	FMC's Draft Responses
1	**Administrative Process & Mechanism for CAMU Designation, Design, Construction and Use** **<u>Agencies' Cover Letter: General Comment #1</u>:** a) Lead Agency(ies) - NYSDEC "will be the agency making the formal determination on whether to designate the proposed FMC CAMU." The proposed CAMU is one of the soil disposition options being considered in the Corrective Measures Study (CMS) for the Air Deposition and Culvert 105 study areas. Since the CMS is being conducted under the terms and conditions of the AOC, the CMS will be reviewed jointly by the USEPA and NYSDEC in consultation with the NYSDOH. b) Administrative Mechanism – AOC versus Post-closure permit or new consent order ▪ "Since the 1991 AOC does not contain any requirements or make any reference to a CAMU, the document review and approval/disapproval processes prescribed in the AOC are not applicable to FMC's CAMU application." ▪ "…if the NYSDEC decides to designate a CAMU on the FMC Site, prior to implementation/construction of the designated CAMU, FMC must either apply for and receive a NYSDEC Part 373 (post-closure) Permit or sign an Order under ECL § 71-2727(3), containing the appropriate CAMU requirements. c) FMC's CAMU application should include a discussion of this administrative process.	a) The application for designation of a CAMU at the FMC Middleport Site was submitted in March 2008 in the context of potential corrective action under the AOC. Evaluation of a CAMU for management of CAMU-eligible wastes generated during remedial work is included as a corrective measures alternative (CMA), or part of a CMA, in the CMS Work Plan that the Agencies have approved for the Suspected Air Deposition and Culvert 105 Study Areas, and is expected to be a CMA or part of a CMA for other study areas where the Agencies determine that a CMS is required. The AOC that sets forth the corrective action responsibilities and tasks, including CMS requirements, was entered into by FMC, USEPA and NYSDEC. Therefore, the designation of a CAMU should be a joint action by USEPA and NYSDEC, in consultation with NYSDOH if and as appropriate, under the AOC. This course of action is also consistent with representations made by the Agencies prior to submittal of the CAMU Application and FMC's understanding and expectations at that time based on those representations. b) The AOC is the appropriate legal mechanism for the CAMU determination and also for administration of the design, construction and use of the CAMU as a component of corrective measures to be implemented under the AOC. The AOC was intended to administer the RCRA Corrective Action activities and other RCRA requirements associated with historic hazardous waste management activities at the Site. A new administrative order or a post-closure permit is unnecessary and redundant. Further, the negotiation of such an administrative order or permit would require substantial effort and time, and would delay implementation of any corrective measure that includes use of the CAMU. The AOC was adopted in 1991 prior to the original promulgation of CAMU regulations by USEPA in February 1993 and the NYSDEC's adoption of Subpart 373-2.19 of Title 6, NYCRR, and therefore does not contain any provisions regarding a CAMU. FMC will submit a modification and attachment to the AOC to provide for a CAMU and to satisfy the provisions of 6 NYCRR Section 373-2.19(c)(5). The Facility currently is a large quantity hazardous waste generator and not a Treatment, Storage, Disposal Facility (TSDF). The Facility is subject to RCRA Corrective Action requirements due to past hazardous waste management activities and by reason of having had interim status, and not current activities. After completion of the RFI/CMS and implementation of any final corrective measures for the Facility under the AOC, as modified or amended to include corrective measures implementation, FMC would be prepared to consolidate the Facility's various remedial

Item No.	Excerpt or Summary of Agencies' November 23, 2009 Comment	FMC's Draft Responses
		systems operations, maintenance and monitoring plans into a single post-closure plan under the AOC that would be subject to financial assurance requirements. c) The revised CAMU application will include a discussion of the administrative process for the CAMU designation, design, construction and use, and long term inspection, monitoring and maintenance of the closed CAMU.
2	**Relationship between and timing for CAMU Application and the CMS for the Air Deposition and Culvert 105 Study areas** **<u>Agencies' Cover Letter: Specific Comment #1</u>:** a) FMC's CMS should "provide a complete and thorough evaluation of each soil disposition option (including the proposed CAMU) and present the "pros & cons" of each option…" and "should provide the Agencies with the information we [the Agencies] need to determine whether or not a CAMU is an appropriate disposition option for any contaminated soils generated from off-site FMC Corrective Measures." b) FMC's CAMU application "should focus on presenting all the necessary technical information on the proposed CAMU, including its design, construction, operation, closure and post-closure care… This will provide the information the NYSDEC requires to determine whether or not to designate a CAMU on the FMC property." c) "…the Agencies would consider combining the CAMU and Corrective Measures Selection formal public involvement processes."	FMC understands that the decision for use of a CAMU as a remediation waste disposal option will be made as part of the CMS for the Air Deposition and Culvert 105 study areas. However, the use and consideration of the CAMU as a CMA is not limited to the CMS for these study areas, but must be considered more generally for management of CAMU-eligible waste that will be generated in the course of implementation of corrective measures under the AOC, including other off-site and possibly on-site study areas. FMC believes that certain key CAMU siting and design issues (e.g., CAMU height, footprint, liner and cover design parameters) should be resolved between the Agencies and FMC prior to FMC's submittal of the preliminary draft CMS Report (targeted submittal date of June 15, 2010). Such key information would be necessary for the community to adequately consider the "pros & cons" of the soil disposal options (including use of the proposed CAMU). However, FMC does not believe that all the technical issues pertaining to design and operation and that all the administrative **details** need to be resolved before the June 2010 submittal date for the preliminary draft CMS report. Therefore, FMC proposes a phased approach for CAMU process. FMC believes that CAMU process can be divided into three sequential steps: Step 1–CAMU Designation; Step 2–CAMU Detailed Design; and Step 3–Construction and Use of the CAMU. Activities associated with Step 1–CAMU Designation would be associated with the CMS, supported by information contained in a "CAMU Application-Part1". FMC believes that the "CAMU Application-Part 1" should contain key information and design criteria associated with the CAMU for both the Agencies' decision and for consideration by the community, as part of the CMS process. The information described in 6 NYCRR Section 373-2.19(c)(3) would be included in the Part 1 Application, either directly or by reference to the CMS Report. The "CAMU Application-Part 1" does not need to contain many of the detailed design and operational documents/information requested in the Agencies' comments. Such details include detailed design drawings and specifications; detailed grading plan for liner subgrade; detailed construction specifications; construction quality assurance plan; design calculation/information associated leachate removal; "detailed, itemized cost estimate" for the construction, closure and long-term closure of any designated CAMU; description of financial assurance mechanism; revisions to FMC's existing Groundwater Monitoring Plan (e.g., installation and monitoring of additional wells); information associated with a stability analyses of the proposed CAMU slopes; details on the specific compaction equipment and effort that would be used during the placement of materials in

Item No.	Excerpt or Summary of Agencies' November 23, 2009 Comment	FMC's Draft Responses
		the CAMU; CAMU surface water runoff sampling and analysis plan; design details and capacity calculations for the proposed South Basin which demonstrate it has sufficient capacity to hold and control CAMU drainage area run-off; a detailed post-closure plan. During the Step 2-CAMU Detailed Design process, FMC would prepare required detailed design and operational documents and (which can be presented in a "CAMU Application-Part 2") for review and approval by the Agencies. Step 3–Construction and Use of the CAMU would be performed as part of the implementation of the selected corrective measures. Each of the three steps will include public participation processes. Step 1 would be combined with the CMS process. Step 2 would be a separate formal public participation process and Step 3 would be combined with public participation processes associated with the Corrective Measures Implementation activities.
3	**Coordination with Eastern Surface Impoundment (ESI) Closure** **<u>Agencies' General Comment #2</u>:** a) "…in order to allow for the designation of a CAMU within the ESI, FMC must submit a modification to the approved 1988 Closure Plan for the ESI which reflects proposed CAMU waste and unit design for the ESI area." b) "… as required by 6 NYCRR Subpart 373-2.19(c)(2), FMC must provide information justifying that the inclusion of the regulated unit (ESI) into the CAMU will enhance implementation of effective, protective and reliable remedial actions for the facility, and how continued compliance with the regulations listed in Section (ii) of this subpart which are pertinent to the regulated unit, will be maintained after incorporation of the ESI into the proposed CAMU. It should be noted that the ESI will maintain its status as a RCRA regulated unit even after completion of any designated CAMU at its location."	a) FMC will submit a modification to the approved 1988 closure plan for the ESI 180 days after the Agencies have reached a decision concerning the designation of a CAMU. If the Agencies decide that a CAMU can not be designated at the Site, FMC will submit a closure plan modification as specified in Section VI, item 4a) of the AOC. Such modifications to the ESI closure plan will propose that the existing material in the ESI Fill Area remain as fill beneath the final cover over the ESI and surrounding area. In addition, the revised plan will propose that surface water runoff from the final cover be redirected to a new south storm water collection and retention basin. FMC believes that this is an appropriate corrective measure to address the soil, groundwater and surface water issues associated with SWMU Group C and to reduce the volume of surface water runoff that drains to the Western Surface Impoundment (WSI). b) As noted in Appendix A of the CAMU Application, information presented in Sections 1.4 and 3.3.1 was intended to provide information supporting the inclusion of the ESI into the CAMU pursuant to 6 NYCRR Section 373-2.19(c)(2)(i)(b). The revised CAMU application will be revised to clarify such information and identify how the requirements of the regulations cited in 6 NYCRR Section 373-2.19(c)(2)(ii) will be met. This will include revision of Appendix A to identify what sections of the application comply with the applicable citations in 6 NYCRR Section 373-2.19(c)(2)(ii).

