GROUNDWATER MONITORING PROGRAM FOR REMEDIAL SYSTEMS EFFECTIVENESS MONITORING

FMC MIDDLEPORT FACILITY
EPA ID NO. NYD002126845

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ACRONYMS

Acronym	Definition / Description
Agencies	NYSDEC and USEPA (when referred to collectively)
AOC	Administrative Order on Consent
CRA	Conestoga-Rovers & Associates
EDD	Electronic Data Deliverable
ETU	Ethylene thiourea
FMC	FMC Corporation
GIPL	Groundwater Indicator Parameter List
GMP	Groundwater monitoring program
HASP	Health and Safety Plan
ICM	(Groundwater) interim corrective measures
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and maintenance
QA/QC	Quality assurance/quality control
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SPDES	State Pollutant Discharge Elimination System
SVOC	Semi-volatile organic compound
TCE	Trichloroethylene
USEPA	United States Environmental Protection Agency
VOC	Volatile organic compound
WSI	Western Surface Impoundment

1.0 INTRODUCTION

FMC Corporation (FMC) is currently performing groundwater corrective action monitoring at its Facility in Middleport, New York (Facility). These activities have been conducted under the terms and conditions of an Administrative Order on Consent (AOC), Docket No. II RCRA 90-3008(h)-0209, which was entered into on July 2, 1991 by FMC and the New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA) (collectively referred to as the Agencies). As a requirement for monitoring groundwater under 40 CFR[1] Part 265, Subpart F, 6 NYCRR[2] Part 373-3, and the terms and conditions of the AOC, FMC has implemented a Groundwater Monitoring Program (GMP), as well as other groundwater investigations summarized in the final approved *RCRA Facility Investigation Report, Volume 1, Background and Related Information* (Arcadis 2009) (RFI Vol 1).

The GMP was originally developed for the Facility in 1992 pursuant to the terms and conditions of the AOC. At the start of the program in 1992, the GMP was largely investigative in nature, although conventional extraction wells had been in operation since 1987. From 1994 through 2005, a series of blast-fractured bedrock groundwater extraction trenches were constructed as phased interim corrective measures (ICMs), and monitoring wells were added as needed to monitor the effectiveness of the ICMs. Consequently, the purpose of the groundwater monitoring has gradually shifted from largely investigative monitoring during the first few years to what is now entirely remedial performance monitoring.

The revised GMP presented herein is designed to monitor the ongoing performance of the ICMs for groundwater remediation and supersedes the previous program described in the *Groundwater Monitoring Program Work Plan for Remedial Systems Effectiveness Monitoring* (Conestoga-Rovers & Associates [CRA] 2002) and in subsequent modifications specified in correspondences and reports issued after March 2002.

1.1 GMP Organization

Section 1.0 provides general background information for the FMC Middleport Site and presents the objectives of the GMP. Section 2.0 summarizes Site geology and hydrogeology and describes the various ICMs being operated for groundwater remediation. Section 3.0 describes the Hydraulic Monitoring Plan. Section 4.0 describes the Groundwater Quality Monitoring Plan. Section 5.0 discusses the data review and evaluation. Section 6.0 describes reporting procedures.

1.2 Facility Description

The Middleport Facility is located on approximately 102 acres in the southeast corner of the Village of Middleport and Town of Royalton, New York (Figure 1-1). The area surrounding the Facility primarily consists of a mixture of commercial and residential properties. The entire Facility perimeter is fenced with two monitored, gated entrances. The Facility is bounded to the north by a railroad line, to the south by commercial properties and a state highway (Route 31), to the east by agricultural land and an auto salvage yard, and to the west by residential properties. The Royalton-Hartland Junior-Senior High School, vacant industrial/commercial properties, and residential properties

[1] CFR – Code of Federal Regulations
[2] NYCRR – New York Codes, Rules, and Regulations

are located immediately north of the railroad line. FMC currently uses the Facility for pesticide formulation and packaging.

1.3 GMP and Groundwater ICM Objectives

The objective of the GMP is to monitor and evaluate the performance of the ICMs for groundwater remediation by monitoring for any significant changes in FMC-related indicator chemistry and groundwater hydraulics beneath and downgradient of the Site.

The groundwater ICM performance objectives are:

1. To minimize off-site migration of Facility-derived contaminants in groundwater within the overburden and shallow bedrock zones and
2. To reduce the concentrations of Facility-derived contaminants in groundwater.

Performance Objective 1 is achieved by creating hydraulic barriers to groundwater flow. The ICMs rely on groundwater extraction and infiltration barriers to create hydraulic depressions sufficient to reverse or reduce off-Site hydraulic gradients in areas of the Facility where groundwater is impacted. This performance Objective is monitored by hydraulic head measurements and extraction rate tracking (hydraulic monitoring). The Hydraulic Performance Monitoring Plan is presented in Section 3.0.

Performance Objective 2 is a long-term objective and is achieved primarily by removal of Facility-derived contaminant mass from the groundwater. Some reduction through natural attenuation processes may also occur for degradable chemicals. Performance Objective 2 is monitored by analysis of groundwater samples for potential Facility-derived contaminants (groundwater quality monitoring). The Groundwater Quality Monitoring Plan is presented in Section 4.0.

2.0 GROUNDWATER CONDITIONS

2.1 Geology and Hydrogeology

The native overburden soils at the Facility predominantly consist of silt and clay and range in thickness from 0 to 16.5 feet. The native overburden is relatively impermeable. Pockets of fill and waste materials are also present at the Facility. Where the overburden is most thin (within the northern and eastern portions of the Facility), fill materials may extend to bedrock.

The bedrock surface dips to the northwest. There are two bedrock groundwater flow regimes at the Facility – (shallow and deep bedrock). The bedrock is discontinuously fractured and poorly interconnected with no major fracture zones evident beneath the Facility and low hydraulic conductivity. The shallow bedrock zone consists primarily of weathered and fractured zones in the upper few feet of the limestone and sandstone above a shale layer. The deep bedrock zone consists of rock formations, predominantly sandstones, below this shale layer. This shale layer (known as Cambria Shale Formation) between the shallow and deep bedrock zone is of lower hydraulic conductivity relative to the other bedrock materials and acts as to restrict flow between the zones.

The Deep Zone is further divided into three subunits, based on depth, hydraulic characteristics and formations monitored. The Deep Zone subunits are:

Subunit	Primary Formation(s) Monitored
Deep Bedrock Unit 1	Cambria, Thorold, Grimsby
Deep Bedrock Unit 2	Grimsby
Deep Bedrock Unit 3	Grimsby, Artpark, Devil's Hole, Whirlpool, Power Glen and Queenston

Overburden and shallow bedrock groundwater beneath the Facility flows toward groundwater collection underdrains, blast-fractured trenches and extraction wells installed at the Facility (see Section 2.4). Separate from the influences of the groundwater extraction system, groundwater flow is generally from south to north.

Both the Shallow and Deep Zone bedrock formations are characterized by low hydraulic conductivity, which not only has served to limit migration but limits the effectiveness of conventional (vertical) groundwater extraction wells. Conventional extraction wells have been used at the Site, but the yields experienced were generally too low to create hydraulic control beyond a few feet from the well. Consequently, conventional extraction wells were replaced with a network of horizontal blast fractured bedrock trenches as described in Section 2.4.

The northern portion of the Facility property is covered with an engineered cover system (North Site Cover). Surface water runoff at the Facility is managed using a system of drainage ways and retention structures. Runoff from northern portion of the Facility is collected and treated at the on-site water treatment plant prior to discharge under the terms and conditions of the Facility's State Pollutant Discharge Elimination System (SPDES) Permit.

2.2 Groundwater Quality

RFI Vol 1 (Arcadis 2009) summarizes the groundwater investigations and associated reports. These studies include extensive characterization of the nature and extent of FMC site-related constituents in groundwater. In addition, since 1991, groundwater data have been presented and evaluated in FMC's Quarterly Progress Reports issued pursuant to the AOC and the 2002 GMP Work Plan.

In the late 1980s through early 1990s, FMC characterized the nature and extent of chemical presence associated with the Facility using a comprehensive list of chemicals historically used or produced at the Facility and a subset of this list known as the Groundwater Indicator Parameter List (GIPL). The GIPL included volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), chlorinated pesticides and herbicides, organophosphorous pesticides, metals, dithiocarbamate pesticides, methyl carbamate pesticides, ethylene thiourea (ETU), and ammonia.

In 1994 (CRA 1994), FMC revised the GIPL and identified the primary groundwater contaminants of concern to be four indicator parameters: methylene chloride, arsenic, ETU and ammonia. These four parameters were determined to be suitable for use as indicator chemicals for long-term monitoring of FMC-related groundwater contamination based on concentration, mobility and distribution. These four indicators have been more frequently detected, measured at higher concentrations, and exhibit more widespread distribution than other GIPL constituents. The four indicators have been used for long-term groundwater monitoring since 1994. In addition, since 1994, the updated GIPL has been monitored at a lesser frequency than the four indicators. Most of the potentially Facility-derived chemical presence is limited to the overburden and shallow bedrock zones.

From 2002 through 2007, FMC completed studies to evaluate ammonia in the deep bedrock. The results of those studies concluded that ammonia in off-site deep bedrock is naturally occurring and is not attributable to past Facility operations.

From 2005 through 2007, FMC completed vapor intrusion studies in the nearby Royalton-Hartland school property and buildings. Based on those studies, groundwater monitoring for trichloroethene (TCE) and its breakdown products was added to the GMP to monitor the need for additional vapor intrusion studies in the school buildings (FMC 2006).

2.3 ICMs for Groundwater Remediation

Groundwater remedial systems at the Facility are being operated as ICMs under the AOC. The ICMs were constructed for hydraulic containment and recovery of impacted groundwater at the Facility. The ICMs include:

1. An engineered asphalt and clay cover installed over the northern portion of the Site to minimize infiltration (North Site Cover).
2. Extraction of overburden groundwater from a sanitary sewer underdrain collection system (Sump 1) to control off-site migration of contaminated groundwater along the sewer bedding.
3. Extraction of overburden groundwater from underdrains and sumps (Sumps 2, 4, 5, and 15) that run along the north-central boundary of the Facility and other sumps and drains. The purpose of this ICM is to collect overburden groundwater

from beneath the Site and to minimize migration of subsurface contamination to surface water runoff at the Site.

4. Extraction of overburden and shallow bedrock groundwater from underdrains and a sump system (Sump 3) under the Western Surface Impoundment (WSI) to intercept and control off-Site groundwater migration along the Site's northwestern property boundary.
5. Extraction of shallow bedrock groundwater from seven blast-fractured bedrock trenches (Trenches A through G) to intercept shallow bedrock groundwater and control off-site migration along the eastern (Trench A) and northern (Trenches B, C and D) property boundaries and reduce concentrations within potential source areas in the interior of the Facility (Trenches E and F).
6. Extraction of Deep Bedrock Zone groundwater from conventional extraction well BC-752X for additional recovery of impacted groundwater at a potential source area.

All extracted groundwater is collected and treated at the Facility's water treatment plant and discharged under the terms and conditions of the Facility's SPDES permit.

The ICMs for groundwater remediation are shown in Figures 2-1, 2-2 and 2-3. The groundwater ICMs are monitored, inspected, operated and/or maintained as specified in the respective operations and maintenance (O&M) plans for the groundwater extraction systems, WSI and the North Site Cover.

2.4 Current Status of ICMs for Groundwater Remediation

By letter dated May 15, 2007 (NYSDEC 2007), based on monitoring of ICM performance and supplemental investigations, the Agencies provided the FMC Middleport Facility with a positive Environmental Indicator (EI) Determination (RCRA Code CA750) for Groundwater Migration under Control. Specifically, this determination means that groundwater contamination is under control and monitoring will confirm that contaminated groundwater remains in the "existing area of contaminated groundwater."

3.0 HYDRAULIC MONITORING PLAN

The Hydraulic Monitoring Plan has two components:

- Hydraulic barrier monitoring (quarterly)
- Network-wide hydraulic head monitoring (annual)

Hydraulic head monitoring well locations are shown in Figure 3-1. Appendix A presents the construction details for all wells included in the program. All hydraulic head measurements will be performed in accordance with the Agency-approved plans.

3.1 Hydraulic Barrier Monitoring (Quarterly)

The hydraulic barrier monitoring will be performed quarterly in overburden, shallow bedrock and Deep Bedrock Unit 1 monitoring wells that are proximate to the extraction systems. Quarterly hydraulic head measurements will be obtained from the wells listed in Table 3-1.

3.2 Network-Wide Hydraulic Head Monitoring (Annual)

Hydraulic head measurements will be collected annually in the monitoring well network overburden, shallow bedrock and Deep Bedrock Units 1-3 wells shown in Figure 3-1 and listed in Table 3-1. These wells include those in the quarterly hydraulic barrier monitoring and other wells that are part of the groundwater quality sampling program.

