



**UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
(USEPA)**

**NEW YORK STATE DEPARTMENT OF  
ENVIRONMENTAL CONSERVATION  
(NYSDEC)**

**NEW YORK STATE DEPARTMENT OF  
HEALTH  
(NYSDOH)**

# **PUBLIC COMMENT RESPONSIVENESS SUMMARY**

**FMC – MIDDLEPORT FACILITY  
RCRA FACILITY INVESTIGATION (RFI) REPORT  
VOLUMES I, II & IV**

**SEPTEMBER 2009**

## **INTRODUCTION:**

The United States Environmental Protection Agency (USEPA), the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH), hereafter collectively referred to as the “Agencies”, have prepared this document to provide responses to public comments on Volumes I, II & IV of FMC’s Draft RCRA Facility Investigation (RFI) Report pertaining to its Middleport, New York Facility. These Draft RFI Report volumes were submitted in accordance with 1991 Administrative Order on Consent (AOC), and represent a compilation of environmental data on past chemical releases affecting certain off-site areas. The historic information on past FMC facility operations and waste disposal practices, as well as releases to the environment, are contained in Draft RFI Report Volume I. Draft RFI Report Volume II contains the results of soil / sediment sampling and chemical analyses within “Air Deposition Study Area #1”, which is an area of off-site properties in the vicinity of the FMC Facility that is bounded by the Erie Canal to the north and the Niagara / Orleans County Line to the east, and which includes off-site properties traversed by the Culvert 105 storm sewer south of the Canal. Draft RFI Report Volume IV contains the results of soil, sediment and surface water sampling and chemical analyses along the flood zone of the Culvert 105 storm sewer north of the Canal.

After reviewing these report volumes and making a preliminary determination that they contain sufficient information to adequately characterize FMC-related environmental contamination in the aforementioned off-site areas, the Agencies provided the public with an opportunity to review and comment on these FMC Draft RFI Report volumes. Public notification of this involvement opportunity was provided on or about May 16, 2009 via newspaper notice, the NYSDEC’s on-line Environmental News Bulletin (ENB) and a community mailing conducted with FMC’s assistance. This notification indicated that the FMC Draft RFI Report volumes were available to the public both on-line and in hard copy form, and announced a 45 day written comment period running from May 18, 2009 through July 2, 2009, as well as a public information and comment session held at the Middleport Fire Hall on June 10, 2009.

## **AGENCIES’ DECISION:**

The Agencies received 12 written comment documents from the public (i.e., letters, E-mails, comment cards) during the May 18, 2009 through July 2, 2009 comment period from individuals and organizations, regarding the FMC Draft RFI Report Volumes I, II & IV. The Agencies also received written transcripts from the June 10, 2009 and a set of written comments from FMC. The Agencies’ review of these comments, including those made during the June 10, 2009 public session, has not identified any substantive and significant issues specifically related to the FMC Draft RFI Report volumes. Therefore, in accordance with the 1991 AOC, The USEPA and NYSDEC, in consultation with the NYSDOH, have decided to approve Volumes I, II & IV of the FMC RFI Report with some minor modifications which are described in this Responsiveness Summary. As a result of this approval, and based on the information contained in these FMC RFI Report volumes, the USEPA and NYSDEC are requiring FMC to conduct a Corrective Measures Study (CMS) to evaluate what, if any, corrective measures are necessary to be taken by

FMC with respect to FMC-related soil / sediment contamination on certain properties/areas within Air Deposition Area #1 (as depicted on Figure 9.1 in RFI Report Volume II) and along Culvert 105 (as depicted on Figure 8.1 in RFI Report Volume IV).

**RESPONSIVENESS SUMMARY FORMAT & CONTENT:**

This Responsiveness Summary is divided up into two (2) main Sections. The first, Section I, presents the public's general and specific comments, and the Agencies' responses to these comments. The second, Section II, presents comments from FMC, and the Agencies' responses to these comments. The general content of this summary is described below, and a Table of Contents is provided following this introduction.

Section I contains 8 general comments which were paraphrased by Agencies from public comment documents, including the transcripts from the June 10, 2009 Information/Comment Session. The Agencies have paraphrased these general comments to summarize multiple comments on the same topic and avoid unnecessary repetition of similar comments/responses. The Agencies have made every effort to retain the meaning and intent of each original general comment by using actual text from these comments in the paraphrasing. Section I also contains 16 specific comments from public comment documents which are presented much as they appear in the original comment document. Under each paraphrased and specific public comment in this section, an Agencies' response to the comment is provided, along with a description of any modifications to the RFI Report volumes the Agencies are requiring FMC to make as a result of the public comment. Section II contains 5 comments from FMC and Agencies' responses to each comment.