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4	**CAMU Liner System Requirements – Additional information required to determine if no liner is acceptable for the proposed CAMU Phase 1 Area (SWMU Group C)** **<u>Agencies' General Comment #3a and Specific Comment #4 & #8:</u>** a) Agencies agree that there are "significant levels of soil and groundwater contamination" in certain locations within the SWMU Group C. However, the application should be revised to include a detailed discussion of the data and comparisons of all soil data to industrial Soil Cleanup Objectives (SCOs) presented in 6 NYCRR Subpart 375-6 and groundwater data to the groundwater standards presented in 6 NYCRR Part 703 so that the NYSDEC can "determine if the significant contamination is pervasive throughout SWMU Group C or only localized around certain sample locations." b) The Agencies state that "the application should be revised to include a summary of past hydraulic and chemical data associated with the operation of the Trench A, D, E & G systems and an evaluation of the areal span of influence of these systems, especially with regard to the facility boundary area between trenches A & G, in order for the NYSDEC to determine how effective these systems would be in controlling releases to groundwater from a proposed unlined CAMU Phase 1." c) "Section 3.3 of FMC's CAMU application also characterizes SWMU #53 & 54 within SWMU Group C, which [units] are the result of past off-site IRMs/ICMs (1987-2007), as part of the 'existing contamination at [the] proposed CAMU location'. The NYSDEC disagrees with this characterization. The NYSDEC considers FMC's CAMU application as proposing that these contaminated soils from off-site locations be considered as 'CAMU-Eligible Wastes' to be placed in the CAMU if one is designated by NYSDEC. Therefore, since these wastes are proposed for placement in the CAMU, the NYSDEC does not consider them to be a part of the existing land base upon which the proposed CAMU would be constructed."	a) First, as a matter of regulatory interpretation, it is not clear that the provisions of 6 NYCRR Section 373-2.19(c)(5)(iii)('b')('2'), setting forth one of the bases on which "Alternate Requirements" can be approved, are applicable to an area (i.e., SWMU Group C, which includes the former process wastewater lagoon, the ESI and the ESI Fill Area) included in a solid waste management unit or units. This would not be a "new, replacement, or laterally expanded unit" subject to the minimum design requirements under Section 373-2.19(c)(5)(iii)('a'). Second, however, even if these provisions have some applicability, FMC believes that significant contamination is pervasive throughout the subsurface of the SWMU Group C, which includes the CAMU Phase 1 Area and a significant portion of the proposed CAMU Phase 3 Area, as evidenced by the existing soil and groundwater data available for the area and waste management activities conducted in the area prior to 1977. These data and activities are described in FMC's 1999 draft RFI Report and subsequent groundwater monitoring reports (e.g., annual progress reports) and are presented in Appendix E of the CAMU Application. FMC believes that there are sufficient data for this area for the purposes of the RFI and therefore will prepare a discussion of the data as requested by the Agencies for inclusion in the revised "CAMU Application-Part 1". FMC does not plan to propose a liner for the area within the footprint of SWMU Group C, including the CAMU Phase 1 Area and the northern portion of the CAMU Phase 3 Area (area north of the existing fenceline). As further discussed in FMC's Draft Responses in Item No. 5, FMC proposes to eliminate CAMU Phase 3 (as proposed in the March 2008 CAMU Application) and modify the footprint of the CAMU Phase 1 Area to include the entire area SWMU Group C, with its southern limits bounded by the existing south Plant fenceline. b) FMC's annual progress reports evaluate the effectiveness of the Facility's groundwater remedial systems. FMC will prepare a discussion of the effectiveness of the Trench A, D, E & G groundwater remedial systems, as requested by the Agencies, for inclusion in the revised "CAMU Application-Part 1". Groundwater hydraulic data and chemical data from the most recent annual progress report will be used in the discussion. c) FMC submits that SWMU #53 (1987-1988), Northern Ditches Contaminated Soil Storage Area, should be considered to be part of existing contamination in the SWMU Group C and is not "CAMU-Eligible Wastes" that would be managed in the CAMU. SWMU #53 is an engineered disposal unit constructed as part of he Northern Ditches Restoration Project that was performed in 1987-1988 under the provisions of an administrative order on consent between FMC and NYSDEC, prior to the promulgation of the RCRA CAMU regulations in 1993. Therefore, since SWMU #53 was created prior to 1993, it should be considered "existing contamination." Use of the ESI Fill Area (SWMU #54) began in 1996, and materials placed in the ESI Fill Area will be considered as "CAMU-Eligible Wastes."

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5	**CAMU Liner System Requirements – Liner and leachate collection is required for the proposed CAMU Phases 2 & 3 area (area south of SWMU Group C)** **<u>Agencies' General Comment #3b and Specific Comments #4 & #8:</u>** a) "NYSDEC has concluded that there is no evidence of significant contamination pervasive throughout the subsurface of the area south of SWMU Group C. Therefore, NYSDEC has determined that any CAMU which it may designate in the area south of SWMU Group C (Proposed CAMU Phase 2 and southern half of CAMU Phase 3), must meet or exceed the Minimum Design Requirements for CAMU liner and leachate collection systems as spelled out in 6 NYCRR Subpart 373-2.19(c)(5)(iii)('a') of the NYSDEC regulations." b) The application should be revised to include a detailed grading plan for the liner subgrade, detailed design specifications for all liner and leachate collection system materials, detailed construction specifications and a Construction Quality Assurance Plan, and detailed design information demonstrating that the leachate removal, transport and treatment systems will maintain less than 30-cm of leachate head on the liner.	a) Although FMC does not necessarily agree with the Agencies' rationale for requiring a liner system, FMC will include a liner and leachate collection systems for the area south of SUMU Group C (specifically, the area south of FMC's former wastewater basin – SWMU #3 and south of FMC's existing fenceline). The area where the liner and leachate collection system would be installed would consist of the footprint of the proposed CAMU Phase 2 Area. The northern portion of the area described in the application as CAMU Phase 3 (existing roadway) would not have a liner and leachate collection system since this area is within the limits of SWMU Group C. Consistent with 6 NYCRR Section 373-2.19(c)(5)(iii)('a'), FMC proposes that the base liner for the area south of SWMU Group C (Phase 2 CAMU area) consist of the following (starting from the top) • 12-inches select fill (operations layer) • geotextile fabric • 12-inches granular drainage layer with leachate collection piping • geosynthetic drainage composite layer (1 layer) • 60-mil HDPE flexible membrane liner (1 layer) • geosynthetic clay liner (1 layer) • 6-inches select fill "CAMU Application-Part 1" will include a figure depicting the proposed lined and unlined areas (CAMU Phase Areas 1 and 2, respectively) and the key design parameters for the liner and leachate collection systems. b) With respect to the Agencies' comment concerning the revision of the CAMU application, see FMC's Draft Responses to Item 2, above. Detailed design specifications and construction requirements (including quality assurance and quality control testing and certification requirements) for the proposed single composite liner and leachate collection system will be consistent with the standards set forth in 6 NYCRR Section 360-2.13, unless otherwise specified in the CAMU Application, design drawings and specifications.
6	**CAMU Cap (Cover) Requirements** **<u>Agencies' General Comment #4 and Specific Comments #4 & #11:</u>** a) "Regardless of whether or not a liner system will be required for Proposed CAMU Phase 1, an engineered cover system constructed of low permeable materials will be required of the entire surface of any CAMU which may be designated by the NYSDEC within and south of SWMU Group C. As a result, if FMC chooses to pursue a CAMU	a) FMC will revise the design of the final cover for the CAMU to provide a cover that will be constructed with low permeable materials, consistent with 6 NYCRR Section 373-2.19(c)(5)(vi)('d') and the surface impoundment closure performance standards in 6 NYCRR Subpart 373-3. The cover design will have a permeability less than or equal to the bottom liner system for the CAMU Phase 2 area. b) FMC disagrees with the implication that the "nature of FMC's proposed CAMU-Eligible wastes" necessitates a composite barrier layer typically required for solid waste landfills. The CAMU is proposed to receive non-hazardous remediation wastes (soil and possibly some debris such as concrete materials) with little or no significant potential to generate leachate even without a cover system. The CAMU will not be

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	for the area within and south of SWMU Group C, they must submit a revised application which contains a new final cover system that meets or exceeds the 6 NYCRR Subpart 373-2.19(c)(5)(vi)('d')('1')('v') regulatory requirement." b) "Based on the nature of FMC's proposed CAMU-Eligible wastes, the NYSDEC would consider an engineered final cover that utilizes a composite barrier layer as typically required for solid waste landfills in New York State, as meeting this regulatory requirement and acceptable for FMC's proposed CAMU."	used for disposal of typical solid waste such as trash, garbage or any other putrescible materials. Therefore, FMC proposes that the final cover consist of the following (starting from the top): • 4-inches topsoil • 20-inches general fill • geosynthetic drainage composite layer • 60-mil HDPE flexible membrane liner (FML) or other FML within a minimum thickness of 30-mil • 3-inches select fill (grading layer) The proposed cover design is consistent with the North Railroad Property Phase 2 ICM cover design and is consistent with the performance criteria established for final covers in the CAMU regulations [Section 373-2.19(c)(5)(vi)('d')] and the surface impoundment closure requirements (6 NYCRR Subpart 373-3). It should be noted that use of a low permeability cover would preclude the planting of trees and shrubs on the CAMU cover.
7	**CAMU Cost Estimate and Financial Assurance** **<u>Agencies' General Comment #5</u>:** a) "FMC must provide financial assurance for the construction, operation, closure and long-term post-closure care of any CAMU designated by NYSDEC for the FMC site." b) "FMC's application should contain a detailed, itemized cost estimate of these CAMU activities as detailed below: ▪ Construction – All costs related to grading/preparing the sub-grade and installing the liner and leachate collection systems; ▪ Operation – All costs related to leachate removal/treatment and application of an interim cover during waste placement; ▪ Closure – All costs related to final cover system materials and installation; and ▪ Post-Closure – All costs related to long-term leachate removal/treatment and final cover maintenance, as well as costs involved in CAMU-related groundwater pump/treat systems and groundwater monitoring." c) FMC's application should also contain a description of the financial assurance mechanism (instrument) which they will	a) & b) While financial assurance in connection with the CAMU may be appropriate, FMC and the Agencies should discuss the legal authority for such financial assurance in order to understand and define the nature and scope of that element of the CAMU project, and how it would tie into operation and maintenance of any corrective measures that might be undertaken for the Plant site. If the Agencies do not designate the CAMU, FMC would proceed with modification of the closure plan for the ESI, as described in the draft responses to Item 3, above. Those modifications would include provisions for financial assurance consistent with 6 NYCRR Subpart 373-3. c) With respect to the Agencies comment concerning the revision of the CAMU application, see FMC's Draft Responses to Item 2, above. "CAMU Application – Part 2" will include the detailed CAMU and ESI closure and post-closure cost estimate and, subject to the outcome of the discussions described under a), above, a description of the financial assurance mechanism in accordance with 6 NYCRR Section 373-3.8.

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	provide should the NYSDEC decide to designate a CAMU on the FMC site.	
8	**Specific Comment #2**: **Section 2.1.3, Page 8 of Application Document - Inclusion of Unaffected Areas in the CAMU** a) "The NYSDEC disagrees with the first sentence in this section that states the CAMU is in an area of the facility with significant soil and groundwater contamination…" b) "…FMC must provide justification in the application that managing CAMU-eligible wastes in the uncontaminated area south of SWMU Group C is more protective than management of such wastes at contaminated areas of the facility, as stipulated by 6 NYCRR Subpart 373-2.19(c)(3)(iii)."	a) & b) See FMC's Draft Response to Item 5, above. Section 2.1.3 will be revised as requested.
9	**Specific Comment #3**: **Section 2.3, Pages 13-15 of Application Document - Proposed CAMU Eligible Wastes** a) Revise section to indicate that only remedial wastes that originated from FMC-Middleport Plant site past releases to environmental media, or debris items that are contaminated by past FMC releases, will be placed in the CAMU. b) "…FMC must propose methodologies for screening out hazardous wastes…" c) "…[T]his section should also indicate that remedial wastes from the 1987-1988 Northern Ditches IRM in the ESI area, contain characteristic hazardous waste (for arsenic) based on past testing results. This section should describe the location of these wastes, their present containment, whether they are to be considered as CAMU-eligible waste and whether they will undergo any further management/treatment in conjunction with their disposal in the proposed CAMU." d) "This section should describe how FMC will screen out free liquids in bulk wastes in accordance with 6 NYCRR Subpart 373-2.14(j)(3), and how any sorbents used to treat free liquids in the waste will meet the requirements of 6 NYCRR Subpart 373-2.14(j)(3). In addition, the application must describe how any placement of non-hazardous liquids into a CAMU, such as for dust suppression, is in compliance	a) Section 2.3 will be revised as part of "CAMU Application–Part 1" as requested. b) Propose methodologies for screening out these hazardous wastes will be included in "CAMU Application–Part 2", as discussed in FMC's Draft Responses to Item 2, above. c) As discussed in FMC's Draft Responses to Item 4c, above, the materials placed in SWMU #53 from the 1987-1988 Northern Ditches IRM should be considered "existing contamination" and should not be considered "CAMU-Eligible Wastes". FMC intended that materials placed in SWMU #53 remain at its present location without disturbance. As discussed in the CAMU Application, the materials in SWMU #53 have been encased with a composite liner and cover system composed of both a clay layer and HDPE liner layer. Disturbance of this unit through further management or treatment is not warranted. d) Propose methodologies for screening out free liquids in CAMU-eligible wastes will be included in "CAMU Application–Part 2", as discussed in FMC's Draft Responses to Item 2, above. e) Section 2.3 will be revised as part of "CAMU Application–Part 1" as requested.