Wells SDGI-A5, SDGI-B3, SDGI-C4, SDGI-C5, SDGI-D2, SDGI-D3 and SDGI-D4 have been deleted from this GMP because they are not needed to monitor the performance of the ICMs for groundwater remediation. These wells were installed as part of the Supplemental Groundwater Investigation conducted in 2002-2003 (Geomatrix 2004) for delineating ammonia in the deep bedrock and were monitored since 2004.

4.0 GROUNDWATER QUALITY MONITORING PLAN

The groundwater quality monitoring plan is summarized in Table 4-1 and described below. All groundwater sampling and analytical methodology will be performed in accordance with Agency-approved plans.

4.1 Groundwater Quality Monitoring Network

The groundwater quality monitoring network is shown in Figure 4-1. Groundwater quality monitoring wells are grouped according to purpose as follows:

- On-site extraction wells and WSI sump: A-542RX, A-756X, A-757X, A-758X, A-759X, A-760X, BC-752X, C-EX1, C-EX2, D-EX1, D-EX2, G-EX1, G-EX2, G-EX3, and WSI sump
- On-site deep bedrock sentry wells: C533, C637, C1001, C1094, and DE1003
- Boundary wells
    - Northern boundary wells: 21, 830, 831, 832, 833, 834, 1028, A16, A857, A858A, A1014, AB7, B11, B13, B856, B859, C8A, C10A, C12A, C14A, C1022, C1035, and C1036
    - Eastern boundary wells: 15, 528, 835, 836, A650A, A1037, C860, C863
    - Southern (upgradient) boundary well: C862
- Off-site sentry wells
    - Northern sentry wells: 1120, 1032, 1038, A1030, A1033, A1122, AB521, BC522A, C1034, C1031, C1124, SDGI-OB1, SDGI-B1, and SDGI-D1
    - Eastern sentry wells: A864, A866, B867, and C865
    - Western sentry wells: 1015, B1016, C1017
- Off-Site VOC monitoring wells: 21[(1)], 833[(1)], 834[(1)], 1223, 1032[(2)], 1038[(2)], 1221, 1225, 1227, A16[(1)], A857[(1)], A858A[(1)], A1033[(2)], A1220, A1222, A1224, A1226, and AB521[(2)].

  Notes:

  [(1)] Monitoring well also serves as northern boundary well

  [(2)] Monitoring well also serves as northern sentry well

4.2 Sampling Frequencies and Analytical Parameters

Three analytical lists are used for groundwater quality monitoring:

- Four Indicator Chemicals: methylene chloride, ETU, ammonia and arsenic
- Off-Site VOC Monitoring List: TCE, cis-1-2-dichloroethene, trans-1,2 dichloroethene, 1,1-dichloroethene, chloroethane, and vinyl chloride
- GIPL

The first two lists remain unchanged from the current program. The GIPL has been revised following an evaluation of the groundwater quality database to drop parameters that have not been detected above New York State Class GA Standards in recent years

or have been detected infrequently at low concentrations relative to the four indicator chemicals. SVOCs, chlorinated herbicides, dithiocarbamates, and methyl carbamates are not included in the revised GIPL shown in Table 4-1.

Groundwater sampling frequencies are presented in Table 4-2 and summarized as follows:

Well Group	Sampling Frequency	Analytical Lists
On-site extraction wells and WSI sumps	Semiannual	Four Indicator
	Every 5 years	GIPL
On-site deep bedrock sentry wells	Annual	Four Indicators
	Every 5 years	GIPL
Boundary wells	Annual	Four Indicators
	Every 5 years	GIPL
Off-site sentry wells	Annual	Four Indicators
	Every 5 years	GIPL
Off-site VOC monitoring wells	Annual	Off-Site VOC Monitoring List

4.3 Well Monitoring Procedures

Hydraulic monitoring and sampling of the GMP wells will be conducted as specified in the applicable procedures in the Quality Assurance Project Plan (QAPP) and project-specific Health and Safety Plan (HASP).

Non-aqueous phase liquid (NAPL) monitoring will no longer be conducted as part of GMP. NAPL has not been detected in the Site monitoring wells in the past 20 years of monitoring.

At a minimum, the GMP monitoring wells will be inspected annually for integrity, including corrosion, damage to the protective casings/security, and any evidence of tampering (e.g., broken or missing locks, cracked or damaged covers). In addition, the total depth of each well will be measured to confirm the depth of the open interval. The well will be redeveloped if siltation exceeds 20 percent of the open interval. Inspection results will be recorded on Well Inspection Forms and summarized in the quarterly progress report.

4.4 Monitoring of Extraction Wells and Collection Sumps

The O&M plans for the groundwater extraction systems, WSI and the North Site Cover specify procedures for monitoring, inspecting, operating and/or maintaining the extraction wells and WSI Sump.

The volumes pumped from the extraction wells and WSI Sump are to be checked routinely and recorded by FMC personnel/contractors as specified in the respective O&M plans. Flow volume measurements will be measured on a regular basis, and the weekly summaries will be reported in the Quarterly Progress Reports. At a minimum, the following will be reported in the Quarterly Progress Reports (see Section 5.0):

1. Summary of system operations, including system shutdowns
2. Weekly volume and/or flow of water pumped

3. Average well yield
4. Concentrations of the groundwater indicator chemicals in the extracted water
5. Approximate pounds of the four groundwater indicator chemicals removed in the extracted water

In addition, the volume of water removed from other select underdrains/sumps (Sumps 2, 4, 5, 15 and 16) will be recorded on weekly summaries.

4.5 Extraction Well and WSI Sump Shutdown

If any extraction well or the WSI Sump is inoperable or shut down for more than 14 consecutive days or 20 days within a 30-day period, the following actions will be taken:

1. Provide written notification for the shutdown to the Agencies with the reasons for the shutdown, planned or implemented remedies for re-start, and the schedule for repairs/re-start.
2. Conduct hydraulic monitoring of the hydraulic monitoring wells on a monthly basis until re-start. The monitoring data will be evaluated and reported in Quarterly Progress Report.
3. If the shutdown exceeds 90 days and if it is determined that there is loss of hydraulic control along a significant area (based on the hydraulic monitoring results), then sample the five well groups identified in Section 4.2 for the four indicator chemicals (ie: Annual groundwater quality sampling program).
4. Identify and recommend any actions to minimize the potential for recurrence of the shutdown in the Quarterly Progress Reports.

5.0 DATA EVALUATION AND REPORTING

5.1 Data Review, Management and Presentation

Upon receipt of the analytical results, validation of the data will be undertaken to determine if the data are acceptable for use. The data validation will be conducted in accordance with the Agency-approved QAPP. If the data are deemed to be acceptable, all data, including quality assurance/quality control (QA/QC) data, will be entered into a computer database and uploaded to the NYSDEC EQuIS Environmental Data Submission (EDD) System and made accessible to the Agencies after completion of data validation, as discussed in the QAPP. A table summarizing the validated groundwater data will be included in each Quarterly Progress Report and used to describe current groundwater contamination conditions at the Facility.

In order to illustrate the analytical results, summary maps depicting concentrations of the four indicator chemicals (i.e., arsenic, methylene chloride, ETU, and ammonia) will be prepared and included in the Quarterly Progress Report prepared for the fourth quarter of each monitoring year.

Graphical presentation of concentrations versus time will be prepared for the off-Site VOC monitoring wells to assess potential temporal variations in contaminant concentrations.

The hydraulic head data collected will be converted to elevations and entered into a computer database. Potentiometric surface maps will be prepared for the overburden, shallow bedrock, and deep bedrock unit 1 and included in the Quarterly Progress Reports. The Fourth Quarterly Progress Report will also include data and mapping from the annual network wide monitoring and include potentiometric surface maps for deep bedrock units 2 and 3.

The data will be evaluated to determine if the hydraulic gradients at the Facility boundary are directed toward the trenches, extraction wells, and underdrain systems.

5.2 Performance Evaluation

The overall remedial system performance will be evaluated based on the groundwater quality and hydraulic monitoring data obtained during the reporting year. The performance monitoring data obtained will be compared to the remedial system performance objectives identified in Section 1.3, and to previous monitoring data.

System performance will be evaluated on an ongoing basis and will be summarized annually in the Quarterly Progress Report prepared for the fourth quarter. This annual report will include a discussion of the effectiveness of implemented groundwater remedial systems. If it is determined that the general performance objectives are not being met, then FMC will submit a proposal to further evaluate and define the nature of the problem, and/or to propose additional corrective measures. The proposal may include recommendations for modifications or expansion of the existing system or alternate remedial measures.

The results of the remedial system evaluation may be used to recommend any or all of the following:

- Continued operation or termination of the system;
- Modifications to the system or its operation;

- Alternate corrective measures, as appropriate, to contain the groundwater contamination; and/or
- Activities that would enhance groundwater contaminant recovery rates (mass removal).

5.3 GMP Review and Modification

Modifications to the GMP program may be proposed as appropriate to achieve the objectives of the GMP (see Section 1.3). Proposed modifications to the GMP would be submitted to the Agencies for review and approval prior to implementation.

6.0 REPORTING

FMC will submit information collected during the GMP sampling/monitoring events to the Agencies within 45 days following the end of a reporting quarter. At a minimum, information to be submitted to the Agencies on a quarterly basis will include:

1. Hydraulic monitoring data for the hydraulic barrier monitoring well network expressed as potentiometric surface maps with groundwater elevations posted.
2. Total days each extraction well and the WSI sump are in operation and total volume of groundwater extracted from each.
3. Major operational changes (e.g., significant changes in extraction well pumping rates) and system shutdowns.
4. A summary of activities performed in the reporting quarter and a summary of activities scheduled to be performed in the upcoming quarter.

The following additional information will be provided for quarters during which sampling of the extraction wells (semiannually) and/or groundwater quality monitoring well network (annually) is performed:

1. Contaminant concentrations and estimates of mass removal rates from the extraction wells/WSI sump.
2. A summary table of the groundwater quality monitoring data collected and validated in accordance with the QAPP (validated analytical data will also be transmitted to the Agencies in electronic format).
3. A summary of the well inspection results.

The following additional information will be provided annually in the Fourth Quarter Progress Report:

1. A summary of the GMP activities performed during the reporting year.
2. A summary evaluation of the remedial systems performance effectiveness including an evaluation of the hydraulic monitoring data collected during the reporting year.
3. An evaluation of the groundwater quality data including the identification of any significant trends in contaminant concentrations.
4. Preparation of visual presentation of the distribution of the four indicator chemicals including historical concentration data reported for each well sampled (i.e., the format presented in Quarterly Progress Reports) or some other suitable format.
5. Mass of indicator chemicals removed and/or indicator chemical concentration versus time plots for each groundwater extraction well and the WSI underdrain sump.
6. A discussion of whether the GMP and ICM performance objectives are being achieved.

Any recommendations for remedial system operations and any proposed modifications to the GMP would be presented to the Agencies under separate cover.

7.0 REFERENCES

Arcadis. 2009. RCRA Facility Investigation Report, Volume 1, Background and Related Information, FMC Corporation, Middleport, New York Facility. Revised September 2009 FINAL.

CRA. 1994. Groundwater Assessment Report, FMC Corporation, Middleport, New York Site. November 1994.