A directory is included at the beginning of this Responsiveness Summary listing the names of individuals and/or organizations who submitted comments, and indicating the paraphrased and/or specific comment #s which pertain to their comments.

In addition, Appendix A of the Responsiveness Summary contains the actual comment documents received, including the June 10, 2009 Public Session transcripts (hard copy version only).

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## COMMENT DIRECTORY

<b>Com. Doc. #</b>	<b>Commenter's Name and/or Organization</b>	<b>Date of Comments</b>	<b>Form of Comments</b>	<b>Comment/Response #s Pertaining to Original Comments</b>
1	Arnold, William	6-1-09	Letter	G: 1, 2, 3 S: 3, 4, 5, 6, 7, 8, 9
2	Arnold, William, Chairman Middleport Community Input Group	6-10-09	Session Transcript	G: 1, 2, 3 S: 1, 2
3	Arnold, William, Chairman Middleport Community Input Group	7-2-09	E-Mail	G: 1, 3, 4, 5, 6 S: 10, 11
4	Bartholomieu, Rhonda	6-10-09	Session Transcript	G: 6
5	Bateman, Elizabeth	5-18-09	Comment Card	G: 3
6	Koenig, Jean & Herb	6-1-09	Comment Card	S: 12
7	Lok, James	5-18-09	Comment Card	S: 12
8	McGinnis, Brian, Project Manager FMC Corporation	7-2-09	Letter	F: 1, 2, 3, 4, 5
9	Owen, Richard	6-10-09	Session Transcript	G: 3, 5
10	Peters, Kylee	6-5-09	Comment Card	S: 13
11	Pratt, Keri & David	6-10-09	Comment Card	S: 14
12	Seaman, Daniel, Village Attorney Village of Middleport	7-1-09	Letter	G: 4
13	Storch, Elizabeth	6-9-09	Letter	G: 1, 2, 5, 8
14	Storch, Elizabeth	6-10-09	Session Transcript	G: 1
15	Townsend, Homer & Bettina	6-19-09	Letter	G: 1, 5, 6, 7
16	Unknown #1	5-20-09	Comment Card	S: 15
17	Unknown #2	7-2-09	Comment Card	
18	Westcott, Richard, Village Trustee Village of Middleport	6-10-09	Session Transcript	G: 4

**FOOTNOTE:**

1. The letter "G" in front of the Comment #s indicate that these are general paraphrased public comments contained in Section I. The letter "S" in front of the Comment #s indicate that these are specific public comments contained in Section I. The letter "F" in front of the Comment #s indicate these are FMC comments contained in Section II.

**RESPONSIVENESS  
SUMMARY**

**SECTION I  
GENERAL AND SPECIFIC  
PUBLIC COMMENTS  
&  
AGENCIES' RESPONSES**

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Section I – General and Specific Public Comments & Responses

**General Comment No:** 1

**Comment Topic:** Potential Human Health Risks of Arsenic in Soil

**Paraphrased General Comment:**

- a. What measurable human health benefit can be achieved by reducing levels of arsenic contamination in residential soil from 35/40 parts per million (ppm) to 20 ppm?
- b. Can it be shown that there is a human health problem existing in Middleport that may be attributable to arsenic contamination in the community? Are there any measurable signs of increased disease in Middleport residents? Are there any indications that arsenic is elevated in the bodies of residents? Will studies be included in the Corrective Measures Study to determine if any problems like these exist?
- c. When arsenic gets into any water system, it poses a far greater risk to human health than when arsenic is contained in soil. It is proper for the state and federal agencies to address areas in Middleport where arsenic has intermingled with water. When arsenic in soil gets into the 100s of parts per million is also a time when these agencies need to address the issue. However, the agencies are getting carried away with the issue of arsenic in soil in air deposition areas, and much of RFI Volume II is an overreaction and loss of common sense.
- d. New York State law (Section 27-1415.6(b)) states that constituents such as arsenic should not cause more than one human death in a million people. While, preventing more than one cancer death in a million people is not a bad thing, it is an unrealistic goal. There are statistical odds of dying from other things which are much higher than one in a million, such as dying in an automobile which is under 1 in 20,000. We as human beings cannot protect ourselves from dying to a one in a million degree. Any such laws make no sense.
- e. There have been many scientific studies and presentations made by experts in the field which put into question the supposed harm to human health posed by arsenic in soil. These include: 1. The 2003-2004 Exponent Study which showed that over 400 Middleport residents had no elevated arsenic in their bodies; 2. Presentations by Dr. Teresa Bowers consistently stating that the amounts of arsenic in the air deposition area soils is not that bioavailable; 3. The animal study which showed that monkeys did not get sick from the amount of arsenic found in Middleport air deposition area soils; and 4. A March 20, 2007 CDC study in Omaha, Nebraska which showed that a health risk to children exhibiting pica (soil eating) behavior does not occur until soil arsenic concentrations reach 70 parts per million. However, the agencies continually seem to discount these scientific findings.