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	with 6 NYCRR Subpart 373-2.19(c)(1)(iii)('c')." e) "It is not clear from the FMC's subsections entitled "Off-Site Remediation Waste Origin" and "On-Site Remediation Waste Origin" what specific off-site and on-site areas of FMC-related contaminated soil/sediment FMC is proposing to be considered as "CAMU-Eligible Waste" for possible disposal of in the proposed CAMU."	
10	**<u>Specific Comment #5</u>: Section 3.6.5, Pages 31 & 32 of Application Document – Groundwater Monitoring Program** a) "FMC's application must indicate that additional monitoring wells should be placed along the eastern boundary of the proposed CAMU to demonstrate that the additional contaminated soils and expanded boundaries of disposal do not impact groundwater beyond a given line of "clean" wells." … The new wells should augment a selected set of existing monitoring wells to fulfill CAMU groundwater monitoring requirements in 6 NYCRR Subpart 373-2.19(c)(5)(v) of the regulations." b) FMC should attempt to make permanent legal arrangements for continued use of existing monitoring wells and/or for installation and use of future monitoring wells located to the north and east of the proposed CAMU.	a) Any revisions to the Facility's site-wide groundwater monitoring plan will be presented in "CAMU Application–Part 2", as discussed in FMC's Draft Responses to Item 2, above. b) There are existing access agreements between FMC and the property owners for the installation and continued use of off-site groundwater monitoring wells to the north and east of the location for the proposed CAMU. New agreements are not needed at this time.
11	**<u>Specific Comment #6</u>: Section 4.1, Pages 35 & 36 of Application Document – Conceptual Design Components** "…[T]he application should include stability analyses of the proposed CAMU slopes in consideration of both static and seismic conditions, to justify long-term containment of the CAMU wastes."	Slope stability analyses will presented in "CAMU Application–Part 2", as discussed in FMC's Draft Responses to Item 2, above.
12	**<u>Specific Comment #7</u>: Section 4.3, Page 38 of Application Document – CAMU Siting** a) FMC must provide appropriate groundwater hydraulic and chemical data to support the claim that CAMU Phases 2 & 3 are within the capture zone of the existing groundwater extraction systems. b) The CMS report should include a thorough evaluation of the factors involved in determining if a CAMU at this site is an	a) With respect to a discussion/presentation of groundwater hydraulic and chemical data, see FMC's Draft Responses to Items 4 and 5, above. b) The CMS report will include the information requested relative to the factors involved in the proposed use of a CAMU at the site, including visibility considerations.

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	appropriate remedial option, including visibility perspectives from the various public vantage points.	
13	**Specific Comment #9: Section 4.4.1, Pages 39 & 40 of Application Document – Fill Placement Activities** a) The maximum lift thickness of 2 feet of soil waste (fifth bullet in Section 4.4.1) is excessive. "Soil wastes should be placed at thinner lift thickness prior to compaction…" b) Also, this section should provide details on the specific compaction equipment and effort that would be used.	"CAMU Application–Part 2", as discussed in FMC's Draft Responses to Item 2, above, will include a discussion of the maximum lift thickness and details on specific compaction equipment and efforts.
14	**Specific Comment #10: Section 4.4.5, Page 42 of Application Document – Interim Stormwater Management** a) NYSDEC is concerned that erosion of the 6-inch thick interim cover could allow "non-contact" surface water run-off from areas of interim cover to contact CAMU wastes and transport contaminants off-Site without treatment. "Therefore, as a preventative measure, stormwater from interim cover areas should continue to be directed towards the WSI for collection and treatment, or collected and treated through other methods..." b) "Alternatively, in its application, FMC could propose a sampling and analysis program for interim cover run-off to demonstrate that it meets appropriate surface water quality criteria without treatment. If sufficient data collected over time consistently demonstrates that the run-off meets these quality criteria, FMC could request, and the NYSDEC could grant, approval for its discharge without treatment through FMC's proposed South Basin."	"CAMU Application–Part 2", as discussed in FMC's Draft Responses to Item 2, above, will address the Agencies comments concerning management of storm water from interim cover conditions.
15	**Specific Comment #12: Section 5.1.3, Pages 47 & 48 of Application Document –Stormwater Management Following Final Closure** "FMC's CAMU application should include design details and capacity calculations for the proposed South Basin which demonstrate it has sufficient capacity to attenuate CAMU drainage area run-off using NYSDEC's Stormwater Management Design Manual and New York Standards and Specifications for Erosion and Sediment Control."	"CAMU Application–Part 2", as discussed in FMC's Draft Responses to Item 2, above, will include design details and capacity calculations for the proposed South Basin.

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16	**<u>Specific Comment #13</u>: Section 5.2, Pages 48 & 49 of Application Document – Post-Closure Activities** "Section 5.2 indicates that a detailed post-closure plan will be developed and submitted for approval at the time of final closure. The NYSDEC requires such a plan to be submitted with this application since the adequacy of post-closure care plays an important role in NYSDEC's decision on whether to designate a CAMU, and it is necessary to prepare a detailed cost estimate as described in General Comment #5. Also, leachate removal and treatment for the lined CAMU must be included in the list of post-closure activities and fully described in the post-closure plan."	"CAMU Application–Part 2", as discussed in FMC's Draft Responses to Item 2, above, will include a detailed post-closure plan for the CAMU/ESI.

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau E, 12th Floor
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Peter M. Iwanowicz
Acting Commissioner

December 2, 2010

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Brian McGinnis
FMC Corporation
Remediation Department
1735 Market Street
Philadelphia, Pennsylvania 19103

Re: FMC Corporation, Middleport, NY
PA ID No. NYD002126845
AOC Docket No. II-RCRA-90-3008(h)-0209
Arsenic Air Deposition Area 1 and Culvert 105
FMC's Corrective Measures Study (CMS)
FMC's Draft CMS Report

Dear Mr. McGinnis:

In response to the United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC), hereafter referred to as "the Agencies," correspondence dated September 15, 2010, FMC requested and was granted a meeting to discuss the general comments and directives in this correspondence regarding the above-referenced FMC Draft CMS Report. This meeting was held at NYSDEC's Albany office on October 28, 2010 and was attended by representatives from FMC, the Agencies and the New York State Department of Health (NYSDOH).

The October meeting resulted in a number of verbal agreements between the parties regarding modifications to the Draft CMS Report. By e-mail dated November 5, 2010, FMC submitted a summary containing its understanding of agreements reached during the meeting, as well as proposals to resolve other outstanding issues raised by FMC pertaining to the required report modifications cited by the Agencies' September 15 correspondence. The Agencies, and NYSDOH, have reviewed FMC's November 5 submission and have prepared the enclosed responsive document which: 1) summarizes agreements reached during our October 28th meeting, as the Agencies understand them; and 2) sets forth a series of modified directives to FMC, regarding modifications to FMC's Draft CMS Report. For organizational purposes, the enclosed agreements/directives are arranged in a manner which is consistent with the six (6) comment topics presented in the Agencies' September 15, 2010 letter. To the extent the enclosed modified directives are inconsistent with the Agencies' September 15, 2010 directives, the enclosed directives are controlling.

The modifications to FMC's Draft CMS Report are being required by the enclosed agreements/directives to achieve a draft report which presents a fair appraisal of an adequately broad range of Corrective Measures Alternatives (CMAs) and disposal options, and to provide factual and technically acceptable information to be used during the corrective measures selection process. However, it should be

noted that the enclosed agreements and directives pertain **only** to how the draft report will be modified, and are not intended to connote any preliminary judgments by the Agencies regarding the acceptability of any CMA, CMA remedial criteria (e.g., arsenic cleanup goals) or disposal option presented in the draft report (including FMC's recommended CMA) and no inferences should be made. The Agencies are reserving all such judgment until submission of an acceptable draft and completion of the report's public review process, including the Agencies' review of any public comments we may receive on that draft report.

The enclosed agreements/directives are being issued to FMC pursuant to Section XI Paragraph 1 of the above referenced AOC. Accordingly, within fifteen (15) days of FMC's receipt of this letter, FMC must provide a written notification which either: 1) indicates that FMC will fully comply with the Agencies' enclosed directives, and that it will, within thirty (30) days thereafter or according to a mutually agreed schedule, submit a modified Draft CMS Report which incorporates all modifications stipulated by the enclosed agreements and directives; or 2) provides a formal notice of dispute setting forth FMC's position and basis (bases) on the specific points of dispute with regard to any of the enclosed agreements or directives, pursuant to the Dispute Resolution provisions set forth in Section XXIX of the AOC.

We note that the Agencies' specific technical comments which were provided to FMC by e-mail dated September 16, 2010, were not discussed during the October 28th meeting. Since FMC's November 5th e-mail indicates FMC's willingness to make some agreed upon modifications to the Draft CMS Report, the Agencies expect FMC to incorporate the modifications required by the Agencies' specific comments during the report modification process. If FMC has concerns with particular comments, it may enter into discussions with the Agencies during the report modification process to arrive at mutually acceptable changes regarding these comments. The Agencies would note that such discussions have already begun, and we would expect them to continue.

If you have questions concerning this letter or its enclosure, you may contact either Mr. Matt Mortefolio (NYSDEC) at (518) 402-8594 or Mr. Michael Infurna (USEPA) at (212) 637-4177.

Sincerely,

Matt Mortefolio, P.E.
NYSDEC Project Coordinator
RCRA Permitting, Remedial Bureau E
Division of Environmental Remediation

Matt Mortefolio
for MI.

Michael Infurna
USEPA Project Coordinator
Environmental Planning and Protection Division

Enclosure

cc: w/Enc. D. Watts, MCIG Technical Advisor
W. Arnold, MCIG Chairperson
D. Seaman, Seaman, Jones, Hogan & Brooks

ENCLOSURE
Meeting Agreements & Agencies' Directives
from
FMC/Agencies' October 28, 2010 Meeting
on
FMC's June/July 2010 Draft CMS Report

NOTE: The meeting agreements and Agencies' directives documented in this enclosure represent FMC and the Agencies' agreements on modifications and Agencies' directed modifications to FMC's Draft CMS Report. They should **not** be interpreted as connoting any Agencies' agreement, disagreement or preference with respect to any particular CMA, CMA remedial criteria or disposal option.