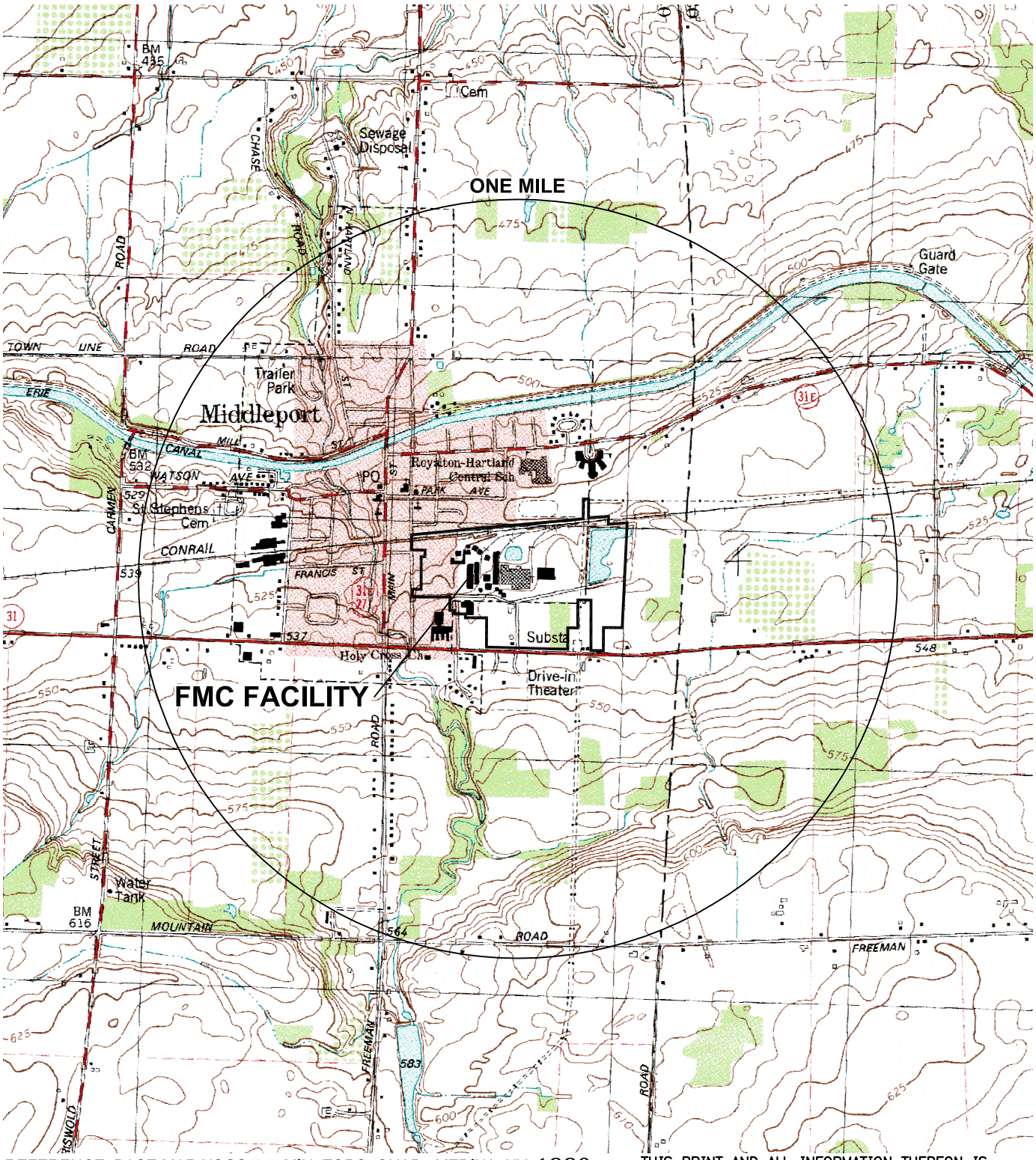
CRA. 2002. Groundwater Monitoring Program Work Plan for Remedial Systems Effectiveness Monitoring. Revision No. 5, March 15, 2002.

FMC. 2006. Letter to Messrs Mortefolio and Infurna (NYSDEC and USEPA, respectively) from Mr. Brian McGinnis, FMC regarding the VOC groundwater sampling and analysis for off-Site vapor intrusion investigations.

Geomatrix. 2004. Supplemental Groundwater Investigation Results. August 2004.

NYSDEC. 2007. Letter to Mr. James Reidy of the USEPA from Ms. Denise Radtke of the NYSDEC with completed CA750 Environmental Indicator form that states that migration of contaminated groundwater at the FMC Middleport facility is under control. May 15, 2007.

FIGURES



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., MEDINA, NY, 1980

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

FACILITY LOCATION:
LATITUDE 43° 12' 27" N
LONGITUDE 78° 28' 16" W

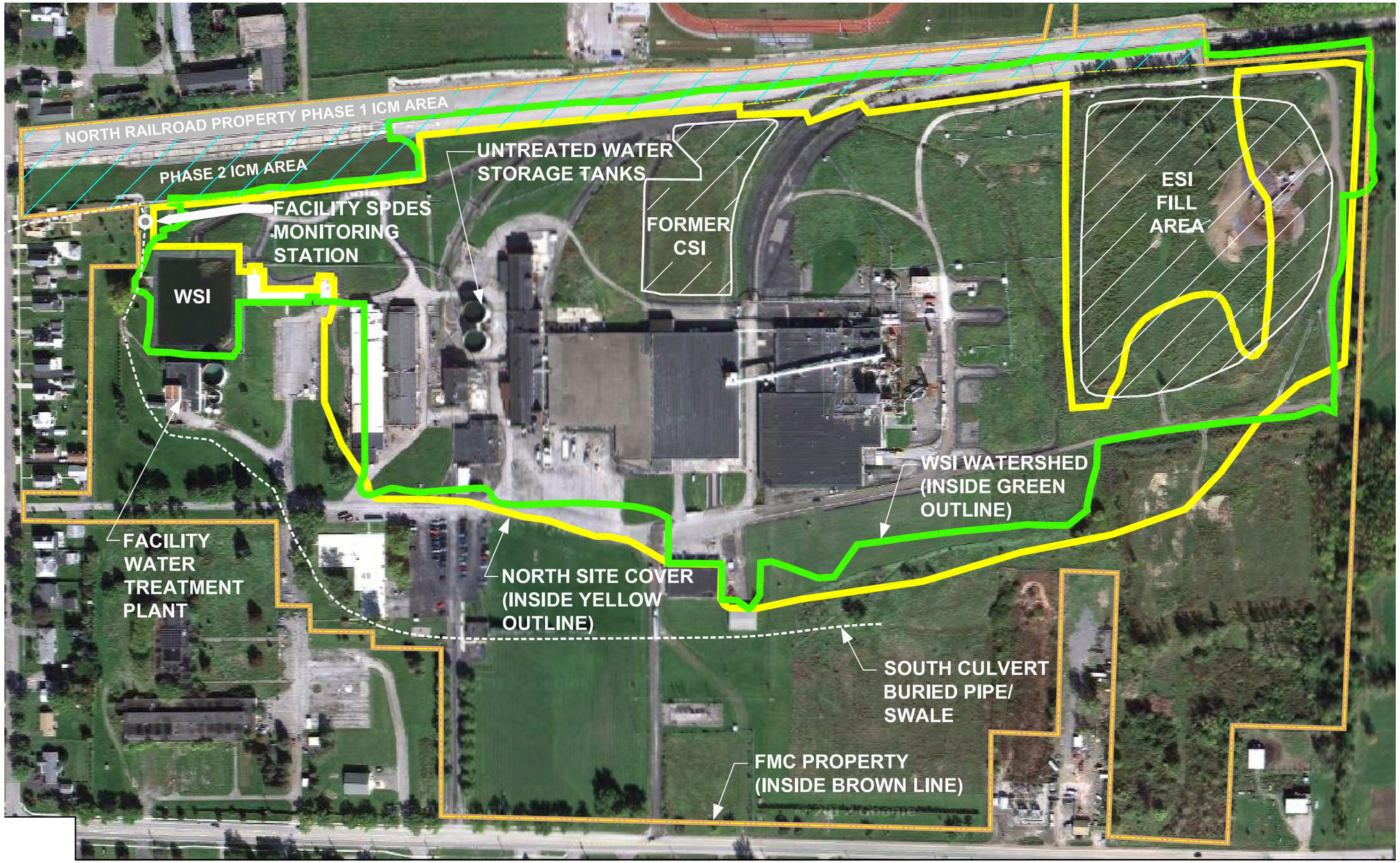
FIGURE 1-1

FMC CORPORATION-MIDDLEPORT, NEW YORK
GROUNDWATER MONITORING PLAN

SITE LOCATION MAP

PARSONS
40 LA RIVIERE DRIVE, SUITE 350, BUFFALO, NEW YORK 14202 PHONE: 716-541-0730

P:\FMC-Middleport and Dublin Road\Middleport Plant Site\GMP-Figures\CINCY_CAD\Fig 1-1 GMP-SLM_050715.dwg



NOTES:

1. THIS FIGURE WAS PREPARED FROM A DRAWING BY CRA, ENTITLED "SURFACE CHARACTERISTICS AND SURFACE WATER DRAINAGE", FIGURE 2.6, DRAWING NO. 02788-90(055)GN-NF034, DATED JAN. 27, 1999, @ A SCALE OF 1" = 300'.
2. WATERSHED LIMITS UPDATED IN 2010 AS PART OF THE WSI HYDROLOGIC EVALUATION.
3. PHOTOGRAPH TAKEN SEPTEMBER 2011.

0 240' 480'
GRAPHIC SCALE

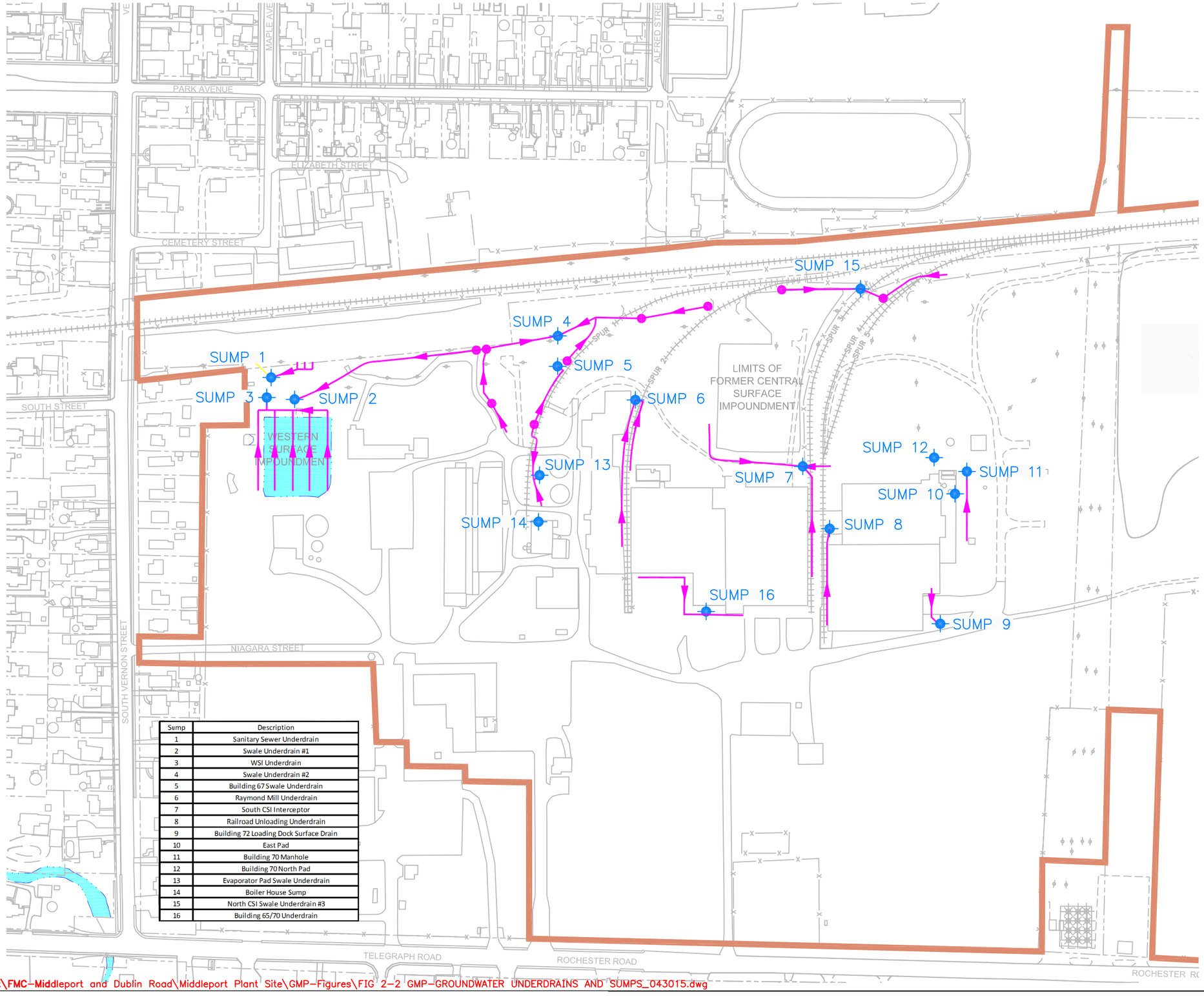
FIGURE 2-1

FMC CORPORATION-MIDDLEPORT, NEW YORK

NORTH SITE COVER LIMITS

PARSONS
40 LA RIVIERE DRIVE, SUITE 350, BUFFALO. NEW YORK 14202 PHONE: 716-541-0730

P:\FMC-Middleport and Dublin Road\Middleport Plant Site\GMP-Figures\Fig 2-1 GMP-NORTH SITE COVER LIMITS_043015.dwg



Sump	Description
1	Sanitary Sewer Underdrain
2	Swale Underdrain #1
3	WSI Underdrain
4	Swale Underdrain #2
5	Building 67 Swale Underdrain
6	Raymond Mill Underdrain
7	South CSI Interceptor
8	Railroad Unloading Underdrain
9	Building 72 Loading Dock Surface Drain
10	East Pad
11	Building 70 Manhole
12	Building 70 North Pad
13	Evaporator Pad Swale Underdrain
14	Boiler House Sump
15	North CSI Swale Underdrain #3
16	Building 65/70 Underdrain

LEGEND:

- FMC PROPERTY BOUNDARY (APPROXIMATE)
- APPROXIMATE LOCATION OF UNDERDRAIN AND FLOW DIRECTION
- SUMP LOCATION
- UNDERDRAIN CLEANOUT

NOTES:

1. THIS FIGURE WAS PREPARED FROM A DRAWING BY CRA, ENTITLED "GROUNDWATER INTERCEPTOR SUMPS AND SUBDRAINS", FIGURE 5.3, DRAWING NO. 02788-90(055)GN-NF067, DATED JAN. 27, 1999, @ A SCALE OF 1" = 300'.