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Health risk assessments should take into account past Middleport studies such as 1 & 3 above, or the Agencies should demonstrate with facts, how the current levels of arsenic in Middleport soil are actually affecting the health of Middleport residents.

- f. Dr. Bower's research and that of others indicates that the bioavailability of arsenic in the soil is very low, meaning that you can be on the soil and even grow vegetables in it. You can do your normal activities and not be in any danger of getting cancer. I feel safe living in the Middleport community.
- g. The arsenic level triggering possible remedial activities should be raised from the artificially low number used during previous remediations. All village citizens should be informed of the extremely low level of risk (to the point of no risk) that exists. Real estate agents should be permitted to disclose this "no risk" information to potential buyers.

**Agencies' Response:**

In responding to the above comment, the Agencies would first like to state that portions of this comment deal with topics beyond the scope of the RFI Report. Comments such as these are more relevant to topics associated with the upcoming FMC Corrective Measures Study (FMC). Although there will be public participation opportunities during this CMS process, the Agencies have presented the following responses to these comments to provide some general information on arsenic and public health.

- a. Peoples' physical response to chemical exposure, such as exposure to arsenic in soil, manifests itself in different ways. The likelihood of a person having health effects from exposure to arsenic in soil depends on several factors including the dose, or how much exposure they receive. The greater the amount of a substance a person is exposed to (e.g., the higher the concentration), the more likely that health effects will occur, particularly for arsenic-related health effects without a threshold value (e.g., cancer). Therefore, with all other factors being equal, exposure to 35 ppm or 40 ppm arsenic is expected to be more associated with potential health effects than exposure 20 ppm arsenic, even if those health effects are not immediately measurable. Many health effects associated with arsenic exposure, such as cancer, may not appear until five to forty years after an exposure has occurred and thus, may not be immediately measurable. Therefore, it cannot be inferred that lack of "measured" health effects at a given point in time indicates that there is no association between arsenic exposure and health effects or that there is no health benefit from reducing the concentration of arsenic to which a person may be exposed.

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The calculated risks associated with various concentrations of arsenic were calculated and presented in the Agencies fact sheet entitled *June 18, 2008 Meeting Topics-MCIG Questions and Answers Responses*.

- b. The 2004 Middleport Environmental Exposure Investigation performed by FMC concluded that no clear evidence of elevated exposure from arsenic in soil was found among the study participants, as measured in urinary arsenic and toenail arsenic levels. A 1987 Biological monitoring study for arsenic and lead in Middleport Elementary and Royalton-Hartland School junior and senior high schools completed by the New York State Department of Health concluded that there was no statistical difference in the mean urinary arsenic levels or the mean hair arsenic concentrations between the students in Middleport as compared to the students at a control school in Rensselaer County, NY. These studies evaluated the potential for elevated exposure to soil arsenic, as indicated by urinary arsenic levels and toenail sample arsenic levels. These studies were not focused on potential health effects from arsenic exposure and cannot be extrapolated to conclude that there are no “measurable” health effects from exposure to arsenic in Middleport soils. To date, FMC has not proposed additional exposure studies as part of the Corrective Measures Study. Also, it should be noted that a number of participants in the 2004 study resided on properties whose soil arsenic concentrations were indicative of local background (< 20 ppm), and there was no information presented as to the amount of contact, if any, participants in the study had with the soil during the period of the study.

The long latency period for cancer to develop, the mobility of the general population and individual susceptibilities to diseases, make it very difficult to determine the exact cause(s) of adverse health effects. However, there is sufficient scientific information which demonstrates that arsenic is known to cause cancer in humans and is associated with other non-cancer health effects such as stomach irritation, nervous system effects, blood vessel damage and skin effects. Given this information, the Agencies recognize the importance of minimizing exposures to arsenic in soil to the extent possible.

- c. People generally drink far more water than they ingest soil. As such, a contaminant in water may represent a greater health risk than the same contaminant at the same concentration in soil.