1. General Topic #1: **Inappropriate FMC Bias and Premature/Unsupported Conclusions**

Meeting Agreements -

a. The Agencies agree with FMC's proposal to modify the Draft CMS Report to identify those statements and items that represent FMC's opinions/interpretations and clearly express them as such.

b. The Agencies agree that FMC need not modify text sections in the draft report (i.e., Sections 7.3 through 7.9) that compare each CMA to the seven evaluation criteria to either reflect or separately include the Agencies perspective on these comparisons (as originally expressed in Agencies' Directive #1 of our September 15, 2010 correspondence), as long as FMC indicates in the draft report that these comparison results are attributable to FMC. With this agreement, the Agencies reserve their right to present the Governments' perspective on the comparison of CMAs to evaluation criteria. This comparison may be in Government documents (e.g., Fact Sheets) presented to the public in conjunction with the Draft CMS Report public review process.

Agencies' Directives –

a. The Draft CMS Report must be modified so that all CMAs which involve soil removal shall have the area, depth and volume of such soil removal determined for each affected property based on the following convention:

   - For every property where soil removal is required to meet CMA arsenic criteria, the soil removal area, depth and volume shall be estimated based on removing all property soils at a given depth from a data point which requires soil removal to meet CMA's arsenic criteria, to a data point, or points, that do not require soil removal under the CMA's arsenic criteria or to the property boundary.

   The draft report must be modified so that the figures presenting remedial areas, reflect the above convention. FMC may, at its discretion, indicate in the draft report, that further soil sampling and arsenic analysis may be conducted by FMC during the Corrective Measures Implementation (CMI) phase, pursuant to an Agencies' approved work plan, in an attempt to reduce the extent of soil removal under the selected CMA (or CMAs) on a given property or properties.

b. All conclusions regarding the feasibility of remedial methods or techniques should be clearly expressed as FMC opinion, and not prematurely omitted from consideration by the Agencies.

2. General Topic #2: **CAMU Bias and Incomplete Analysis of Other Disposal Options**

Meeting Agreements -

a. The Agencies agree with FMC's proposal to modify the Draft CMS Report to include an evaluation of an off-site disposal option in which it will be assumed that 25% of excavated soil will be beneficially used as landfill cover material and 75% will be landfilled as non-hazardous solid waste. Also, the draft report will be modified to note that this is an assumption, and if off-site disposal is selected, the actual remedial soil amounts used as landfill cover material and landfilled at a commercial facility may be altered during the CMI phase based on FMC contractual agreements with off-site disposal facilities.

b. The Agencies agree with FMC's proposal to modify the Draft CMS Report to include an evaluation of an on-site CAMU disposal option with a maximum total height of 28 feet (25 feet of remedial soil and 3 feet of final cover) and trees/bushes in the landscaping design. Also, the report can note that FMC may propose to increase the height of a designated CAMU to a maximum height of 35 feet, as part of CMSs for other FMC impacted areas south of Pearson Road.

c. The Agencies agree with FMC's proposal to modify the Draft CMS Report to include omissions and to present a balanced evaluation of the off-site and on-site remedial soil disposal options, and any statements or items that represent FMC's opinions/interpretations will be noted as such in the draft report.

Agencies' Directives –

a. The Draft CMS Report must be modified with respect to the rail transport option to include a structural engineering analysis of existing rail spurs at the facility with respect to containerized remedial soil in comparison to loading under current usages, and indicate any repair/replacement that might be necessary. Also, the report must be modified as stipulated by the Agencies' September 15th Directives 2.a.i and 2.a.vii.

b. The Draft CMS Report must be modified in accordance with the Agencies' September 15th Directive 2.a.ii to present a more detailed CAMU cost estimate.

c. As indicated in Agreement 2.c above, FMC's November 5, 2010 document indicates FMC's willingness to provide a balanced evaluation of disposal options. To achieve such a balanced evaluation, the Draft CMS Report must be modified in accordance with the following Agencies' directives from our September 15, 2010 correspondence: Directives 2.a.iv, v, vi & vii.

d. The Draft CMS Report must be modified to include a new table, or tables, which compares each CMA's estimated remedial soil volume to the proposed CAMU's capacity based on its proposed dimensions. Also, a new table, or tables must be included in the draft report which indicates the number of truck loads, and separately, the number of rail cars and train loads, necessary for off-site transport of each CMA's remedial soil volume.

3. General Topic #s 3 & 4: **Corrective Measures Alternative #s 2 & 3 (CMA 2 & 3) Exclusions**

Meeting Agreements -

In documenting the meeting agreements with respect to CMAs, it should be noted upfront that the Agencies did not request some of the specific CMA modifications and/or new CMAs FMC is proposing to include in the report. However, we have no objection to FMC's proposed CMA modifications/additions. Also, while the Agencies have no objection to an evaluation in the report of FMC's proposed arsenic concentration criteria for each of these modified/new CMAs, it should be noted that at this time, we do not necessarily agree or disagree with the criteria themselves. The Agencies are reserving such judgment until completion of the CMS process.

a. The Agencies agree with FMC's proposal to modify CMA 2 in the Draft CMS Report to include the portion of the Roy-Hart School property outside the area where the ICM was conducted in 1999-2000, in this CMA.

b. The Agencies agree with FMC's proposal to modify CMA 3 in the Draft CMS Report to include the establishment of appropriate legal mechanisms on specific properties / property types under this CMA that would require FMC to perform additional remediation on such properties if their usage is changed to residential. Also, the Agencies have no objection to FMC's proposal to modify the CMA 3 arsenic concentration criteria as indicated by FMC's November 5, 2010 document.

c. The Agencies agree with FMC's proposal to modify the Draft CMS Report to include FMC's new CMA 6A. FMC's new CMA 6A would be identical to CMA 3 with respect to the establishment of appropriate legal mechanisms, but contain different arsenic concentration criteria as indicated by FMC's November 5, 2010 document.

d. The Agencies agree with FMC's proposal to modify the Draft CMS Report to include FMC's new CMA 6B. FMC's new CMA 6B would be identical to CMA 6A in all respects, except it would include further remediation of the Roy-Hart School Property, outside of the area where the ICM was conducted in 1999-2000. Also, the Agencies have no objection to FMC's proposed CMA 6B arsenic concentration criteria.

e. The Agencies agree with FMC's proposal to modify the Draft CMS Report to include FMC's new CMA 7A. FMC's new CMA 7A would be identical to CMA 6A in all respects, except the maximum arsenic concentration criteria for "Residential, Public/Institutional" land use would be 30 mg/kg.

f. The Agencies agree with FMC's proposal to modify the Draft CMS Report to include FMC's new CMA 7B. FMC's new CMA 7B would be identical to CMA 7A in all respects, except it will include requiring further remediation of the Roy-Hart School Property, outside of the area where the ICM was conducted in 1999-2000.

g. The Agencies agree with FMC that the Draft CMS Report need not be modified to include an evaluation of remedial area and soil volumes in any of the CMAs for currently un-sampled properties where property owners have not granted FMC access for soil sampling and analysis [Properties G5, G8, I15, I19, L2, M4 (non-culvert soils), P10, Q4, S26, T5, N15, N16 & R1a-b (railroad property), and AE2]. However, the draft report would be modified to indicate that FMC will offer to perform soil sampling and analysis on these un-sampled properties, pursuant to a process approved by the Agencies, and conduct such sampling upon receiving written access

permission from property owners. The draft report would also indicate that FMC will be responsible for soil remediation on such properties if soil analysis results indicate that remediation is warranted.

h. The Agencies agree with FMC that none of the CMAs in the Draft CMS Report need to be modified to require further soil removal on the property known as the "Wooded Parcel" (including P14), if FMC can justify to the Agencies' satisfaction that the current legal mechanism established to impose property usage restrictions and allow access for maintenance and monitoring activities on this property, cannot be removed by the current or any future property owner without permission of the Federal and/or State governmental agencies having jurisdiction over environmental matters. Also, the Draft CMS Report would indicate that if further soil removal on this property is not required, FMC will retain responsibility for continued implementation of the approved Wooded Parcel Site Management Plan (SMP) and for providing financial assurance for SMP activities.

i. The Agencies agree with FMC that the Draft CMS Report need <u>not</u> be modified to include separate CMAs to specifically evaluate soil tilling/mixing as a remedial method on certain properties. However, the draft report would indicate that the soil tilling/mixing technology will be further evaluated during the CMI phase for use on certain properties with respect to the clean-up goals of the selected CMA, or CMAs.

<u>Agencies' Directives</u> –

a. The Draft CMS Report shall be modified to include either a revised CMA 7B or a separate and new CMA 8. The revised CMA 7B or new CMA 8 shall evaluate soil remediation on all current and reasonably anticipated future residential properties (as indicated on Figure 3-3 in the draft report) and the Roy-Hart School Property outside of the 1999-2000 ICM area, to the remedial arsenic concentration goals of 20 mg/kg as a property wide average (except for specific large properties as identified under Item "b" below) and a property maximum of 30 mg/kg. Also, the revised CMA 7B or new CMA 8 shall conform to the following requirements:

   i. CMA 7B or 8 shall evaluate surface & subsurface soil removal along the path of the Culvert 105 pipe passing through or near non-ICM properties M19, M20, M4, M18, M3, J15, J16, J4, J13, J14, J1, J2, B8, B4, B3, B1, AB5 (non-ICM east side), AB4 (non-ICM portion), AB2, AB3, AB1, AC4 (pipe), AC5 (No ID) & AD1 (pipe), and under the following streets and associated right-of-ways: Park Avenue; Freeman Avenue; State Street; Mechanic Street; North Vernon Street; North Main Street & Sleeper Street. This CMA shall assume that some extent of soil removal is necessary along the entire length of the Culvert 105 pipe passing through these properties & streets regardless of the absence of subsurface soil data on some of these properties & streets. The CMA shall include pipe replacement as part of restoration. The vertical and lateral (perpendicular to the pipe path) extent of the subsurface soil removal shall be estimated from existing arsenic data in comparison to the CMAs arsenic concentration criteria.

   ii. CMA 7B or 8 shall evaluate soil clean-up to arsenic concentration goals of 20 mg/kg average and 30 mg/kg maximum on the properties whose current and reasonably anticipated future use is indicated as "non-residential" on Figure 3-3 in the Draft CMS Report (i.e., Properties I20, J26, N13, N14, O6, O7, Q2, Q3, R1a (south), the east/west track of land located between R1a south & north, R1b, Norco properties and Village of Middleport property (along Culvert 105)).