0 240' 480'

GRAPHIC SCALE

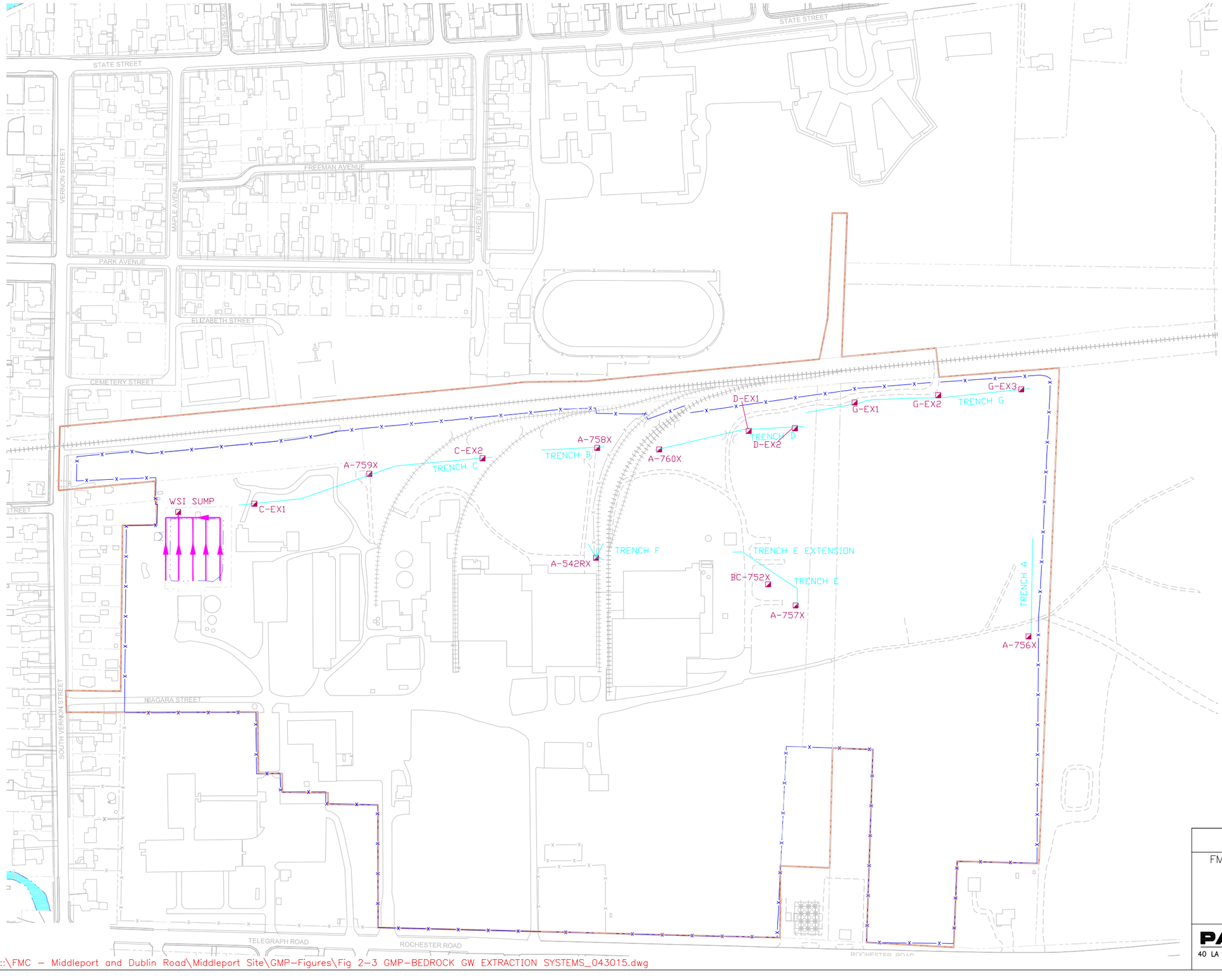
FIGURE 2-2

FMC CORPORATION-MIDDLEPORT, NEW YORK
GROUNDWATER MONITORING PLAN

UNDERDRAINS AND SUMPS

PARSONS
40 LA RIVIERE DRIVE, SUITE 350, BUFFALO. NEW YORK 14202 PHONE: 716-541-0730

P:\FMC-Middleport and Dublin Road\Middleport Plant Site\GMP-Figures\FIG 2-2 GMP-GROUNDWATER UNDERDRAINS AND SUMPS_043015.dwg



LEGEND:

- EXTRACTION WELL
- A-17 'A' BEDROCK ZONE
- B-867 'B' BEDROCK ZONE
- C-532 'C' BEDROCK ZONE
- DE-1003 'D/E' BEDROCK ZONE
- BLAST FRACTURE TRENCH
- APPROXIMATE LOCATION OF UNDERDRAIN AND FLOW DIRECTION

0 300' 600'

GRAPHIC SCALE

FIGURE 2-3

FMC MIDDLEPORT SITE NIAGARA COUNTY, NEW YORK
GROUNDWATER MONITORING PLAN

BEDROCK GROUNDWATER EXTRACTION SYSTEMS

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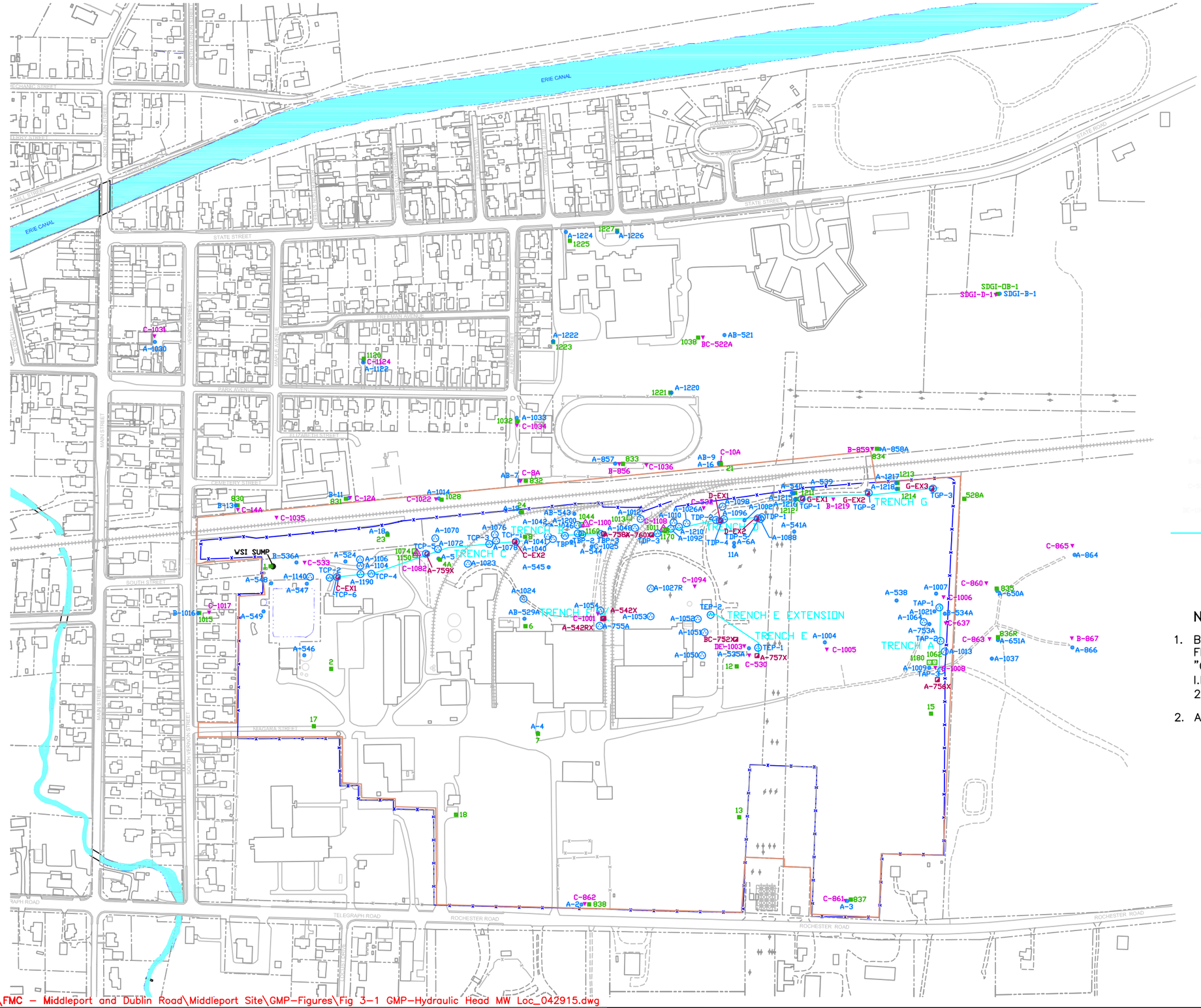
P:\FMC - Middleport and Dublin Road\Middleport Site\GMP-Figures\Fig 2-3 GMP-BEDROCK GW EXTRACTION SYSTEMS_043015.dwg



LEGEND:

- SHALLOW BEDROCK MONITORING WELL
- OVERBURDEN MONITORING WELL
- DEEP BEDROCK MONITORING WELL
- EXTRACTION WELL
- SHALLOW BEDROCK PIEZOMETER
- OVERBURDEN PIEZOMETER
- DEEP BEDROCK PIEZOMETER
- WSI SUMP
- 'A' BEDROCK ZONE
- 'B' BEDROCK ZONE
- 'C' BEDROCK ZONE
- '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.

0 400' 800'

GRAPHIC SCALE

FIGURE 3–1

FMC MIDDLEPORT SITE NIAGARA COUNTY, NEW YORK
GROUNDWATER MONITORING PLAN

HYDRAULIC HEAD
MONITORING WELL LOCATIONS

PARSONS
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P:\FMC – Middleport and Dublin Road\Middleport Site\GMP–Figures\Fig 3–1 GMP–Hydraulic Head MW Loc_042915.dwg