FMC is conducting the RCRA Facility Investigation in accordance with terms of a 1991 EPA/DEC Order on Consent. This order requires FMC to conduct a detailed study to evaluate the extent of contamination in the vicinity of their Middleport plant site. This characterization of the potential extent of contamination is a necessary step that must be completed before decisions can be made about what steps might be appropriate to address elevated contaminant levels.

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- d. New York State Legislation (Section 27-1415.6(b)) does state that soil clean-up objectives shall not exceed an excess cancer risk of one-in-one million ( $10^{-6}$ ). However, if the background soil concentration in rural soils is greater than the soil concentration associated with the  $10^{-6}$  cancer risk level, then background levels may be used as clean-up action objectives. For arsenic, the NYSDOH has determined that the soil concentration associated with a  $10^{-6}$  cancer health risk is less than 1 ppm. This risk-based concentration is significantly lower than the Middleport local soil arsenic background (determined from the Gasport Background Study) and is also significantly lower than arsenic soil background in other portions of New York State (generally considered to range from 2 to 20 ppm).
- e. Arsenic is a known human carcinogen. There is strong evidence of arsenic carcinogenicity and of non-carcinogenic health effects based on large scale epidemiological studies. The NYSDOH has determined that the soil concentration associated with the  $10^{-6}$  cancer risk level (the maximum cancer risk level allowed by New York State legislation) for arsenic is less than 1.0 ppm. There are uncertainties in estimating the potential human health risk for individual exposures to arsenic in soil.

The Agencies have an obligation to minimize, to the extent practical, both current and potential future human exposure to elevated levels of arsenic in soil. We believe that, for a number of the residential properties sampled within and beyond the Village of Middleport, the levels of soil arsenic associated with historic FMC releases may warrant actions to minimize the potential for human exposure to these soils.

- f. As the Agencies have previously stated, the absorption of arsenic from soil is a complex process that is influenced by many factors such as soil type, soil arsenic concentration, arsenic type, absorption differences between adults and children, fasting status, etc. These factors can differ across properties and people and therefore do not support a global statement that arsenic in soil is generally not bioavailable.
- g. The arsenic concentrations used on areas that remediation has already taken place was not artificially low. The concentrations used reflected local soil arsenic background numbers and also took into consideration the properties current use. Currently, a site specific arsenic soil clean up number has not been established, however it will be evaluated as part of the Corrective Measures Study.

**RFI Report Revisions:** None.

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**General Comment No:** 2

**Comment Topic:** Background Levels of Arsenic in Soil

**Paraphrased General Comment:**

- a. We feel that the Gasport Background Study of arsenic in soil has certain flaws in it. Conveniently, soil areas known to have higher concentrations of arsenic in soil because of historical orchard spraying were excluded from the sampling process. The Agencies “cherry picked” the properties to be tested in order to skew the statistics so that the end result would be close to the state-wide arsenic background level.
- b. The Gasport Study is nothing but a bunch of assumptions, approximations and statistical calculations. There is no reason to believe that if somebody else did the data analysis, they would come up with the same ending. We are not sure that 20 parts per million is the true local background for arsenic in soil.
- c. It is believed that the New York State background level for arsenic (13-16 ppm) is too low for Niagara and Orleans counties. A state-wide background level was derived by sampling soil at various locations in the state however, how many of those sampling points were in Niagara and Orleans counties? Is it possible to see the raw data from this sampling survey?

**Agencies' Response:**

- a. The Gasport Background Study included three (3) orchard properties which were selected for soil sampling by FMC and accepted by the Agencies. The Agencies were not aware of whether pesticides were or were not used in the orchards FMC selected. Therefore, the Agencies did not attempt to skew the results towards a state-wide background through the selection of properties to be sampled in the Gasport Study. In fact, this was a “blind” selection process in terms of pesticide usage history, so that the results would not be purposefully biased towards high or low usage.
- b. The assumptions and statistical calculations used in the Gasport Background Study were carefully determined with two (2) major goals in mind: 1. To insure that the background data would be representative of the soil type and property usage character of the Middleport area; and 2. To insure that the background data would not reflect arsenic contributions from historic releases from the FMC-Middleport facility. For instance, the sample collection and arsenic results were weighted so as to better reflect Middleport's property usage history and statistics were used to help insure that there was sufficient data (i.e., arsenic results) to adequately represent each property type. The FMC Work Plan which presented the assumptions and statistical calculations used in the Gasport Study was

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developed and reviewed by qualified FMC consultants and Agencies' staff with backgrounds in statistics and soil science, and underwent an independent peer review by an expert panel from the NYS University at Buffalo. This panel was made up of faculty from multiple technological disciplines. The arsenic concentration value of 20 parts per million (ppm) represents both the 95<sup>th</sup> percentile of the residential background arsenic data and the weighted 95<sup>th</sup> percentile of the entire background arsenic data set from all Middleport property types. Use of the 95<sup>th</sup> percentile means that the arsenic concentration of 20 ppm is indicative of the upper end of the background data range, and therefore the Agencies consider that it conservatively estimates Middleport arsenic background. Therefore, arsenic concentrations in Middleport soil above this level may not be solely attributable to background arsenic sources.