It should be noted that the above required CMA is not intended to connote any Agencies' CMA preference at this time. The Agencies are reserving such judgment until completion of the CMS process.

b. For CMAs 3 through modified 7B or 8 in the Draft CMS Report, arsenic concentration averages for each property shall be calculated using all arsenic results on the property and separately using only 0-3" / 0-6" arsenic results, except for specific large properties. For any CMAs in the above group which include large properties R1a (south), R1a (north), R1b, R1d, AD1, AE1, AF1 & the non-ICM area of the Roy-Hart School Property, arsenic averages for surface soil and for soil at all depths to be compared to the 20 mg/kg criteria, shall be calculated for each 100' x 100' grid from the data delineating and within each grid (Note: For the school yard a 100' grid shall be drawn to segregate existing data). Also, the arsenic data set for each property's soil shall be scanned for sub-surface layers whose average might exceed surface soil or overall averages. If any are found, they shall be appropriately compared to the 20 mg/kg criteria.

c. If FMC cannot demonstrate to the Agencies' satisfaction that the current legal mechanism established for the "Wooded Parcel" property will remain binding on the current and future owners of this property, the Draft CMS Report must be modified to include the Wooded Parcel property in all CMA soil remediation evaluations (except CMA 1).

4. General Topic #5: **Human Health Risk Assessments**

Meeting Agreements -

a. The Agencies agree with FMC that the human health risk assessments in the Draft CMS Report need not be modified. However, it is agreed that the draft report will be modified to include text which clearly specifies that the risk assessments in the report constitute FMC's analysis of human health risk. With this agreement, the Agencies reserve our right to present the Government's disagreement with the FMC human health risk assessments and the conclusions FMC draws from these assessments. This disagreement may be in Government documents (e.g., Fact Sheet) presented to the public in conjunction with the Draft CMS Report public review process.

b. The Agencies agree with FMC that the Draft CMS Report need not be modified to include statements that indicate a preference for managing human health risk at the more protective end of the carcinogenic risk range. However, it is agreed that the draft report will be modified to eliminate statements that imply remedies need not be considered or evaluated as long as carcinogenic risks fall within the 10^{-6} to 10^{-4} range. With this agreement, the Agencies reserve our right to include the Government's perspective on carcinogenic risk. This perspective may be in Government documents (e.g., Fact Sheet) presented to the public in conjunction with the Draft CMS Report public review process.

c. The Agencies agree with FMC that the Draft CMS Report need not be modified to include a table which correlates the soil arsenic concentrations from Middleport data to estimated potential carcinogenic risk derived from New York States Technical Support Document (NYS TSD) used in the development of the NYS Soil Cleanup Objectives (SCOs). With this agreement, the Agencies reserve our right to express the Government's perspective on soil arsenic human health risk. This perspective may be in Government documents (e.g., Fact Sheet) presented to the public in conjunction with the Draft CMS Report public review process and include a table correlating Middleport soil arsenic concentration results to estimated potential cancer and non-cancer risks derived from the NYS TSD.

d. The Agencies agree with FMC's proposal to modify the Draft CMS Report to indicate that the NYS SCOs will be considered in the evaluation and comparison of the CMAs. The draft report will include statements indicating that soil arsenic concentrations ranging from 0.1 ppm to 10.0 ppm correlate to the USEPA carcinogenic risk range of 10^{-6} to 10^{-4} as determined from the NYS TSD, and that these "risk-based" arsenic concentrations are below the NYS SCO of 16.0 ppm which was developed from a state-wide soil background sampling program. Furthermore, it is agreed that the draft report will reference the Agencies' Corrective Action Objective (CAO) pertaining to human health considerations which states that the "point of departure", or starting point for corrective action risk-management decisions pertaining to arsenic in soil, is site-specific residential background.

Agencies' Directives – None.

5. General Topic #6: **Ecological Health Risk Assessments**

Meeting Agreements –

a. The Agencies agree with FMC that the ecological risk assessment in the Draft CMS Report need not be modified. However, it is agreed that the draft report will be modified to include text which clearly specifies that the risk assessment in the report constitutes FMC's analysis of ecological risk. With this agreement, the Agencies reserve our right to indicate the Government's disagreement with the FMC ecological risk assessment and the conclusions FMC draws from this assessment. This disagreement may be in Government documents (e.g., Fact Sheet) presented to the public in conjunction with the Draft CMS Report public review process.

b. The Agencies agree with FMC's proposal to modify Appendix G of the Draft CMS Report to include a comparison of soil data from Culvert 105 Reaches C2 & C3 to both the NYS SCOs pertaining to ecological resources and the USEPA SSLs. Appendix G will also be modified to indicate that the NYS arsenic SCO for protection of ecological resources of 13.0 ppm is less than some of the arsenic concentration results from the site-specific Middleport arsenic background data set.

c. The Agencies agree with FMC's proposal to modify the Draft CMS Report to provide additional discussions regarding potential ecological impacts associated with lead, DDD, DDE and DDT.

Agencies' Directives – None.

Attachment D-1C

Referenced Correspondence between FMC and the Village of Middleport

Contents:

- Copy of Village of Middleport's Letter to FMC Dated January 17, 2011
- Copy of FMC's Letter to Village of Middleport Dated January 26, 2011

Village of Middleport
24 Main Street
P.O. Box 186
Middleport, NY 14105-0186
Phone: (716) 735-3303 Fax: (716) 735-3432
email: MiddleportNY@rochester.rr.com

January 17, 2011

Brian M. McGinnis
Remediation Project Manager
FMC Corporation
1735 Market Street
Philadelphia, PA 19103

Matthew Mortefolio
Division of Hazardous Substances
NYS Department Environmental Conservation
625 Broadway
Albany, New York 12233

Michael Infurna, Project Manager
USEPA Project Facilities Manager
NY Facilities Section
290 Broadway, 22nd Floor
New York, New York 10007-1866

RE: RCRA Corrective Action Management Unit (CAMU) Application

Dear Sirs:

This will advise you of the fact that the Village Board is opposed to placement of a CAMU at the FMC facility because it would be detrimental to the Village, and to its residents.

The placement of said CAMU at the FMC facility would degrade the overall aesthetics of the community, further lower property values in the area, and discourage outsiders from taking up residence, or starting a business, within the Village.

There is no question that the proposed CAMU would be seen, either rightly or wrongly, by the general public, as a landfill, and one containing hazardous materials at that. This perception would most assuredly develop regardless of FMC's efforts to mask, screen or otherwise minimize the aesthetic impact of the CAMU. It is highly likely that this sentiment would stigmatize

the Village, and that this stigma would be highly detrimental to the Village, its commerce and its residents. The Village Board believes that the devastating consequences to the Village resulting from FMC and its predecessor's actions, and the thirty year pall cast over the Village as a result, will be perpetuated by a CAMU.

Moreover, the Village echoes the concerns raised by the NYSDEC in its November 2009 Comments on FMC's 2008 CAMU Application regarding the legality of storing contaminated soils and materials from off-site locations at the proposed CAMU. It is the Village's position that such wastes, currently existing outside the boundaries of the FMC facility, do not fall within the definition of CAMU-Eligible Wastes as set forth in 40 C.F.R. § 264.552, and would thus be precluded from placement within the proposed CAMU.

Accordingly, it is the Village's position that FMC and the Agencies should explore alternative means of furthering remediation of the area, and that the establishment of a CAMU should not be entertained or allowed as an alternative in the CMS.

Very truly yours,

VILLAGE OF MIDDLEPORT

Julia A. Maedl

Julia A. Maedl, Mayor

cc: Daniel E. Seaman, Esq., Village of Middleport Attorney
Village of Middleport Board of Trustees
Tamara Girard, NYSDOH
Wai Chin Lachell, Geomatrix
Richard J. Lang, Town of Royalton Supervisor
Thomas Arlington, Town of Royalton Building Inspector
William K. Arnold, MCIG Chairperson

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January 26, 2011

Mayor Julia A. Maedl
Village of Middleport
24 Main Street
P.O. Box 186
Middleport, New York 14105-0186

Re: Village of Middleport January 17, 2011 Letter on RCRA Corrective Action Management Unit (CAMU) Application, FMC Corporation Middleport, NY Facility

Dear Mayor Maedl:

I am writing in response to the above-referenced letter to FMC and the regulatory agencies so that I may update the Village on this matter and reiterate FMC's position on some of the issues raised in the letter regarding the proposed CAMU.

First, as the Village is aware, FMC submitted a draft Corrective Measures Study (CMS) Report, as a preliminary draft, to the regulatory agencies in June and July of last year. Based on comments that the agencies had provided in November 2009, and discussions at and following a meeting with the agencies in April 2010, the June-July 2010 draft CMS Report included a conceptual design for the proposed CAMU that was revised from that which was included in the application submitted in March 2008.

FMC is currently preparing a revised draft CMS Report that will include further revisions to the conceptual design for the proposed CAMU, and anticipates submittal of this document this spring. Following approval by the agencies of a final draft CMS Report, there will be a formal public comment period and public meeting, and thus an opportunity for the Village and other interested persons and entities to provide comments on the draft CMS Report and the revised conceptual design for the proposed CAMU.

Second, the Village's letter raises several issues. One of these pertains to the Village's position that soils from off-site locations that would be managed in the CAMU do not fall within the definition of "CAMU-Eligible Wastes." This contention is unfounded. The materials FMC proposes to place in the CAMU are precisely what both state and federal law define as CAMU eligible. Neither the USEPA nor the NYSDEC regulations contain the limitation suggested in the Village's letter, to the effect that wastes "outside the boundaries of the FMC facility" are precluded from placement in a CAMU.

The Village's letter also expresses concerns that a CAMU sited within the 100 acres of the FMC property would be perceived to be a landfill, and would have a negative effect on the Village, its commerce and its residents.

FMC believes that these concerns are unwarranted. First, as noted, the proposed CAMU would be situated on a large industrial site, and would be suitably landscaped. Second, the MLS data that FMC

has shared with the Village and community on a number of occasions does not reflect that property values in Middleport have been depressed relative to those in nearby communities in Western New York. In addition, of course, on a voluntary basis FMC has implemented a Property Price Protection Program and more recently a Home Value Assurance Program to ensure that residential property values are not adversely affected. Third, as the Village knows, FMC continues to strive to be a good neighbor and provides assistance to the Village economy and to the community through the Middleport website at http://www.middleport-ny.com, the Middleport promotional brochure, and participation in numerous community activities and philanthropic causes, as well as through jobs, procurement of supplies and services, and payment of local and state taxes.

As the CMS process moves forward there will be ample opportunity to further understand the importance of the CAMU to the overall remediation effort, as well as the revised CAMU conceptual design that will be included in the draft CMS Report that will be submitted this spring. This opportunity includes the scheduling of a public comment period and a public meeting where Middleport residents can express their thoughts on all issues related the CMS, including the CAMU conceptual design.

In the meantime, as always, I am prepared with others on our FMC team to meet with you and Village trustees at your convenience to discuss all aspects of the CAMU proposal, the entire CMS Report, and any other concerns that may arise.