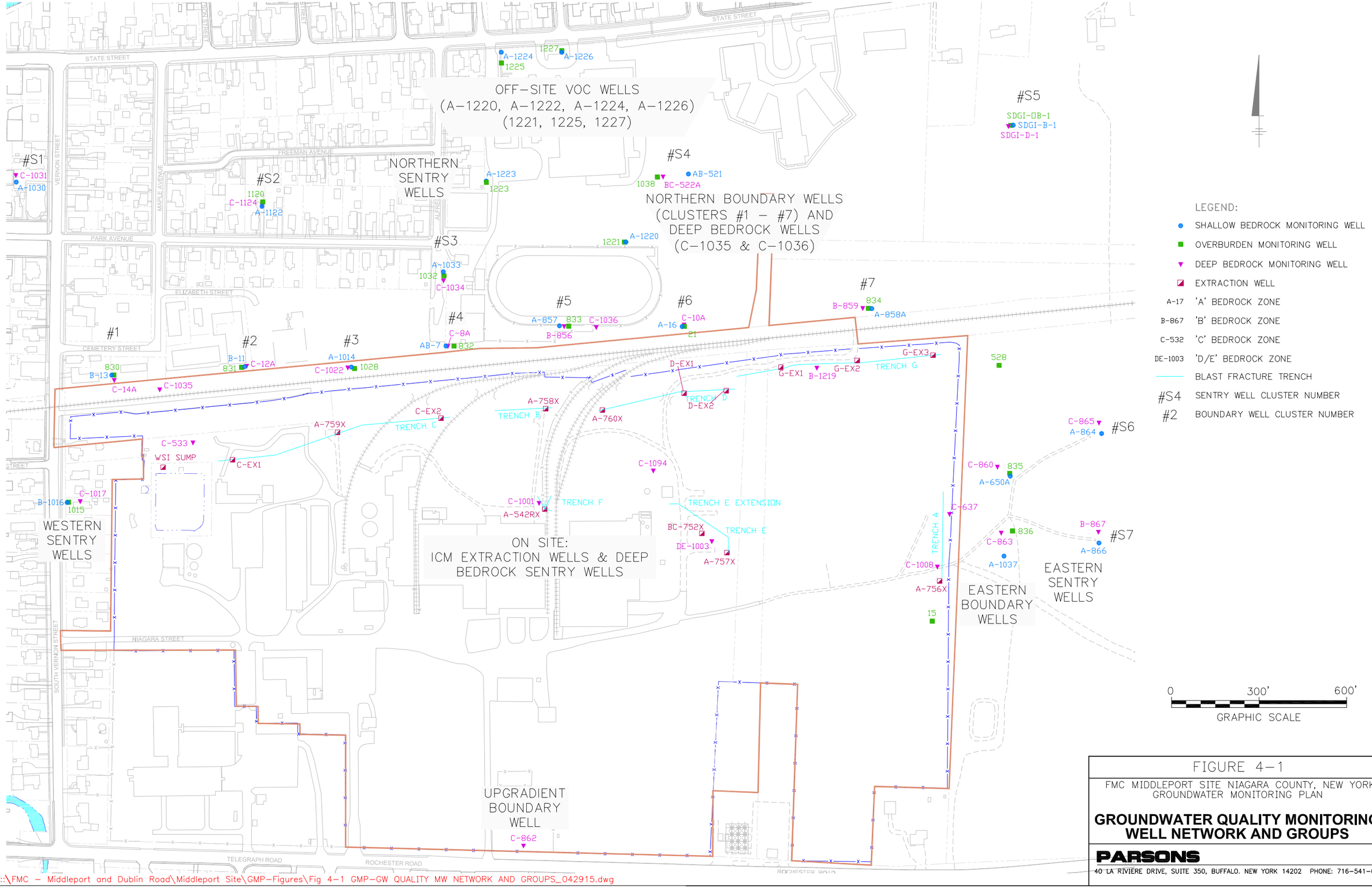

FIGURE 4-1

FMC MIDDLEPORT SITE NIAGARA COUNTY, NEW YORK
GROUNDWATER MONITORING PLAN

GROUNDWATER QUALITY MONITORING WELL NETWORK AND GROUPS

PARSONS
40 LA RIVIERE DRIVE, SUITE 350, BUFFALO. NEW YORK 14202 PHONE: 716-541-0730

P::\FMC - Middleport and Dublin Road\Middleport Site\GMP-Figures\Fig 4-1 GMP-GW QUALITY MW NETWORK AND GROUPS_042915.dwg

TABLES

Table 3-1
Revised Hydraulic Head Monitoring Plan
Groundwater Monitoring Program for Remedial Systems Effectiveness Monitoring
Middleport Facility

Hydraulic Barrier Monitoring Wells (Quarterly Monitoring)	Network-Wide Monitoring Wells (Annual Monitoring)
Extraction Wells:	
A-542RX	A-542RX
A-756X	A-756X
A-757X	A-757X
A-758X	A-758X
A-759X	A-759X
A-760X	A-760X
BC-752X	BC-752X
C-EX1	C-EX1
C-EX2	C-EX2
D-EX1	D-EX1
D-EX2	D-EX2
G-EX1	G-EX1
G-EX2	G-EX2
G-EX3	G-EX3
Trench Piezometers:	
TAP-1	TAP-1
TAP-2	TAP-2
TAP-3	TAP-3
TBP-1	TBP-1
TBP-2	TBP-2
TBP-3	TBP-3
TCP-1	TCP-1
TCP-2	TCP-2
TCP-3	TCP-3
TCP-4	TCP-4
TCP-5	TCP-5
TCP-6	TCP-6
TDP-1	TDP-1
TDP-2	TDP-2
TDP-3	TDP-3
TDP-4	TDP-4
TDP-5	TDP-5
TEP-1	TEP-1
TEP-2	TEP-2
TGP-1	TGP-1
TGP-2	TGP-2
TGP-3	TGP-3

Table 3-1
Revised Hydraulic Head Monitoring Plan
Groundwater Monitoring Program for Remedial Systems Effectiveness Monitoring
Middleport Facility

Hydraulic Barrier Monitoring Wells (Quarterly Monitoring)	Network-Wide Monitoring Wells (Annual Monitoring)
Overburden Monitoring Wells:	
1	1
2	2
4A	4A
6	6
7	7
8	8
11A	11A
12	12
15	15
17	17
21	21
23	23
24	24
528A	528A
830	830
831	831
832R	832R
833	833
834	834
836R	836R
1011	1011
1013	1013
1015	1015
1028	1028
1044	1044
1062	1062
1074	1074
1150	1150
1160	1160
1170	1170
1180	1180
1211	1211
1212	1212
1213	1213
1214	1214
	13
	18
	835
	837
	838
	1032
	1038
	1120
	1221
	1223
	1225
	1227
	SDGI-OB1

Table 3-1
Revised Hydraulic Head Monitoring Plan
Groundwater Monitoring Program for Remedial Systems Effectiveness Monitoring
Middleport Facility

Hydraulic Barrier Monitoring Wells (Quarterly Monitoring)	Network-Wide Monitoring Wells (Annual Monitoring)
Shallow Bedrock Monitoring Wells:	
A4	A4
A5	A5
A6A	A6A
A16	A16
A18	A18
A19	A19
A524	A524
A535A	A535A
A538	A538
A539	A539
A540	A540
A541A	A541A
A544	A544
A545	A545
A546	A546
A547	A547
A548	A548
A549	A549
A650A	A650A
A651A	A651A
A753A	A753A
A857	A857
A858A	A858A
A864	A864
A866	A866
A1002	A1002
A1004	A1004
A1007	A1007
A1009	A1009
A1010	A1010
A1012	A1012
A1013	A1013
A1014	A1014
A1021	A1021
A1023	A1023
A1024	A1024
A1026	A1026
A1027R	A1027R
A1037	A1037
A1040	A1040
A1041	A1041
A1042	A1042
A1046	A1046
A1048	A1048
A1050	A1050
A1051	A1051
A1052	A1052
A1053	A1053
A1054	A1054

Table 3-1
Revised Hydraulic Head Monitoring Plan
Groundwater Monitoring Program for Remedial Systems Effectiveness Monitoring
Middleport Facility

Hydraulic Barrier Monitoring Wells (Quarterly Monitoring)	Network-Wide Monitoring Wells (Annual Monitoring)
Shallow Bedrock Monitoring Wells (continued):	
A1064	A1064
A1070	A1070
A1072	A1072
A1076	A1076
A1078	A1078
A1088	A1088
A1092	A1092
A1096	A1096
A1098	A1098
A1104	A1104
A1106	A1106
A1140	A1140
A1190	A1190
A1200	A1200
A1210	A1210
A1215	A1215
A1216	A1216
A1217	A1217
A1218	A1218
AB7	AB7
AB9	AB9
AB529A	AB529A
AB543	AB543
	A2
	A3
	A1030
	A1033
	A1122
	A1220
	A1222
	A1224
	A1226
	A755A
	AB521
	SDGI B1
Deep Bedrock Unit 1 Monitoring Wells:	
B536A	B536A
B859	B859
B1219	B1219
C1006	C1006
C1082	C1082
C1094	C1094
C1100	C1100
C1108	C1108

Table 3-1
Revised Hydraulic Head Monitoring Plan
Groundwater Monitoring Program for Remedial Systems Effectiveness Monitoring
Middleport Facility

Hydraulic Barrier Monitoring Wells (Quarterly Monitoring)	Network-Wide Monitoring Wells (Annual Monitoring)
Deep Bedrock Unit 2 Monitoring Wells:	
	B867 C530 C532 C637 C865 C1001 C1005 C1008 C1022 C1025 C1031 C1034 C1124
Deep Bedrock Unit 3 Monitoring Wells:	
	BC522A C533 C860 C861 C862 C863 C1017 C1035 C1036 DE1003 SDGI D1
Other Deep Bedrock Monitoring Wells:	
	B11 B13 B1016 B534A B856 C8A C10A C12A C14A C1082 C1094 C1100 C1108 C1124

Table 4-1
Analytical Lists for Groundwater Quality Samples
Groundwater Monitoring Program for Remedial Systems Effectiveness Monitoring
Middleport Facility

Four Indicator Chemicals:
Methylene Chloride
Arsenic
Ethylene Thiourea
Ammonia
Off-Site VOC Monitoring List:
Trichloroethene
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
Chloroethane
Vinyl Chloride
Revised Groundwater Indicator Parameter List (GIPL)
Volatile Organics Compounds
1,2-Dichloroethene (total or individual cis and trans isomers)
Acetone
Benzene
Chlorobenzene
Chloroform
Ethylbenzene
Methylene Chloride
Toluene
Trichloroethene
Xylene (total or individual o, m & p isomers)
Chlorinated Pesticides
4,4'-DDT
BHC-alpha
BHC-beta
BHC-delta
BHC-gamma (Lindane)
Metals
Arsenic
Cadmium
Lead
Mercury
Selenium
Zinc
Miscellaneous Compounds
Ammonia
Ethylene Thiourea

Table 4-2
Revised Groundwater Quality Monitoring Plan
Groundwater Monitoring Program for Remedial Systems Effectiveness Monitoring
Middleport Facility

Well ID	Four Indicators (Semiannual)	Four Indicators (Annual)	Off-Site VOC Monitoring (Annual)	GIPL (Every 5 Years)
Extraction Wells:				
WSI Sump	X			X
A-542RX	X			X
A-756X	X			X
A-757X	X			X
A-758X	X			X
A-759X	X			X
A-760X	X			X
BC-752X	X			X
C-EX1	X			X
C-EX2	X			X
D-EX1	X			X
D-EX2	X			X
G-EX1	X			X
G-EX2	X			X
G-EX3	X			X
On-Site Deep Bedrock Sentry Wells:				
C533		X		X
C637		X		X
C1001		X		X
C1094		X		X
DE1003		X		X
Northern Boundary Wells:				
21[(1)]		X	X	X
830		X		X
831		X		X
832		X		X
833[(1)]		X	X	X
834[(1)]		X	X	X
1028		X		X
A16[(1)]		X	X	X
A857[(1)]		X	X	X
A858A[(1)]		X	X	X
A1014		X		X
AB7		X		X
B11		X		X
B13		X		X
B856		X		X
B859		X		X
C8A		X		X
C10A		X		X
C12A		X		X
C14A		X		X
C1022		X		X
C1035		X		X
C1036		X		X

Table 4-2
Revised Groundwater Quality Monitoring Plan
Groundwater Monitoring Program for Remedial Systems Effectiveness Monitoring
Middleport Facility

Well ID	Four Indicators (Semiannual)	Four Indicators (Annual)	Off-Site VOC Monitoring (Annual)	GIPL (Every 5 Years)
Eastern Boundary Wells:				
15		X		X
528		X		X
835		X		X
836		X		X
A650A		X		X
A1037		X		X
C860		X		X
C863		X		X
Southern (Upgradient) Boundary Well:				
C862		X		X
Northern Sentry Wells:				
1120		X		X
1032[(2)]		X	X	X
1038[(2)]		X	X	X
A1030		X		X
A1033[(2)]		X	X	X
A1122		X		X
AB521[(2)]		X	X	X
BC522A		X		X
C1034		X		X
C1031		X		X
C1124		X		X
SDGI-OB1		X		X
SDGI-B1		X		X
SDGI-D1		X		X
Eastern Sentry Wells:				
A864		X		X
A866		X		X
B867		X		X
C865		X		X
Western Sentry Wells:				
1015		X		X
B1016		X		X
C1017		X		X

Table 4-2
Revised Groundwater Quality Monitoring Plan
Groundwater Monitoring Program for Remedial Systems Effectiveness Monitoring
Middleport Facility

Well ID	Four Indicators (Semiannual)	Four Indicators (Annual)	Off-Site VOC Monitoring (Annual)	GIPL (Every 5 Years)
Off-Site VOC Monitoring Wells:				
1223		**X**	**X**	
1221		**X**	**X**	
1225		**X**	**X**	
1227		**X**	**X**	
A1220		**X**	**X**	
A1222		**X**	**X**	
A1224		**X**	**X**	
A1226		**X**	**X**	

Notes:
(1) Well serves as northern boundary well and an off-Site VOC monitoring well
(2) Well also serves as northern sentry well and an off-Site VOC monitoring well