- c. The New York State Law enacted for the Brownfields Cleanup Program requires that for certain contaminants, an action objective be established based on the contaminants background concentration in rural soils (Section 27-1415.6(b)). Therefore, the state-wide background sampling program was limited to rural soils. There were a total of six samples collected from Niagara and Orleans counties. The Niagara and Orleans County sample data is provided in the table below.

Sample Designation	Sample Type	County	Arsenic Level (ppm)
29D	Source-Distant	Niagara	3.73
30D	Source-Distant	Orleans	4.51
37D	Source-Distant	Niagara	3.12
48D	Source Distant	Orleans	1.35
48N	Roadside	Orleans	2.74
48H	Habitat	Orleans	8.39

Note: Source-distant samples were collected from points of human contact with soil that were a distance of approximately five meters (about 15 feet) or more from any identifiable source of contamination including roadways, pavement, and structures. Remote samples, collected for purposes of ecological assessment (e.g. habitat), were obtained from points that were a distance of about 15 meters (about 50 feet) or more from areas of human activity such as lawns, cultivated land, or trails if possible, and otherwise from portions of designated rural properties that were the least influenced by human activities.

As is evident from the data collected as part of the statewide rural background soil survey, the levels of soil arsenic measured Niagara and Orleans Counties are well below the statewide background-based soil cleanup objective of 16 ppm and are well below the Middleport local soil arsenic background level of 20 ppm.

**RFI Report Revisions:**       None.

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**General Comment No:** 3

**Comment Topic:** Length of Regulatory Process

**Paraphrased General Comment:**

We would like to see this project end. The image of the Village has been greatly affected by this regulatory process which has gone on for over 20 years. Twenty years of this situation is more than any community should have to bear. The time this RCRA process has taken has been too long and it appears that the end date is far in the future. While it's optimistic to see the Agencies and FMC communicating well, it is hoped that an agreement can be reached and the process be made faster. The schedule FMC presented to evaluate the Corrective Measures Study is too long. We need to get this process moving and we need to get the project done quicker than what the current schedules indicate. We are not interested in hearing why it can't be done, we are interested in hearing ideas on how it can be done.

**Agencies' Response:**

The Agencies are very much aware of the length of this site's RCRA regulatory process and we understand the urgency to rectify FMC-related contamination which is affecting the Middleport community. We have been, and will continue to prioritize aspects of this project which are of greatest concern to the community, such as the presence of FMC-related contaminants in some Middleport soils. The Agencies have attempted to meet target dates in 2009 for completing the necessary phases of the corrective measures process. As we move forward we will continue to look for ways to expedite the process while still providing sufficient time to perform a thorough technical evaluation and gather public input.

With regard to Air Deposition Study Area 1 and Culvert 105 soils, it should be noted that the Agencies' approval of RFI Report Volumes II & IV represents the culmination of the soils investigation program in these areas, which allows for the beginning of a Corrective Measures Study (CMS) to determine what, if any, corrective measures are needed to address FMC-related soil contamination in these areas. The Agencies will evaluate FMC's CMS schedule, as contained in their CMS Work Plan, to insure that it provides for a thorough but expeditious CMS process.

**RFI Report Revisions:** None.

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**General Comment No:** 4

**Comment Topic:** Status of Individual Properties

**Paraphrased General Comment:**

- a. It is our understanding that approximately 28 properties within Air Deposition Area 1 and/or the Culvert 105 flood zone, will be excluded from the FMC Corrective Measures Study (CMS). The owners of these properties should be provided with a letter from the Agencies indicating why their properties are being excluded from the FMC CMS, whether it's because the arsenic in their property's soil is below 20 ppm or for some other reason.
- b. FMC has failed to appropriately address certain issues in their reports, including properties that have yet to be tested, and other properties which have been tested and have displayed contamination, but whose owners have been given no method to remediate said contamination other than at their own expense. Clarification needs to be provided.