Sincerely,

Brian M. McGinnis

Brian M. McGinnis
Remediation Project Manager
(215) 299-6047

cc: D. Seaman, Esq., Village of Middleport Attorney, Lockport office
Village of Middleport Board of Trustees
Richard J. Lang, Town of Royalton Supervisor
Thomas Arlington, Town of Royalton Building Inspector
W. Arnold, Middleport Community Input Group (MCIG Chairperson)
M. Infurna, USEPA, NYC
M. Mortefolio, NYSDEC, Albany
M. Hinton, NYSDEC, Buffalo
N. Freeman, NYSDOH, Troy
W. Lachell, AMEC Geomatrix

Attachment D-2

Off-Site Disposal Options Information

Attachment D-2

Off-Site Disposal Options Information

Table

Figures

Acronyms and Abbreviations

Agencies	NYSDEC and USEPA
AW	Allied Waste Niagara Falls Landfill
CMA	Corrective Measures Alternatives
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
FMC	FMC Corporation
GVT	Genesee Valley Transportation
NYCRR	Compilation of the Rules and Regulations of the State of New York
NYSDEC	New York State Department of Environmental Conservation
USEPA	United States Environmental Protection Agency

1. Identification of Off-Site Disposal Option Components

Attachment D-2 describes the off-site disposal options considered in the Corrective Measures Study (CMS) for the Suspected Air Deposition and Culvert 105 Study Areas. The following possible off-site disposal options considered in the CMS are as follows:

- Commercial Landfill - Off-site disposal of non-hazardous remediation soil and other remediation waste (collectively referred to as remediation waste) at an appropriate commercial landfill(s) permitted in accordance with applicable rules and regulations (e.g., 6NYCRR Part 360) to receive non-hazardous solid wastes.

- Beneficial Reuse at a Commercial Landfill - Beneficial reuse of non-hazardous remediation soil as daily landfill cover at an appropriate off-site commercial landfill(s) that is permitted in accordance with applicable rules and regulations.

The further options for transport for the off-site disposal options are as follows:

- Truck Transportation - Non-hazardous remediation soil and other remediation waste would be transported by truck (e.g., 30-ton capacity) to an appropriately permitted commercial landfill for disposal or beneficial reuse as daily cover.

- Railcar Transportation - Non-hazardous remediation soil and other remediation waste would be transported by railcars (e.g., 100-ton gondolas) to an appropriately permitted commercial landfill for disposal or beneficial reuse daily cover.

Sections 1 through 6 below describe and evaluate the above options. Section 7 summarizes the components included in the off-site disposal option for each of the Corrective Measures Alternatives (CMAs) and presents FMC's rationale to the identified options.

2. Western New York Permitted Commercial Landfills

Table D2-1 and Figure D2-2 identify 10 commercial landfills in Western New York that are within approximately 100 miles of Middleport and permitted to receive non-hazardous solid wastes (e.g., municipal wastes). These commercial landfills are permitted in accordance with applicable rules and regulations (e.g., 6NYCRR Part 360) and could potentially accept the non-hazardous remediation soil and other remediation wastes generated during implementation of a corrective measure. The closest landfill is located approximately 30 miles from Middleport, and a total of four landfills are located

within approximately 50 miles of Middleport. It should be noted that there are other commercial landfills located beyond the 100 mile radius, both within and outside of New York State that could potentially accept these non-hazardous remediation wastes.

3. Beneficial Reuse at Commercial Landfills

All commercial landfills in New York State are required to apply cover materials on exposed surfaces of solid wastes at the close of each operating day (i.e., daily cover), (6NYCRR Part 360-2.17). Commercial landfills outside of New York State are also likely to apply daily cover. The types of, and requirements for, daily cover vary for each landfill. Detailed descriptions of the types and functions of the daily cover are required to be addressed in the landfill's operation and maintenance manual that is initially submitted with the permit application (6NYCRR Parts 360-2.3 and 360-2.9).

Non-hazardous remediation soil could be beneficially reused as daily cover, thereby conserving landfill airspace (used for remediation waste) and saving on use of other soil/cover resources. The receiving commercial landfill may reuse all, none, or some of the remediation soils for landfill cover. The commercial landfill facility will determine the amount of any FMC-related remediation soil that could be used for landfill cover based on various factors, including the landfill needs and the landfill permit requirements. Reuse of the material as cover may provide a reduced cost compared to disposal at a commercial landfill. Material not beneficially reused for landfill cover would be disposed in the commercial landfill as non-hazardous waste.

For the purposes of this CMS, FMC and the Agencies agreed that the off-site disposal option would assume that 25 percent of FMC remediation wastes will be beneficially reused as daily cover material and 75 percent would be disposed of as non-hazardous waste (reference Item No. 2 in the Enclosure to NYSDEC's letter to FMC dated December 2, 2010). It should be noted that the actual amount or percentage of remediation waste, if any, that could be beneficially reused as daily cover material may vary during the Corrective Measures Implementation (CMI) phase based on FMC contractual agreements with the commercial landfill facility or facilities.

4. Truck Transportation to Commercial Landfills

All 10 of the landfills indentified in Table D2-1 and shown on Figure D2-2 can accept remediation waste transported by truck. The total number of trucks of remediation waste that can be accepted at the commercial landfills would be based on the facility's permit conditions and/or its ability to physically handle the number of trucks. The

capabilities for landfills to accept FMC remediation wastes in conjunction with wastes from other sources received by the landfills may vary on a daily basis and will be considered during the CMI, as it affects the overall management of excavated soils and completion schedule for the remedial construction activities. Accordingly, multiple commercial landfills may need to be used for disposal of anticipated volumes of remediation wastes.

Remediation wastes could be loaded into various sized-trucks at the excavation area. However, given the potential for restrictions on the size/type of trucks on certain streets in Middleport, the potentially number of trucks and scheduling of those trucks for receipt at the commercial landfill, and the objective of transporting fully-loaded trucks that arrive within the operating hours of the commercial landfill (see Table D2-1), direct transportation of FMC remediation wastes using larger sized trucks for off-site transport (e.g., 30-ton capacity) from the excavation area to the commercial landfill may not be practical/implementable and may impede the overall schedule for completion of the corrective measures excavation activities.

For the purposes of this CMS, the truck transportation component would consist of loading remediation wastes into smaller size trucks (12 cubic yard capacity dump trucks required for use on residential streets during the previously completed interim corrective measures) for transport to and stockpiling within a temporary staging area. The temporary staging area would be located at the eastern portion of the FMC Plant Site or located near the excavation areas. Remediation wastes accumulated in the temporary staging area would subsequently be loaded into appropriately sized-trucks (e.g., 30-ton capacity) for transport to the commercial landfill. The construction, use and maintenance of the temporary soil staging area will be controlled to minimize potential exposure to dust generated from the remediation soils. Controls will include: 1) project-specific health and safety procedures to minimize potential worker exposure; and 2) project-specific community air monitoring and dust control procedures for the surrounding community.

Truck transport of remediation wastes would follow a truck route(s) to the temporary staging area and then to the commercial landfill(s) that would be established during the CMI phase. Truck transport to a commercial landfill from a temporary stockpile on the FMC Facility would likely use State Route 31, not municipal streets.

5. Railcar Transportation to Commercial Landfills

One of the 10 landfills identified in Western New York has direct rail access and service. That landfill, Allied Waste Niagara Falls Landfill (AW), receives waste by rail in gondola railcars (i.e., does not accept intermodal rail containers) and currently accepts a set number of railcars per day (estimated 5 to 6 railcars per day, which is approximately 500 to 600 tons per day) due to physical constraints with unloading operations (March 2011 communication between ARCADIS and Site Waste Logistics, Inc.). The remediation waste in the 100-ton gondola railcars must be transferred into trucks at the landfill facility and transported a short distance (approximately 1/2 mile) to the appropriate disposal cell. The number of railcars holding FMC remediation soil and wastes that can be accommodated at AW is dependent upon other railcar deliveries on any given day. However, there are a number of other commercial landfill facilities within the country that will accept waste by rail, directly via gondola car or inter-modal container. The specific type of container that can be used for rail transport of the remediation wastes associated with the FMC study areas will be based on various factors. These include, but are not limited to, the size of the containers, physical constraints of the area(s) where the containers will be handled, equipment and/or facilities needed to move and/or load the containers, availability of the containers, capabilities of the landfill facilities to manage the rail containers, and costs.

Rail transport would require initial transport by appropriately sized trucks (e.g., 12 cubic yard capacity dump truck) from the excavation area to a temporary staging area. The temporary staging area would be located in an area at the FMC Plant Site near the rail spur or at the eastern portion of the FMC Plant Site. Remediation wastes accumulated in the temporary staging area would subsequently be loaded into rails cars (e.g., 100-ton gondolas) staged on a rail spur at the FMC Plant Site. The railcars will then be transferred to the commercial landfill facility using the Falls Road Railroad mainline owned by Genesee Valley Transportation (GVT). Rail transport to a commercial landfill would likely require creation of a joint-line movement of the material to a commercial landfill (i.e., the “handoff” by GVT of railcars transporting the material to one or more different rail carriers for delivery to (or close to) the ultimate destination from agreed-upon interchange points). Joint-line rail movements can be efficient, but the introduction of additional rail carriers and interchanges complicates the overall logistics and increases the possibility of service disruptions and other delays. Additionally, the most effective means of material transport via rail requires that the commercial landfill receive direct rail so that intermodal transport (transfer from rail back to truck) of the materials to the landfill is not required. There is only one disposal facility with direct rail capabilities within approximately 100 miles of the FMC Facility. However, as previously

indicated, there are a number of other landfills beyond this 100 mile radius that can accept waste directly by rail.

The FMC Facility has a rail switch to provide access to the on-site rail spurs (refer to Figure D2-1 for railroad location). The Facility most recently used the rail switch in the fourth calendar quarter of 2010. However, FMC has only used one of its rail spurs in the past several years; for many years FMC has only used its eastern rail spur. For the purpose of transporting remediation waste, use of a rail spur(s) at the FMC Facility would require a rail inspection by a qualified professional(s), and on-site rail infrastructure work may be required prior to rail spur use for transport of remediation waste.

Rail travel is generally more fuel efficient than truck travel in terms of ton-mile per gallon (i.e., number of tons and distance freight can be moved with one gallon of fuel) (Federal Railroad Administration 2009); however, short-distance travel (less than 300 miles) decreases fuel efficiency due to fuel consumption during other freight movement operations (e.g., intermodal transport and terminal operations). The most efficient transportation method will be dependent on the volume of remediation waste, distance to landfill and the ability to minimize the number of trips to the landfill.

FMC and its experts understand that rail transport of remediation wastes to off-site commercial landfills is typically used for long-distance transport of material or special circumstances (e.g., limited transportation routes or facilities suitable for treatment/disposal of a hazardous waste) that require rail transport. FMC concluded that there were no advantages over transport by truck at this time based on FMC's past experience in using rail transport for transportation of remediation wastes, consultation with FMC's environmental consultants (e.g., ARCADIS), and the following considerations:

- Middleport is proximate to 10 existing commercial landfills, shown on Figure D2-2 (ranging from approximately 30 miles to 108 miles), which accept remediation waste via truck transport and Middleport is proximate to one existing landfill identified that presently provides rail service.

- Among the 10 commercial disposal facilities identified within approximately 100 miles of Middleport, there are four facilities located within approximately 50 miles of Middleport. The facility that accepts rail is 33 miles from Middleport and it also accepts transport by truck.

- Use of trucking provides greater flexibility in off-site disposal options through the potential use of more than one local landfill facility for disposal. However, use of rail transport to non-local landfill facilities (i.e., beyond the 100 mile radius) may also be an option if determined to be appropriate based on various factors (i.e., costs, logistics, etc), as further discussed in Section 7.