APPENDIX A
MONITORING WELL CONSTRUCTION DETAILS

APPENDIX A
FMC MIDDLEPORT WELL CONSTRUCTION SUMMARY

GROUNDWATER MONITORING PROGRAM

				Installed Screened/Open Bedrock Interval					*Monitored Interval (Sand Pack/Open Bedrock Interval)*				
Well ID	*Installation Date*	*Ground Surface Elevation (ft. AMSL)*	*Surveyed Measuring Point (MP) or Top of Casing (TOC) Elevation (ft AMSL)*	*Top Depth (ft BGS)*	*Top Elevation (ft AMSL)*	*Well Bottom Depth (ft BGS)*	*Well Bottom Elevation (ft AMSL)*	*Well Bottom Depth (ft BTOC or ft BMP)*	*Top Depth (ft BGS)*	*Top Elevation (ft AMSL)*	*Bottom Depth (ft BGS)*	*Bottom Elevation (ft AMSL)*	*Hydrogeologic Unit Designation*
1	July 26, 1979	525	524.45	7.85	517.15	11.85	513.15	11.30	7.85	517.15	11.85	513.15	Overburden
2	July 31, 1979	526	526.48	1.15	524.85	5.15	520.85	5.63	1.15	524.85	5.15	520.85	Overburden
3	July 25, 1979	537	537.44	0.97	536.03	4.97	532.03	5.41	0.97	536.03	4.97	532.03	Overburden
5	July 25, 1979	538.6	539.74	2.90	535.70	6.90	531.70	8.04	2.90	535.70	6.90	531.70	Overburden
6	August 6, 1979	531.9	534.78	3.02	528.88	7.02	524.88	9.90	3.02	528.88	7.02	524.88	Overburden
7	July 26, 1979	539.8	541.57	2.00	537.80	6.00	533.80	7.77	2.00	537.80	6.00	533.80	Overburden
8	July 27, 1979	529	531.73	4.98	524.02	12.28	516.72	15.01	4.98	524.02	12.28	516.72	Overburden
9	July 26, 1979	539.1	541.53	1.84	537.26	5.84	533.26	8.27	1.84	537.26	5.84	533.26	Overburden
12	July 26, 1979	541.7	542.47	5.79	535.91	9.79	531.91	10.56	5.79	535.91	9.79	531.91	Overburden
13	July 25, 1979	538.2	538.84	1.72	536.5	5.72	532.5	6.36	1.72	536.48	5.72	532.48	Overburden
15	July 24, 1975	540.35	542.91	2.24	538.11	6.24	534.11	8.80	2.24	538.11	6.24	534.11	Overburden
17	July 13, 1979	531.4	532.10	2.22	529.2	6.22	525.2	6.92	2.22	529.18	6.22	525.18	Overburden
18	August 6, 1979	538.1	538.81	1.45	536.7	5.45	532.7	6.16	1.45	536.65	5.45	532.65	Overburden
19	August 7, 1979	539.1	540.16	0.70	538.4	3.70	535.4	4.76	0.70	538.40	3.70	535.40	Overburden
21	11/30/1982 & modified in 1999	528.71	528.47	7.91	520.8	12.91	515.8	12.67	7.91	520.8	12.91	515.8	Overburden
23	12/2/1982 & modified in 2002	526.18	527.39	6.70	517.90	11.70	512.90	14.49	8.28	517.90	13.28	512.90	Overburden
24	December 5, 1982	526.6	526.50	5.60	521.00	10.60	516.00	10.50	5.60	521.00	10.60	516.00	Overburden
830	August 26, 1990	527.1	526.98	10.00	517.10	15.00	512.10	14.88	8.00	519.10	15.00	512.10	Overburden
831	August 29, 1990	525.6	525.56	10.00	515.60	15.00	510.60	14.96	8.00	517.60	15.90	509.70	Overburden
833	8/26/1990 & modified casing in 1999	528.48	528.15	16.3	521.9	21.3	516.9	11.3	15.3	522.9	21.4	516.8	Overburden
834	September 5, 1990	530.7	533.31	3.0	527.7	8.0	522.7	10.6	2.5	528.2	8.1	522.6	Overburden
835	January 19, 1990	539.4	540.97	2.0	537.4	7.0	532.4	8.6	1.00	538.40	7.50	531.90	Overburden
837	January 17, 1990	539.6	541.84	1.5	538.1	6.5	533.1	8.7	1.5	538.1	6.5	533.1	Overburden
838	January 16, 1990	538.8	541.21	1.5	537.3	6.5	532.3	8.9	1.5	537.3	8.5	530.3	Overburden
1011	September 1, 1992	534.3	536.99	11.2	523.1	16.2	518.1	18.9	9.2	525.1	16.2	518.1	Overburden
1013	August 13, 1992	527.67	529.72	1.9	525.8	6.9	520.8	9.0	1.4	526.3	6.9	520.8	Overburden
1015	8/8/1991 & casing modified in fall 2003	521.38	520.67	10.4	516.7	15.4	511.7	9.0	8.4	518.7	15.9	511.2	Overburden
1028	January 7, 1995	526.97	526.72	6.0	521.0	11.0	516.0	10.8	3.5	523.5	12.0	515.0	Overburden
1032	May 1, 1997	528.96	528.51	10.7	518.3	15.7	513.3	15.3	8.6	520.4	18.0	511.0	Overburden
1038	May 1, 1997	523.65	523.31	5.70	517.95	10.70	512.95	10.36	4.00	519.65	10.70	512.95	Overburden

APPENDIX A
FMC MIDDLEPORT WELL CONSTRUCTION SUMMARY

GROUNDWATER MONITORING PROGRAM

				Installed Screened/Open Bedrock Interval					*Monitored Interval (Sand Pack/Open Bedrock Interval)*				
Well ID	*Installation Date*	*Ground Surface Elevation (ft. AMSL)*	*Surveyed Measuring Point (MP) or Top of Casing (TOC) Elevation (ft AMSL)*	*Top Depth (ft BGS)*	*Top Elevation (ft AMSL)*	*Well Bottom Depth (ft BGS)*	*Well Bottom Elevation (ft AMSL)*	*Well Bottom Depth (ft BTOC or ft BMP)*	*Top Depth (ft BGS)*	*Top Elevation (ft AMSL)*	*Bottom Depth (ft BGS)*	*Bottom Elevation (ft AMSL)*	*Hydrogeologic Unit Designation*
1044	September 25, 2000	532.47	534.43	9.0	523.5	14.0	518.5	16.0	6.5	526.0	14.0	518.5	Overburden
1062	October 6, 2000	542.87	545.01	8.5	534.4	13.5	529.4	15.6	6.5	536.4	13.5	529.4	Overburden
1074	September 25, 2000	526.43	528.41	8.0	518.4	13.0	513.4	15.0	5.0	521.4	13.0	513.4	Overburden
1120	April 26, 2000	521.35	521.14	5.8	515.6	10.8	510.6	10.6	3.8	517.6	11.1	510.3	Overburden
1150	September 22, 2000	528.71	530.38	8.7	520.0	13.7	515.0	15.4	5.3	523.4	13.7	515.0	Overburden
1160	October 2, 2000	533.72	535.62	9.0	524.7	14.0	519.7	15.9	7.0	526.7	15.5	518.2	Overburden
1170	October 5, 2000	535.76	537.92	9.50	526.26	14.50	521.26	16.66	7.50	528.26	14.50	521.26	Overburden
1180	October 6, 2000	542.91	545.34	8.60	534.31	13.60	529.31	16.03	6.60	536.31	13.60	529.31	Overburden
1211	May 24, 2005	537.50	540.18	5.7	531.8	15.7	521.8	18.4	10.7	526.8	15.7	521.8	Overburden
1212	May 23, 2005	537.52	540.15	4.6	532.9	14.6	522.9	17.2	9.6	527.9	14.6	522.9	Overburden
1213	May 13, 2005	539.54	541.46	4.2	535.3	9.2	530.3	11.1	6.7	532.8	9.2	530.3	Overburden
1214	May 13, 2005	540.17	542.20	4.6	535.6	9.6	530.6	11.6	7.1	533.1	9.6	530.6	Overburden
1221	August 19, 2005	527.74	527.41	9.00	518.74	14.00	513.74	13.67	11.50	516.24	14.00	513.74	Overburden
1223	April 13, 2006	522.86	522.30	9.00	513.86	14.00	508.86	13.44	7.00	515.86	14.00	508.86	Overburden
1225	April 11, 2006	515.32	514.69	5.00	510.32	10.00	505.32	9.37	3.00	512.32	10.00	505.32	Overburden
1227	April 12, 2006	514.68	514.16	4.00	510.68	9.00	505.68	8.48	3.00	511.68	9.00	505.68	Overburden
11A	July 27, 1979	535.3	538.48	4.50	530.80	9.50	525.80	12.68	2.50	532.80	9.50	525.80	Overburden
4A	7/27/1979 & reinstalled January 19, 1990	530.8	532.89	10.00	520.80	15.00	515.80	17.09	8.00	522.80	15.00	515.80	Overburden
528A	9/6/1985 Original	537.23	539.96	4.0	534.20	6.0	532.20	7.76	3	535.20	6.0	532.2	Overburden
832R	April 25, 2000	526.4	529.03	11.00	515.39	16.00	510.39	18.64	7.00	519.39	16.50	509.89	Overburden
836R	January 22, 1990	540.42	542.95	2.5	537.9	7.5	532.9	10.0	1.5	538.9	7.5	532.9	Overburden
A-1	July 31, 1979	537.1	537.68	5.37	531.73	15.37	521.73	15.95	5.37	531.73	15.37	521.73	Shallow Bedrock
A-1002	September 22, 1992	535.55	537.57	20.0	515.6	25.0	510.6	27.0	19.0	516.6	25.5	510.1	Shallow Bedrock
A-1004	August 20, 1992	548.08	551.54	14.0	534.1	19.0	529.1	22.5	11.5	536.6	20.0	528.1	Shallow Bedrock
A-1007	August 20, 1992	542.0	543.91	14.0	528.0	19.0	523.0	20.9	12.0	530.0	20.0	522.0	Shallow Bedrock
A-1009	August 19, 1992	541.95	543.98	15.0	527.0	20.0	522.0	22.0	12.5	529.5	20.5	521.5	Shallow Bedrock
A-1010	September 22, 1992	534.6	537.13	21.0	513.6	26.0	508.6	28.5	19.0	515.6	27.0	507.6	Shallow Bedrock
A-1012	September 22, 1992	528.1	530.70	14.0	514.1	19.0	509.1	21.6	12.0	516.1	20.0	508.1	Shallow Bedrock
A-1013	January 1994	542.14	544.64	11.10	531.04	30.70	511.44	33.20	11.10	531.04	30.70	511.44	Shallow Bedrock
A-1014	September 1, 1995	526.96	526.53	18.80	508.16	28.80	498.16	28.37	16.50	510.46	28.80	498.16	Shallow Bedrock