**Agencies' Response:**

- a. The Agencies agree with this comment and we understand the importance of providing individual property owners with adequate human health and environmental information specific to their property's soil. It is therefore the Agencies' intention to provide letters to owners of properties within Air Deposition Study Area 1 and the Culvert 105 flood zone soon after our approval of RFI Report Volumes I, II & IV, except for owners of specific properties who were previously provided letters. These letters will provide owners with the Agencies' evaluation of their property's soil testing results and the status of their property with respect to the FMC CMS process. For those properties within the study areas which the approved volumes of the RFI Report indicate that their soils have not been measurably impacted by past FMC-related arsenic releases, the Agencies' letters will state that property's soils will not need to be evaluated for possible corrective measures in the FMC CMS. For properties in this category where soil testing results indicate some elevated arsenic concentrations in comparison to local background that do not appear related to past FMC releases, the Agencies' letters will inform the property owner of this fact and provide some guidance on reducing human exposure. The Agencies' letters will not place restrictions on an owner's usage of their property, nor in any way compel the owner to take any actions with respect to the property's soils.
- b. This comment reflects concerns over two (2) categories of properties within the study areas, those that have not had their soils tested due to owner's refusal to grant access and those where soil test results indicate elevated levels of arsenic however the source does not appear related to past releases from the FMC Middleport facility.

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With regard to the 30 properties where FMC requested but was denied access for soil sampling and analysis, as identified in DRAFT RFI Report Volumes II & IV (Draft Figures II.9.1 & IV.8.1), three (3) of these properties had their soils sampled and analyzed in 2009 when their owners granted FMC property access. Therefore, in our approval of the RFI Report volumes, the Agencies have required FMC to modify Volume II as described below, to reflect the 2009 arsenic results for the soils on these 3 properties. One of these 3 properties has arsenic results indicative of local background concentrations and therefore no further action is anticipated for this property. The other 2 will be evaluated in the FMC CMS process. Of the remaining 27 properties, 13 are not suspected of having elevated arsenic in their soils based on the arsenic results from surrounding properties, so no further action is anticipated with regard to these 13 properties. The 14 other properties which have not been tested are suspected of having elevated arsenic in their soils attributable to past FMC releases, based on the arsenic results from surrounding properties. These properties will be evaluated in the FMC CMS, however no final decision can be made on whether corrective measures will be necessary for these properties without first obtaining soil testing results. The Agencies approval of these RFI Report volumes does not end the opportunity for the owners of these 14 properties to have their soils sampled and analyzed for arsenic. The Agencies will continue to encourage, and FMC will continue to offer soil testing to the current and any future owners of these 14 properties throughout the CMS process.

There are approximately 8 properties within Air Deposition Study Area 1 where soil testing results indicate that a location or locations on these properties have somewhat elevated levels of arsenic in soil, but evidence does not suggest that the source of this arsenic can be attributed to past releases from the FMC facility, and in some cases there is evidence of a possible non-FMC related source. These properties will not be included in the FMC CMS. In cases such as this where evidence indicates that FMC is not responsible for the elevated arsenic in the property's soil, the Agencies do not possess the regulatory authority to compel FMC to evaluate these properties in a CMS, nor perform corrective measures. However, as stated above, the Agencies will provide these property owners with a letter describing the situation and provide some guidance on reducing their exposure.

**RFI Report Revisions:**

In conjunction with our approval, the Agencies have required FMC to modify RFI Report Volume II so as to include the analytical results from the 2009 soil sampling on 3 additional properties within Air Deposition Study Area 1.

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**General Comment No:** 5

**Comment Topic:** Concerns Over Potential Future Corrective Measures

**Paraphrased General Comment:**

- a. Any remediation to be done should be based on a risk assessment and not on an arsenic background level. Arsenic background is a somewhat unreasonable goal, and a risk assessment approach should provide a higher arsenic level on which to base remediation.
- b. There is a contingent of residents who feel safe living on their properties with the current levels of arsenic in their soils. Property owners should have the right to determine whether or not they will allow remediation on their property without the threat of the Agencies placing restrictions when they try to sell their property.
- c. Property owners who do agree to remediation on their property should have the property rehabilitated in a manner that is commensurate with the value of the original landscaping.

**Agencies' Response:**

In responding to the above comment, the Agencies would first like to clarify that it deals with potential future remedial activities which is beyond the scope of the RFI Report.