- The one local landfill facility with direct rail service receives waste by rail in 100-ton gondola railcars only (i.e., does not accept intermodal rail containers); furthermore, the facility accepts a limited number of rail cars per day due to physical constraints with unloading operations. However, there are a number of other commercial landfill facilities within the country that will accept waste by rail, directly via gondola car or inter-modal container.

- Rail transport is not cost effective for short transport distances based on other remediation projects that FMC's consultants have been involved in and recent (February/March 2011) consultation with the remedial waste management firm Site Waste Logistics, Inc. However, rail transport over longer distances (e.g., greater than approximately 300 miles) can be more cost effective than truck transport.

- There is less flexibility inherent in rail transport (e.g., limited ability to change routes in the event of a rail line repair and the need for multiple rail carriers/interchanges may increase the possibility of service disruptions and other delays).

Accordingly, for the detailed evaluation of CMAs in this CMS, including development of cost estimates, the off-site disposal option assumes that remediation wastes will be transported to local commercial landfill facilities via truck and not rail. However, the CMS does include conceptual evaluations of the rail transport. During the CMI, FMC may elect to use rail transport for some or all remediation wastes if determined to be appropriate at that time.

6. Estimated Off-Site Disposal Costs

For the purposes of this CMS and as detailed in Appendix I of the Draft CMS Report, the estimated unit cost for the truck only transport to a commercial landfill and disposal of 75% of the remediation waste as non-hazardous solid waste and beneficial reuse of the remaining 25% as landfill daily cover, is approximately $75/ton (approximately $80/ton for remediation waste and approximately $60/ton for landfill cover). The amounts of remediation soil that may be beneficially reused as landfill cover, and the

actual cost savings realized, would need to be identified and evaluated during the CMI phase.

These costs are based on communications between ARCADIS and two remedial waste management firms (Site Waste Logistics, Inc. and West Central Environmental Corporation), as well as transportation and non-hazardous soil disposal costs for other projects in New York that ARCADIS has been involved in to date where the landfill is approximately 40 miles distant. These estimated unit costs also include approximately $5/ton for managing excavated soil prior to transporting the remediation waste to the commercial landfill. For the truck only transport option, the management of excavated soil may include (but not be limited to) the activities identified below.

- Stockpiling or containerizing the excavated soils to facilitate (for example) one or more of the following activities:

    - loading of larger trucks for off-site transport to commercial landfill located at least 30 miles from Middleport. The trucks for off-site transport would need to be larger than the 12 cubic yard trucks that were required for use on the residential streets during the previously completed interim remedial measures.

    - collecting characterization samples that may be required by the landfill(s).

    - managing the excavated soils while waiting receipt of approval from the landfill(s).

    - managing the varying volumes of remediation waste (and number of trucks) to be transported to the commercial landfill(s) on a daily basis.

    - transporting fully-loaded trucks to the commercial landfill(s) to reduce the number of trucks, consumption of fuel, and air emissions.

- Constructing (as necessary) the remediation waste staging areas. These areas could be located at the FMC Facility or in an off-site area(s) that is proximate to an excavation.

- Managing/monitoring the soil stockpiles to (for example) mitigate dust generation and surface water run-on/run-off.

Detailed procedures for stockpiling or containerizing the excavated soils, and managing/monitoring those soils, would be identified during the CMI phase and presented in the CMI work plan reviewed and approved by the Agencies.

7. Summary

The following off-site disposal option, which is combination of the options described above, has been included in the CMAs and is further evaluated as part of the CMAs in the Draft CMS Report:

- **Off-site disposal at a commercial landfill(s) with beneficial reuse as daily cover.** This option assumes for the purposes of the CMS that 25% of the remediation waste will be beneficially reused as landfill cover material and 75% of the remediation waste will be disposed in a commercial landfill as non-hazardous solid waste. The material may be transported directly or indirectly (use of temporary remedial soil staging areas) to the appropriate disposal facilities. For the purposes of this CMS, the transportation option would consist of loading remediation wastes into smaller size trucks (12 cubic yard capacity dump trucks required for use on residential streets during the previously completed interim remedial measures) for transport to and stockpiling within a temporary staging area. The temporary staging area would be located at the eastern portion of the FMC Plant Site or located near the excavation areas. Remediation wastes accumulated in the temporary staging area would subsequently be loaded into larger trucks (e.g., 30-ton capacity) or rail cars for transport to the commercial landfill.

For the purpose of detailed comparison of CMAs, the off-site disposal option presented in this CMS is based on the truck transport of remediation waste, since in FMC's opinion, rail transport offers no present advantages over truck transport. However, conceptual evaluation of rail transport has been included. The selection of the actual mode of transport (truck or a combination of both truck and rail), as well as the commercial landfill or landfills and the remedial soil staging methods to be used during implementation of a corrective measure, would be determined during the CMI phase and would depend on a variety of considerations including (but not limited to) the following:

- The volume of soil to be excavated from a specific property or area

- The volume of material to be transported/disposed at a permitted off-site commercial landfill
- The ability to transport fully-loaded trucks to the commercial landfill to reduce the number of trucks, consumption of fuel, and air emissions
- Ancillary equipment needed for management of stockpiles and/or transport container (e.g., liners, erosion and dust control, heavy equipment to move containers and to load intermodal or roll-off containers on trucks or railcars)
- Landfill permit status
- Landfill hours of operation
- Rail access
- Distance to the landfill
- Rail spur conditions at the FMC Facility and the need, if any, for spur upgrades to handle transport of remediation waste
- Types of transport containers accepted by the landfill
- Number/frequency of trucks or railcars the landfill will receive
- Potential for beneficial reuse of remediation waste as daily cover at the landfill
- Costs to conduct an engineering evaluation and upgrade/repair infrastructure, as necessary to support loading/transporting the soils using the Facility's rail spur line(s)
- Transportation and disposal costs

8. Reference

Federal Railroad Administration (FRA). 2009. Comparative Evaluation of Rail and Truck Fuel Efficiency on Competitive Corridors. November.

TABLE D2-1
WASTE DISPOSAL FACILITIES IN WESTERN NEW YORK POTENTIALLY SUITABLE FOR DISPOSAL OF FMC REMEDIATION WASTE
DRAFT - MAY 2011
CMS REPORT FOR SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS
FMC CORPORATION - MIDDLEPORT, NY

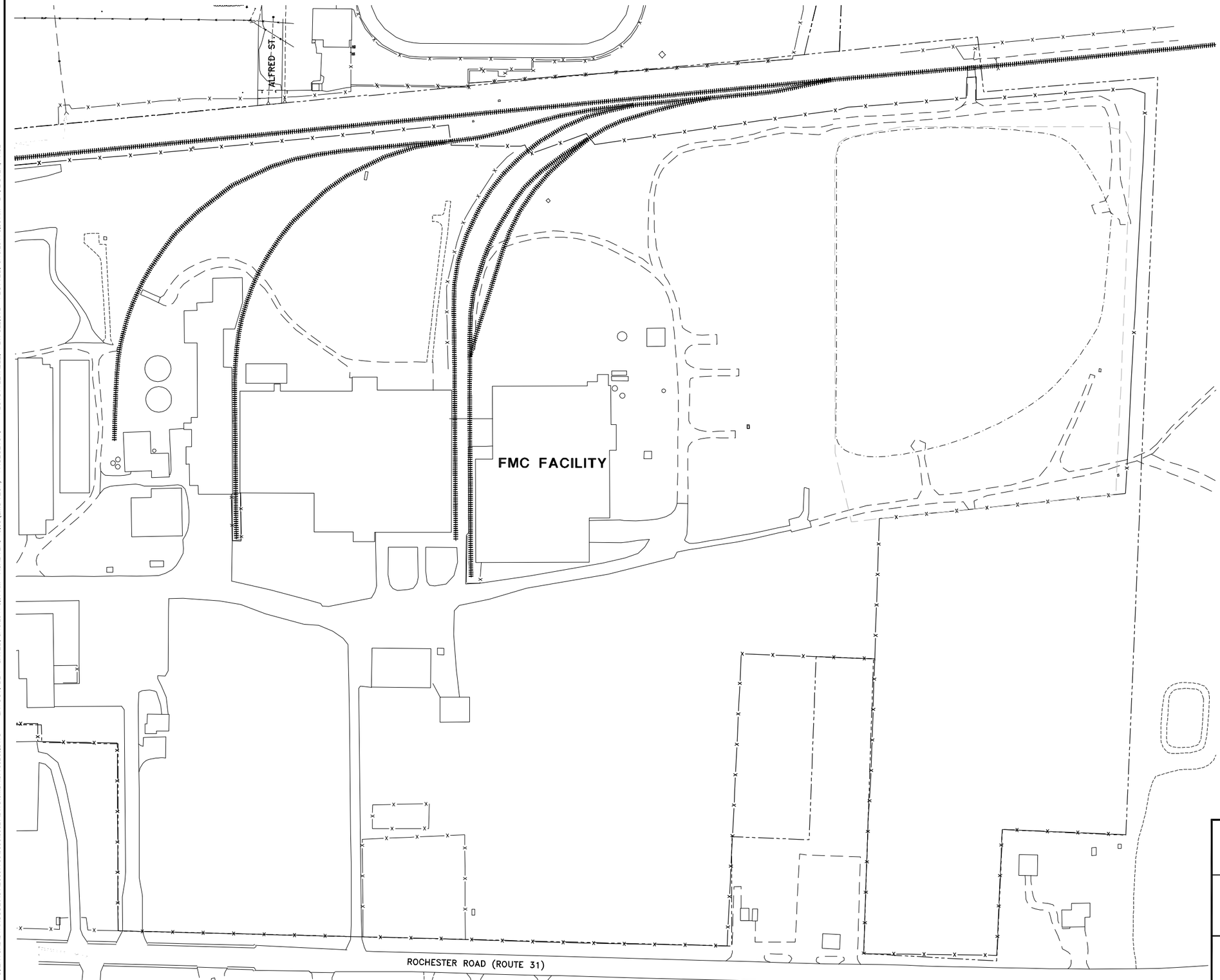
Map ID[1]	Disposal Facility Name	Owner	Facility Address	County	Approximate Distance from Middleport (miles)	Existing Annual Permit Limits (tons/year)[2]	Remaining Existing and Entitled Capacity Under Permit (tons)[3]	Rail Accessibility[4]	Hours for Accepting Loads	Items of Note
1.	Allegany County Landfill	Allegany County DPW	River Road (County Road 48) Angelica, NY 14709	Allegany	86	56,680	190,162	No	8am - 3pm Tues - Sat	- Landfill will accept soil, but the generator must go through a permit process to do so.
2.	Allied Waste Niagara Falls Landfill	Allied/BFI Waste Systems of North America, Inc.	56th Street and Niagara Falls Blvd. Niagara Falls, NY 14304	Niagara	33	800,000	8,631,786	Yes (onsite)	7am - 5pm Mon - Fri (truck or rail) 8am - 4pm Sat	- Accepts all non-hazardous soil. - Facility looking into possibility for rail access.
3.	Bath Sanitary Landfill[5]	Steuben County DPW	5632 Turnpike Road Bath, NY 14810	Steuben	108	151,000	2,133,100	No	7:30am - 3:30pm Mon - Fri	- Landfill will accept non-hazardous soil, but must acquire approval prior to drop-off.
4.	Chaffee Landfill	Waste Management of NY, Inc.	10860 Olean Road Sardinia, NY 14030	Erie	51	600,000	6,080,000	No	7am - 4pm Mon - Fri	
5.	Chautauqua Landfill	Chautauqua County DPW	3889 Towerville Road Ellery, NY 14701	Chautauqua	100	408,000	2,680,238	No	7:30am - 4pm Mon - Fri	
6.	High Acres Western Expansion Landfill	Waste Management of NY, Inc.	425 Perinton Parkway Fairport, NY 14450	Monroe	66	1,074,500	44,400,000	No	7am - 3:30pm Mon - Fri	- Accepts all non-hazardous soil.
7.	Mill Seat Landfill	Monroe County Dept. of Environmental Services[6]	303 Brew Road Bergen, NY 14416	Monroe	46	598,650	5,600,000	No	7am - 3:30pm Mon - Fri 7am - 9am Sat	- Accepts all non-hazardous soil.
8.	Modern Landfill	Modern Landfill, Inc.	Pletcher and Harold Road Lewiston, NY 14107	Niagara	30	815,000	27,610,000	No	7am - 4:30pm Mon - Fri	- Also has onsite hydroponic greenhouses for growing tomatoes. Heat for the greenhouse is produced using special heat recovery equipment surrounding 7 electrical generators powered by methane gas collected from Modern Landfill. Tomatoes sold locally. - Accepted soil must go through an account set-up prior to drop off.
9.	Ontario County Sanitary Landfill	Ontario County	1879 Route 5 & 20 Stanley, NY 14561	Ontario	94	1,200,000	7,188,841	No	6am - 4:30pm Mon - Fri 7am - 11am Sat	
10.	Seneca Meadows Landfill	Seneca Meadows, Inc.	1786 Salcman Road Waterloo, NY 13165	Seneca	101	1,938,000	29,177,215	No	6am - 4pm Mon - Fri 6am - 11:30am Sat	- Accepts all non-hazardous soil. - Facility looking into possibility for rail access.