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				Installed Screened/Open Bedrock Interval					*Monitored Interval (Sand Pack/Open Bedrock Interval)*				
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A-1021	January 1994	543.1	545.32	12.10	531.02	31.20	511.92	33.40	12.10	531.02	31.20	511.92	Shallow Bedrock
A-1023	July 1995	532.61	533.71	16.5	516.1	25.5	507.1	26.6	16.5	516.1	25.5	507.1	Shallow Bedrock
A-1024	July 1995	534.5	535.41	11.0	523.5	26.5	508.0	27.4	11.0	523.5	26.5	508.0	Shallow Bedrock
A-1026A	July 1995	534.5	536.09	15.5	519.0	22.0	512.5	23.6	15.5	519.0	20.0	514.5	Shallow Bedrock
A-1027R	May 1997	539.88	541.98	8.5	531.4	27.0	512.9	29.1	8.5	531.4	27.0	512.9	Shallow Bedrock
A-1030	April 1997	520.76	520.43	25.55	495.21	30.55	490.21	30.22	20.0	500.8	31.0	489.8	Shallow Bedrock/Intermediate
A-1033	May 1, 1997	529.02	528.64	21.6	507.4	31.6	497.4	31.2	19.5	509.5	32.0	497.0	Shallow Bedrock
A-1037	May 9, 1997	539.93	541.55	9.0	530.9	29.0	510.9	30.6	9.0	530.9	29.0	510.9	Shallow Bedrock
A-1040	November 1, 1996	538.3	540.80	18.5	519.8	33.6	504.7	36.1	18.5	519.8	33.6	504.7	Shallow Bedrock
A-1041	October 10, 2002	536.79	539.09	17.5	519.3	27.5	509.3	29.8	17.5	519.3	27.5	509.3	Shallow Bedrock
A-1042	October 24, 2000	528.64	530.80	12.0	516.6	22.0	506.6	24.2	12.0	516.6	22.0	506.6	Shallow Bedrock
A-1046	October 20, 2000	533.28	535.40	16.0	517.3	23.5	509.8	25.6	16.0	517.3	23.5	509.8	Shallow Bedrock
A-1048	October 25, 2000	529.09	531.44	12.0	517.1	21.0	508.1	23.4	12.0	517.1	21.0	508.1	Shallow Bedrock
A-1050	May 1, 1997	542.67	544.59	9.0	533.7	28.0	514.7	29.9	9.0	533.7	28.0	514.7	Shallow Bedrock
A-1051	May 2, 1997	544.02	545.69	13.5	530.5	33.5	510.5	35.2	13.5	530.5	33.5	510.5	Shallow Bedrock
A-1052	May 9, 1997	542.24	541.89	9.5	532.7	24.5	517.7	24.2	9.5	532.7	24.5	517.7	Shallow Bedrock
A-1053	May 8, 1997	537.49	537.92	5.0	532.5	20.0	517.5	20.4	5.0	532.5	20.0	517.5	Shallow Bedrock
A-1054	May 6, 1997	534.09	535.55	7.3	526.8	27.2	506.9	28.7	7.3	526.8	27.2	506.9	Shallow Bedrock
A-1064	October 2, 2000	542.55	544.96	12.0	530.6	21.0	521.6	23.4	12.0	530.6	21.0	521.6	Shallow Bedrock
A-1070	October 21, 2000	527.62	529.93	13.5	514.1	23.0	504.6	25.3	13.5	514.1	23.0	504.6	Shallow Bedrock
A-1072	October 21, 2000	527.84	530.13	16.0	511.8	23.0	504.8	25.3	16.0	511.8	23.0	504.8	Shallow Bedrock
A-1076	October 3, 2000	529.54	531.88	15.0	514.5	25.0	504.5	27.3	15.0	514.5	25.0	504.5	Shallow Bedrock
A-1078	October 3, 2000	531.27	533.39	17.0	514.3	25.0	506.3	27.1	17.0	514.3	25.0	506.3	Shallow Bedrock
A-1088	July 15, 1998	536.3	538.00	15.1	521.2	23.0	513.3	24.7	15.1	521.2	23.0	513.3	Shallow Bedrock
A-1092	October 3, 2000	535.45	537.69	18.0	517.5	26.0	509.5	28.2	18.0	517.5	26.0	509.5	Shallow Bedrock
A-1096	October 16, 2000	534.9	536.31	14.5	520.4	23.5	511.4	24.9	14.5	520.4	23.5	511.4	Shallow Bedrock
A-1098	October 13, 2000	535.46	537.63	14.5	521.0	24.5	511.0	26.7	14.5	521.0	24.5	511.0	Shallow Bedrock
A-1104	September 18, 2000	524.72	526.86	16.0	508.7	19.0	505.7	21.1	16.0	508.7	19.0	505.7	Shallow Bedrock

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A-1106	September 18, 2000	527.21	529.41	16.0	511.2	23.0	504.2	25.2	16.0	511.2	23.0	504.2	Shallow Bedrock
A-1122	May 9, 2000	521.84	521.62	27.0	494.8	32.0	489.8	31.8	22.0	499.8	32.0	489.8	Shallow Bedrock/Intermediate
A-1140	September 20, 2000	526.78	528.87	16.0	510.8	25.0	501.8	27.1	16.0	510.8	25.0	501.8	Shallow Bedrock
A-1190	October 17, 2000	528.65	530.74	15.0	513.7	24.5	504.2	26.6	15.0	513.7	24.5	504.2	Shallow Bedrock
A-1200	October 20, 2000	531.93	533.91	15.0	516.9	23.5	508.4	25.5	15.0	516.9	23.5	508.4	Shallow Bedrock
A-1210	October 25, 2000	535.45	537.56	18.0	517.5	28.0	507.5	30.1	18.0	517.5	28.0	507.5	Shallow Bedrock
A-1215	May 16, 2005	537.47	539.99	20.0	517.5	30.0	507.5	32.5	25.0	512.5	30.0	507.5	Shallow Bedrock
A-1216	April 15, 2005	537.58	540.22	20.00	517.6	30.00	507.6	32.6	25.00	512.6	30.00	507.6	Shallow Bedrock
A-1217	May 13, 2005	539.59	541.45	14.6	525.0	24.6	515.0	26.4	19.6	520.0	24.6	515.0	Shallow Bedrock
A-1218	April 15, 2005	540.11	541.61	14.50	525.6	24.50	515.6	26.0	19.50	520.6	24.50	515.6	Shallow Bedrock
A-1220	August 18, 2005	527.65	527.26	19.59	508.06	24.59	503.06	24.20	22.09	505.56	24.59	503.06	Shallow Bedrock
A-1222	April 13, 2006	522.58	522.16	23.00	499.58	28.00	494.58	27.58	21.00	501.58	29.00	493.58	Shallow Bedrock
A-1224	April 11, 2006	515.10	514.63	17.00	498.10	22.00	493.10	21.53	15.00	500.10	23.00	492.10	Shallow Bedrock
A-1226	April 13, 2006	514.74	514.40	16.00	498.74	21.00	493.74	20.66	14.00	500.74	22.00	492.74	Shallow Bedrock
A-16	December 1, 1983	528.88	528.54	14.50	515.30	24.50	505.30	23.24	24.9	515.30	34.9	505.30	Shallow Bedrock
A-18	December 2, 1983	526.25	527.83	11.90	513.00	21.90	503.00	24.83	13.25	513.00	23.25	503.00	Shallow Bedrock
A-19	December 5, 1983	526.9	526.57	10.60	516.30	20.60	506.30	20.27	10.60	516.30	20.60	506.30	Shallow Bedrock
A-2	August 6, 1979	538.4	540.05	7.49	530.91	17.49	520.91	19.14	7.49	530.91	17.49	520.91	Shallow Bedrock
A-3	December 6, 1983 (redrilled)	539.4	540.28	8.30	531.10	18.30	521.10	19.18	8.30	531.10	18.30	521.10	Shallow Bedrock
A-4	August 2, 1979	539.5	541.36	5.93	533.57	15.93	523.57	17.79	5.93	533.57	15.93	523.57	Shallow Bedrock
A-5	August 1, 1979	527.2	531.29	11.69	515.51	21.69	505.51	25.78	11.69	515.51	21.69	505.51	Shallow Bedrock
A-524	October 20, 1985	524.2	526.50	11.5	512.7	33.0	491.2	35.3	11.5	512.7	33.0	491.2	Shallow Bedrock
A-535A	January 14, 1990	542.4	544.58	17.0	525.4	22.0	520.4	24.2	15.0	527.4	22.0	520.4	Shallow Bedrock
A-538	November 7, 1985	544.29	546.51	6.0	538.3	16.0	528.3	18.2	6.0	538.3	16.0	528.3	Shallow Bedrock
A-539	November 7, 1985	532.68	532.29	8.0	524.7	18.0	514.7	17.6	8.0	524.7	18.0	514.7	Shallow Bedrock
A-540	November 6, 1985	535.69	537.48	11.5	524.2	21.5	514.2	23.3	11.5	524.2	21.5	514.2	Shallow Bedrock
A-541A	November 5, 1985	536.1	538.59	18.0	518.1	23.0	513.1	25.5	16.0	520.1	23.0	513.1	Shallow Bedrock
A-542RX	September 10, 1998	535.4	538.48	7.00	528.40	27.40	508.00	30.48	4.90	530.50	27.40	508.00	Shallow Bedrock
A-544	November 6, 1985	533.4	536.27	10.5	522.9	20.5	512.9	23.4	10.5	522.9	20.5	512.9	Shallow Bedrock

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A-545	November 5, 1985	533.3	536.36	10.0	523.3	20.0	513.3	23.1	10.0	523.3	20.0	513.3	Shallow Bedrock
A-546	November 4, 1985	525.1	525.93	6.5	518.6	16.5	508.6	17.3	6.5	518.6	16.5	508.6	Shallow Bedrock
A-547	November 6, 1985	524.5	525.49	13.0	511.5	23.0	501.5	24.0	13.0	511.5	23.0	501.5	Shallow Bedrock
A-548	November 7, 1985	524.3	525.54	13.0	511.3	23.0	501.3	24.2	13.0	511.3	23.0	501.3	Shallow Bedrock
A-549	November 4, 1985	522.4	523.49	12.0	510.4	22.0	500.4	23.1	12.0	510.4	22.0	500.4	Shallow Bedrock
A-650A	modified Jan-94	538.9	540.33	7.1	531.8	28.9	510.0	30.3	7.1	531.8	28.9	510.0	Shallow Bedrock
A-651A	modified Jan-94	539.6	541.73	8.6	531.0	27.0	512.6	29.1	8.6	531.0	27.0	512.6	Shallow Bedrock
A-6A	8/3/1979 & reinstalled January 16, 1990	536.3	538.44	20.00	516.30	25.00	511.30	27.14	18.00	518.30	25.00	511.30	Shallow Bedrock
A-753A	January 1994	541.8	552.67	14.0	527.8	27.0	514.8	37.9	14.0	527.8	27.0	514.8	Shallow Bedrock
A-755A	December 10, 1987	533.5	537.77	13.5	520.0	17.5	516.0	21.8	13.5	520.0	17.5	516.0	Shallow Bedrock
A-756X	February 1994	542.1	544.87	16.2	525.9	30.9	511.2	33.7	11.5	530.6	31.0	511.1	Shallow Bedrock
A-757X	September 1995	542.2	547.14	12.7	529.5	27.7	514.5	32.6	10.70	531.50	27.70	514.50	Shallow Bedrock
A-758X	September 1996	533.8	539.10	6.30	527.50	21.30	512.50	26.60	4.30	529.50	21.30	512.50	Shallow Bedrock
A-759X	August 10, 1998	528.87	532.46	13.80	515.07	23.80	505.07	27.39	12.00	516.87	23.80	505.07	Shallow Bedrock
A-760X	August 14, 1998	534.3	537.65	12.00	522.30	22.00	512.30	25.35	9.70	524.60	22.00	512.30	Shallow Bedrock
A-857	9/2/1990 & modified casing in 1999	528.53	528.28	43.04	499.20	48.04	494.20	34.08	40.04	502.20	48.54	493.70	Shallow Bedrock
A-858A	October 3, 1990 and modified in 'December	531.6	533.64	30.3	507.20	35.3	502.20	31.44	28.8	508.70	37.3	500.20	Shallow Bedrock
A-864	February 13, 1990	539.4	541.44	13.5	525.9	23.5	515.9	25.5	11.0	528.4	13.5	525.9	Shallow Bedrock
A-866	February 23, 1990	538.9	541.03	16.0	522.9	26.0	512.9	28.1	12.0	526.9	26.0	512.9	Shallow Bedrock
AB-520	August 27, 1985	524.6	523.96	13.5	511.1	50.0	474.6	49.4	13.5	511.1	50.0	474.6	Shallow Bedrock/Intermediate
AB-521	August 27, 1985	524.6	523.84	13.50	511.10	46.00	478.60	45.24	13.50	511.10	46.00	478.60	Shallow Bedrock/Intermediate
AB-529A	9/24/1985 & modified by grouting bottom in 2	532.5	535.14	8.5	524.0	16.0	516.5	18.6	8.5	524.0	16.0	516.5	Shallow Bedrock
AB-543	November 7, 1985	527.99	528.26	11.0	517.0	21.0	507.0	21.3	11.0	517.0	21.0	507.0	Shallow Bedrock
AB-7	November 11, 1981	526.61	527.26	16.20	510.41	40.00	486.61	40.65	16.20	510.41	40.00	486.61	Shallow Bedrock/Intermediate
AB-9	November 12, 1981	528.84	528.51	15.00	513.84	40.00	488.84	39.67	15.00	513.84	40.00	488.84	Shallow Bedrock/Intermediate
B-1016	8/28/1991 & casing modified in fall 2003	521.12	520.13	54.8	486.1	59.8	481.1	39.0	52.8	488.1	60.3	480.6	Shallow Bedrock/Intermediate
B-11	November 18, 1981	527.1	526.79	18.20	508.90	40.00	487.10	39.69	18.20	508.90	40.00	487.10	Shallow Bedrock/Intermediate
B-1219	April 14, 2005	537.72	539.87	33.40	504.3	43.40	494.3	45.6	38.40	499.3	43.40	494.3	Deep Bedrock Unit 1
B-13	November 19, 1981	527.4	527.08	18.50	508.90	40.00	487.40	39.68	18.50	508.90	40.00	487.40	Shallow Bedrock/Intermediate
B-534A	September 28, 1985	542.5	535.98	35.0	507.5	40.0	502.5	33.5	33.0	509.5	42.0	500.5	Shallow Bedrock