- a. As the Agencies have previously stated, risk assessment is considered as one of several tools that are used to make remedial decisions. Other factors such as current and reasonable anticipated future property use, applicable standards, criteria, guidance; local soil arsenic background are also considered. Risk assessment, whether it is deterministic or probabilistic is not considered by the Agencies as the sole determinant.
- b. The Agencies agree that property owners should and will have the right to determine whether or not they will allow remediation on their property. With the possible exception of where soil contamination on a property is deemed to pose a significant health and/or environmental threat beyond the boundaries of that property, the Agencies do not anticipate using legal means to require an owner to accept having their property remediated, nor do we intend to place any legal restrictions on a property without the owner's consent. However, for properties where remediation is determined to be warranted, the Agencies would encourage all such property owners to carefully consider the benefits of such remediation before making any decision on any FMC offer to remediate their property.

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- c. It is common practice with remediations which involve removal/destruction of landscaping items, to require that the property be restored to pre-remedial condition, including replacement of landscaping items equal in value to the original items. This has been the practice employed with the Middleport interim corrective measures performed to date, where FMC, with Agencies oversight, has worked closely with individual property owners to restore landscaping to the owner's satisfaction. Plans for property restoration have been worked out between FMC and property owners before the owner enters into an agreement to have their property remediated. The Agencies expect that this practice would continue for any future remediation of Middleport properties.

**RFI Report Revisions:**       None.

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**General Comment No:** 6

**Comment Topic:** Future Corrective Measures Tree Preservation Concerns

**Paraphrased General Comment:**

We have beautiful trees and we'd like to keep it that way. Wooded areas provide a habitat to deer, opossums and other animals and we would hate to see it all ripped to shreds. The remediation on Vernon Street was a descent action, but those trees will never come back, and the replacement trees just don't do it justice. We would hate to see this happen on all the properties in this community. We don't see how nature is helped by removing trees that have hundreds of years of growth. We understand removing the soil around trees if there is a problem with arsenic in the soil, but to rip out all the trees seems pointless.

As the project proceeds to the next step (Corrective Measures Study), we would like to make the following recommendations:

- Consideration of corrective measures which include removal of trees should address impacts on the wellness of the community and wildlife habitat.
- Remedial activities should only include tree removal when arsenic levels are extremely high, and when there is absolutely no other means to remove the arsenic.
- Alternative means to remove contaminated soil from around trees, including washing soil away, should be included in remedial tactics.
- Alternative means for removing arsenic from soil around trees, including phytoremediation, should be included in remedial tactics.

**Agencies' Response:**

In responding to the above comment, the Agencies would first like to clarify that it deals with potential future remedial activities which is beyond the scope of the RFI Report.

The Agencies are in general agreement with this comment. In adopting our final Corrective Action Objectives (CAOs) for this project, the Agencies have included the goal of "minimizing disturbance and disruption of the community so that the character of the neighborhoods can be maintained". We understand the importance of trees to maintaining the character of the community and in supporting a wildlife habitat. We also understand that replacement of an old growth tree with one from a tree nursery, does not provide the same degree of shade (at least for a number of years) and is not aesthetically equivalent. To address these concerns, FMC's draft Work Plan for a Corrective Measures Study (CMS) contains a number of CMS activities related to tree preservation, including some of the recommendations made in this comment. According to this work

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plan, the CMS will consider the effects of tree removal on the character of the community and wildlife habitats. It will also evaluate a number of arsenic removal technologies which would allow for preservation of some trees, including segmented, multi-year hand excavation in root zones, partial excavation of root zones, and phytoremediation using specific plants currently undergoing a pilot study. Any Corrective Measures selected by the Agencies which include tree preservation technologies, their implementation on individual trees will likely depend on a number of factors including the age/condition of the tree and the property owner's preference.

In general, the Agencies do not consider the adequate remediation of a property's soil and the preservation of trees, to be mutually exclusive objectives in all cases. As we move forward into the CMS process, it is the Agencies intention to fully explore remedial alternatives that allow for both of these objectives to be achieved.

**RFI Report Revisions:**       None.

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**General Comment No:** 7

**Comment Topic:** Past Corrective Measures

**Paraphrased General Comment:**

We are happy to see that the various governmental agencies involved with the arsenic cleanup project in Middleport have stepped back from the hysteria-producing and fear-mongering stance they have held for the past few years. Almost ten years ago, the entire Village of Middleport became disrupted by the non-science-based claims of widespread “dangerous” arsenic contamination caused by past activities at the FMC Plant. The actions of the Agencies and FMC to begin an immediate cleanup of some residential properties (without proper and legal environmental documentation) only fueled the false presumptions that the public health was in dire peril, ala “Love Canal”. This campaign of misinformation resulted in several major consequences:

1. Some people became extremely fearful that they and their families would develop major health problems, including cancer.
2. Property values plummeted and it became virtually impossible to sell a house in Middleport.
3. The properties that were cleaned up in the first phase were subjected to a “scorched earth” resolution, in which all trees and shrubs were cut down and soil removed to a great depth.
4. These properties were rehabilitated with inferior topsoil and inferior plants.