General Notes:

1. Landfill listing, Disposal Facility Name, Owner, Facility Address, County, Permit Limits and Remaining Exisiting Capacity obtained from NYSDEC Municipal Solid Waste (MSW) Landfill website: http://www.dec.ny.gov/chemical/23682.html accessed in February 2011. The NYSDEC website indicated that the MSW Landfill Listing is current through October 2010. Permit Limits and Landfill Capacity from 2009 Solid Waste Capacity Chart from NYSDEC MSW Landfill website.
2. Landfills listed above are MSW Landfills and accept Residential/Institutional & Commercial Municipal Solid Waste according to NYSDEC. Often MSW landfills are also called non-hazardous commercial landfills.
3. Information obtained by ARCADIS via telephone conversation with a representative of each landfill, in February 2011, includes hours for accepting loads, and indication of rail access. Items of note were generated based on additional information provided by the landfill representative.
4. NYSDEC MSW Landfill website lists 27 MSW Landfills in New York State. The facilities included in this table were screened from the list of 27 for their location in Western New York. Additionally, landfills were then screened by confirmation that the landfill accepts soil (via ARCADIS telephone conversation with a landfill representative, noted in general note 3). FMC audits all waste disposal facilities and establishes disposal contracts with those facilities; therefore, acceptable audit findings and contract terms are necessary for disposal at a given facility.

Notes:

1. Map ID refers to ID number noted on Figure D-5 of Appendix D.
2. Existing Annual Permit Limits based on limits set in current permits, as defined in NYSDEC 2009 Solid Waste Capacity Chart from NYSDEC website.
3. Remaining Existing and Entitled Capacity Under Permit is the total capacity for which a facility has undergone environmental review and permitting; use of this capacity may require construction of additional cells, as defined in NYSDEC 2009 Solid Waste Capacity Chart from NYSDEC website.
4. Representatives from each landfill were asked, in February/March 2011, if their facility was accessible by rail (either onsite facility access or nearby spur/transload facility)
5. Bath Sanitary Landfill is listed as Steuben Sanitary Landfill on the 2009 Solid Waste Capacity Chart from NYSDEC website.
6. Mill Seat Landfill is owned by Monroe County Department of Environmental Services, however, it is leased and operated by Waste Management. Ownership information provided by NYSDEC MSW Landfill website. Lease/operations information obtained from Waste Management's Mill Seat Landfill website: www.millseatlandfill.com/landfill_history.htm



LEGEND:

- FMC PROPERTY BOUNDARY
- LIMITS OF ESI FILL AREA
- EXISTING FMC SECURITY FENCE
- EXISTING RAILROAD

NOTES:

1. BASEMAP INFORMATION BASED ON APRIL 15, 2002 AERIAL SURVEY PROVIDED BY ABRAMS AERIAL SURVEY CORPORATION AND INFORMATION COMPILED FROM FIELD SURVEYS PERFORMED BY MCINTOSH AND MCINTOSH, P.C. ON SEPTEMBER 18, 1999; MARCH 28, 20001; APRIL 29, 2004; AUGUST 13, 2004; APRIL 7, 2005; SEPTEMBER 9, 2005; OCTOBER 12, 2005; JUNE 16, 2007; MAY 10, 2007; DECEMBER 13, 2007; OCTOBER 6, 2008; AND OCTOBER 8, 2008. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM 1983 (NAD83). ELEVATIONS AREA BASED ON NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD29).
2. ALL LOCATIONS ARE APPROXIMATE.

0 100' 200'
GRAPHIC SCALE

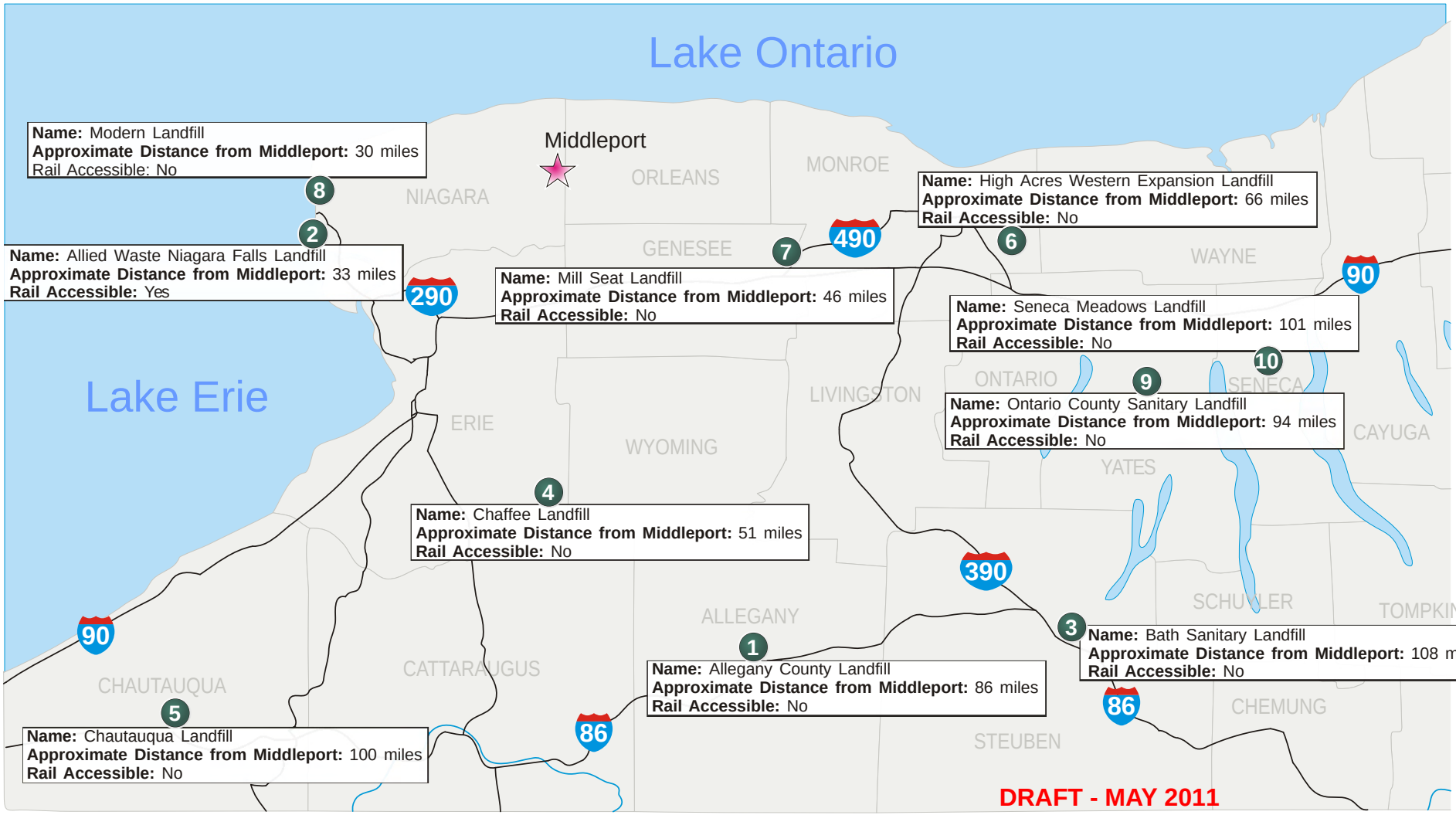
DRAFT - MAY 2011

FMC CORPORATION - MIDDLEPORT, NEW YORK
CORRECTIVE MEASURES STUDY REPORT
SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS

EXISTING RAILROAD LOCATION

ARCADIS

FIGURE
D2-1



Notes:

1. All locations are approximate.
2. Information obtained from NYSDEC Municipal Solid Waste (MSW) Landfill website: http://www.dec.ny.gov/chemical/23682.html accessed in February 2011. The NYSDEC website indicated that the MSW landfill listing is current through October 2010.
3. NYSDEC MSW Landfill website lists 27 MSW Landfills in New York State. The facilities included herein were screened from the list of 27 for their location in Western New York. Additionally, landfills were then screened by confirmation that the landfill accepts soil. Information obtained via ARCADIS telephone conversation with a landfill representative (February/March 2011).
4. Table D2-1 provides additional information regarding each landfill.
5. Rail accessibility is defined as rail access onsite at the landfill or a rail spur/transload facility near the landfill where waste could be transferred from rail cars to trucks for final transportation to the landfill. Information obtained via ARCADIS telephone conversation with a landfill representative (February/March 2011).

FMC CORPORATION - MIDDLEPORT, NEW YORK

CORRECTIVE MEASURES STUDY
REPORT SUSPECTED AIR DEPOSITION AND CULVERT 105 STUDY AREAS

LOCATION OF WASTE DISPOSAL FACILITIES IN WESTERN NEW YORK POTENTIALLY SUITABLE FOR DISPOSAL OF FMC REMEDIATION WASTES

ARCADIS

FIGURE
D2-2