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B-536A	January 16, 1986	527.2	530.58	32.0	495.2	37.0	490.2	40.4	30.0	497.2	37.5	489.7	Deep Bedrock Unit 1
B-859	October 2, 1990	530.8	533.22	45.00	485.80	50.00	480.80	52.42	43.80	487.00	54.00	476.80	Deep Bedrock Unit 1
B-867	February 2, 1990	539.3	541.17	55.0	484.3	65.0	474.3	66.9	45.00	494.30	75.60	463.70	Deep Bedrock Unit 2
BC-522A	9/13/1985 & reinstalled December 1992	523.7	523.52	60.3	463.4	70.3	453.4	70.1	55.0	468.7	70.4	453.3	Deep Bedrock Unit 3
BC-752X	December 7, 1987	545.0	548.72	17.1	527.9	78.0	467.0	81.7	17.1	527.9	78.0	467.0	Deep Bedrock Unit 1 and 2
C-1001	August 31, 1992	533.4	535.28	48.0	485.4	58.0	475.4	59.9	45.4	488.0	59.0	474.4	Deep Bedrock Unit 2
C-1005	August 13, 1992	547.53	550.66	47.5	500.0	57.5	490.0	60.6	45.0	502.5	60.5	487.0	Deep Bedrock Unit 2
C-1006	July 22, 1992	542.2	544.86	55.00	487.20	60.00	482.20	62.66	52.50	489.70	60.50	481.70	Deep Bedrock Unit 1
C-1008	August 6, 1992	541.8	544.21	59.0	482.8	69.0	472.8	71.4	56.0	485.8	69.5	472.3	Deep Bedrock Unit 2
C-1017	8/27/1991 & casing modified in fall 2003	522.4	522.37	57.0	465.4	62.0	460.4	62.0	55.0	467.4	75.0	447.4	Deep Bedrock Unit 3
C-1022	September 1995	527.25	526.95	52.50	474.75	62.20	465.05	61.90	49.20	478.05	62.20	465.05	Deep Bedrock Unit 2
C-1025	July 1995	534.9	536.62	49.6	485.3	59.6	475.3	61.3	46.0	488.9	59.6	475.3	Deep Bedrock Unit 2
C-1031	May 1997	521.24	520.68	42.7	478.5	52.8	468.4	52.2	41.0	480.2	53.0	468.2	Deep Bedrock Unit 2
C-1034	May 1997	528.86	528.36	50.35	478.51	60.35	468.51	59.85	48.10	480.76	61.50	467.36	Deep Bedrock Unit 2
C-1035	May 1997	526.84	526.36	90.40	436.44	100.40	426.44	99.92	85.20	441.64	101.00	425.84	Deep Bedrock Unit 3
C-1036	May 1997 & modified casing in 1999	528.29	528.20	113.0	427.1	123.0	417.1	111.1	102.8	437.3	123.6	416.5	Deep Bedrock Unit 3
C-1082	October 2000	528.04	530.19	29.5	498.5	44.5	483.5	46.7	29.5	498.5	44.5	483.5	Deep Bedrock Unit 1
C-1094	October 2000	544.56	546.36	49.5	495.1	54.5	490.1	56.3	35.0	509.6	54.5	490.1	Deep Bedrock Unit 1
C-1100	October 19, 1996	532.33	534.20	36.0	496.3	44.0	488.3	45.9	36.0	496.3	44.0	488.3	Deep Bedrock Unit 1
C-1108	October 5, 2000	535.12	537.36	35.0	500.1	54.5	480.6	56.7	35.0	500.1	54.5	480.6	Deep Bedrock Unit 1
C-1124	May 9, 2000	521.7	521.35	51.0	470.7	56.0	465.7	55.7	44.8	476.9	56.0	465.7	Deep Bedrock Unit 2
C-530	September 15, 1985	540.9	543.15	60.00	480.90	77.00	463.90	79.25	60.00	480.90	77.00	463.90	Deep Bedrock Unit 2
C-532	September 24, 1985	532.8	535.36	53.0	479.8	72.0	460.8	74.6	53.0	479.8	72.0	460.8	Deep Bedrock Unit 2
C-533	9/21/1985 & casing raised during 1987-1988 North	525.4	527.67	78.6	466.4	94.6	450.4	77.3	78.6	466.4	94.6	450.4	Deep Bedrock Unit 3
C-637	July 8, 1986	541.0	542.32	51.0	490.0	70.0	471.0	71.3	51.0	490.0	70.0	471.0	Deep Bedrock Unit 2
C-860	October 2, 1990	539.1	540.94	75.00	464.10	85.00	454.10	86.84	63.00	476.10	85.50	453.60	Deep Bedrock Unit 3
C-861	January 10, 1990	539.6	541.39	75.0	464.6	85.0	454.6	86.8	62.0	477.6	95.0	444.6	Deep Bedrock Unit 3
C-862	January 20, 1990	539.0	540.90	76.00	463.00	81.00	458.00	82.90	71.50	467.50	85.50	453.50	Deep Bedrock Unit 3
C-863	February 7, 1990	540.1	542.01	75.00	465.10	85.00	455.10	86.91	64.50	475.60	90.00	450.10	Deep Bedrock Unit 3
C-865	January 15, 1990	539.7	541.61	56.0	483.7	66.0	473.7	67.9	46.0	493.7	76.0	463.7	Deep Bedrock Unit 2
C-EX1	April 22, 2005	526.14	529.16	12.3	513.9	22.3	503.9	25.3	17.3	508.9	22.3	503.9	Shallow Bedrock

APPENDIX A
FMC MIDDLEPORT WELL CONSTRUCTION SUMMARY

GROUNDWATER MONITORING PROGRAM

				Installed Screened/Open Bedrock Interval					***Monitored Interval (Sand Pack/Open Bedrock Interval)***				
Well ID	***Installation Date***	***Ground Surface Elevation (ft. AMSL)***	***Surveyed Measuring Point (MP) or Top of Casing (TOC) Elevation (ft AMSL)***	***Top Depth (ft BGS)***	***Top Elevation (ft AMSL)***	***Well Bottom Depth (ft BGS)***	***Well Bottom Elevation (ft AMSL)***	***Well Bottom Depth (ft BTOC or ft BMP)***	***Top Depth (ft BGS)***	***Top Elevation (ft AMSL)***	***Bottom Depth (ft BGS)***	***Bottom Elevation (ft AMSL)***	***Hydrogeologic Unit Designation***
C-EX2	April 20, 2005	531.95	535.03	15.3	516.6	25.3	506.6	28.4	20.3	511.6	25.3	506.6	Shallow Bedrock
DE-1003	September 2, 1992	543.45	545.87	95.00	448.45	105.00	438.45	107.42	93.00	450.45	122.00	421.45	Deep Bedrock Unit 3
D-EX1	May 18, 2005	535.04	538.51	18.1	516.9	28.1	506.9	31.6	23.1	511.9	28.1	506.9	Shallow Bedrock
D-EX2	May 12, 2005	536.49	540.01	18.1	518.4	28.1	508.4	31.7	23.1	513.4	28.1	508.4	Shallow Bedrock
G-EX1	May 20, 2005	537.75	540.84	18.2	519.6	28.2	509.6	31.3	23.2	514.6	28.2	509.6	Shallow Bedrock
G-EX2	May 9, 2005	539.77	542.57	18.3	521.5	28.3	511.5	31.1	23.3	516.5	28.3	511.5	Shallow Bedrock
G-EX3	May 4, 2005	541.68	544.80	18.3	523.4	28.3	513.4	31.4	23.3	518.4	28.3	513.4	Shallow Bedrock
SDGI A-5	December 16, 2002	515.1	516.42	19.0	496.1	29.0	486.1	30.3	18.0	497.1	30.0	485.1	Shallow Bedrock
SDGI B-1	November 7, 2002	532.3	534.07	22.0	510.3	32.0	500.3	33.8	20.0	512.3	32.0	500.3	Shallow Bedrock
SDGI B-3	November 19, 2002	506.5	508.51	24.0	482.5	34.0	472.5	36.0	23.0	483.5	34.0	472.5	Deep Bedrock Unit 2
SDGI C-4	January 2, 2003	540.0	541.14	78.0	462.0	88.0	452.0	89.1	76.0	464.0	88.0	452.0	Deep Bedrock Unit 3
SDGI C-5	December 17, 2002	514.6	515.56	68.0	446.6	78.0	436.6	79.0	66.0	448.6	78.0	436.6	Deep Bedrock Unit 3
SDGI D-1	October 16, 2002	532.5	534.10	95.0	437.5	105.0	427.5	106.6	93.0	439.5	105.0	427.5	Deep Bedrock Unit 3
SDGI D-2	November 13, 2002	538.3	539.97	101.00	437.30	116.00	422.30	117.67	99.00	439.30	116.50	421.80	Deep Bedrock Unit 3
SDGI D-3	November 21, 2002	506.5	508.15	64.0	442.5	79.0	427.5	80.7	64.0	442.5	79.0	427.5	Deep Bedrock Unit 3
SDGI-OB1	November 16, 2002	532.4	534.68	7.0	525.4	12.0	520.4	14.3	6.0	526.4	12.0	520.4	Overburden
TAP-1	October 29, 1996	543.34	545.84	24.5	518.8	29.5	513.8	32.0	12.0	531.3	29.5	513.8	Shallow Bedrock
TAP-2	October 9, 2002	544.21	546.38	24.0	520.2	34.0	510.2	36.2	22.0	522.2	34.0	510.2	Shallow Bedrock
TAP-3	October 9, 2002	540.97	543.63	20.0	521.0	30.0	511.0	32.7	18.0	523.0	30.0	511.0	Shallow Bedrock
TBP-1	September 1995	534.3	537.26	11.9	522.4	16.9	517.4	19.9	8.0	526.3	16.9	517.4	Shallow Bedrock
TBP-2	October 3, 2002	533.71	536.14	16.0	517.7	21.0	512.7	23.4	15.0	518.7	21.5	512.2	Shallow Bedrock
TBP-3	October 4, 2002	534.05	535.97	16.5	517.6	21.5	512.6	23.4	15.5	518.6	21.5	512.6	Shallow Bedrock
TCP-1	August 12, 1998	531.76	534.29	17.5	514.3	22.5	509.3	25.0	13.4	518.4	22.5	509.3	Shallow Bedrock
TCP-2	August 11, 1998	524.3	527.01	13.3	511.0	18.3	506.0	21.0	11.9	512.4	18.3	506.0	Shallow Bedrock
TCP-3	October 3, 2002	531.91	533.99	16.5	515.4	21.5	510.4	23.6	16.0	515.9	21.5	510.4	Shallow Bedrock
TCP-4	October 2, 2002	529.67	531.39	15.5	514.2	20.5	509.2	22.2	14.5	515.2	22.0	507.7	Shallow Bedrock
TCP-5	October 2, 2002	529.05	530.74	15.0	514.1	20.0	509.1	21.7	14.0	515.1	20.0	509.1	Shallow Bedrock

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TCP6	April 25, 2005	524.83	526.27	8.4	516.4	18.4	506.4	19.9	13.4	511.4	18.4	506.4	Shallow Bedrock
TDP-1	August 13, 1998	536.3	539.16	14.0	522.3	19.0	517.3	21.9	13.1	523.2	19.0	517.3	Shallow Bedrock
TDP-2	October 7, 2002	535.12	537.29	14.0	521.1	21.0	514.1	23.2	13.0	522.1	21.0	514.1	Shallow Bedrock
TDP-3	October 8, 2002	535.48	537.41	16.0	519.5	21.0	514.5	22.9	15.0	520.5	21.0	514.5	Shallow Bedrock
TDP4	May 19, 2005	535.02	537.60	15.7	519.3	25.7	509.3	28.3	20.7	514.3	25.7	509.3	Shallow Bedrock
TDP5	May 10, 2005	536.35	539.05	15.6	520.7	25.6	510.7	28.3	20.6	515.7	25.6	510.7	Shallow Bedrock
TEP-1	September 1995	542.3	544.75	24.7	517.6	29.7	512.6	32.2	15.0	527.3	29.7	512.6	Shallow Bedrock
TEP-2	September 11, 1998	543.42	542.85	23.9	519.5	28.9	514.5	28.3	12.2	531.2	28.9	514.5	Shallow Bedrock
TGP1	May 23, 2005	537.75	540.46	15.8	521.9	25.8	511.9	28.5	20.8	516.9	25.8	511.9	Shallow Bedrock
TGP2	May 5, 2005	540.00	540.91	15.6	524.4	25.6	514.4	26.5	20.6	519.4	25.6	514.4	Shallow Bedrock
TGP3	May 3, 2005	541.50	543.66	15.3	526.2	25.3	516.2	27.5	20.3	521.2	25.3	516.2	Shallow Bedrock