These consequences could have been avoided if handled properly and should be avoided in the future.

**Agencies' Response:**

This comment is apparently referring to the Interim Corrective Measure (ICM) performed on residential properties along Vernon Street in 2003. This ICM was not requested by the Agencies, but instead proposed by FMC in accordance with a 1991 EPA/DEC Administrative Order on Consent (AOC) signed by FMC. The Agencies did not characterize the arsenic contamination in the soils on these properties as a “dangerous” situation and never intended to cause alarm. However, we understand how the perception of urgency was inadvertently created in this case, since FMC submitted a work plan for this ICM project in May 2003 which was implemented in August 2003. This created a somewhat abbreviated time period for project planning and public involvement activities. In contrast to this 2003 ICM, the 2007-2008 corrective measures for residential properties along Park Avenue and Culvert 105 were proposed to the community in November 2006 (prior to Work Plan submission) and implemented in August 2007, providing more time for planning, public involvement and meetings to

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accommodate concerns of the involved property owners. Based on post-remedial discussions with involved property owners, reaction to the completed 2007-2008 corrective measures has been generally positive. As we move forward into the CMS process and possible future corrective measures, it is the Agencies' intention to avoid causing undue alarm among community residents and to provide time for adequate public and property owner involvement, especially during the early planning stages of any future corrective measures.

**RFI Report Revisions:**       None.

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**General Comment No:** 8

**Comment Topic:** Characterization of Middleport Environmental Conditions

**Paraphrased General Comment:**

The problem with the RFI findings is the basis under which the study was conducted in the first place. The very hard-working, dedicated state and federal officials involved in this RFI have lost their common sense and scientific objectivity. These officials do not live in Middleport and have emotionally distanced themselves from the community. Furthermore, because FMC is a viable economic business, these officials can pursue exaggerated levels of investigation because FMC can afford to pay the bills. There are many areas in New York State where the environmental concerns are much greater than the Middleport area. However, often companies behind such environmental damage have gone bankrupt. State and federal officials conveniently ignore such areas. While the Agencies linger beyond their welcome in Middleport, citizens in other areas of the state suffer.

**Agencies' Response:**

State and federal officials do not place any greater emphasis or give any greater attention to FMC-related environmental matters in Middleport on the basis of the FMC corporations' economic status, nor do such officials ignore areas of environmental damage associated with bankrupt companies, as alleged in this comment. The FMC Middleport facility is subject to compliance with the Resource Conservation and Recovery Act (RCRA) due to former management of hazardous waste at this facility after 1982. As such, this and other RCRA facilities are required to perform corrective measures for any past chemical releases from the facility. In addition, FMC signed an administrative order with USEPA and NYSDEC which requires FMC to conduct investigation and evaluation of chemical releases from their Middleport facility. State and federal officials are obligated to enforce the law and regulations established under this Act, and do so in a manner that does not treat facilities differently, but which concentrates on being protective of human health and the environment. Cleanups associated with bankrupt facilities are covered under RCRA or other governmental programs.

**RFI Report Revisions:** None.

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**Specific Comment No:** 1

**Specific Comment:**

The figure in Volume II of the RFI Report (Figure 9.1) shows properties along Tributary One north of Francis Street in “white”, not “green” which is the color of properties included in the CMS. This gives the impression that these properties will not require further evaluation, when in fact, some of them are depicted in Volume V of the Draft RFI Report. This figure should be revised in a way that identifies those properties which are addressed in RFI Report Volume V.

**Agencies' Response:**

The Agencies agree with this comment. Therefore, in our approval of the RFI Report volumes, the Agencies have required FMC to modify Volume II Figure 9.1 as described below.

**RFI Report Revisions:**

In conjunction with our approval, the Agencies have required FMC to modify RFI Report Volume II Figure 9.1 in a manner which identifies those properties addressed in RFI Report Volume V.

**Specific Comment No:** 2

**Specific Comment:**

The FMC presentation of the results from the 2003 Gasport Background Study indicated that the highest arsenic concentration on agricultural property was 56 ppm. I believe there were background arsenic results on agricultural property as high as 122 ppm in the Study.

**Agencies' Response:**

The 122 ppm result was the highest arsenic concentration found on Orchard property during the 2003 Study. Orchard properties were characterized separately from agricultural crop fields (e.g., corn, hay, etc.) where the highest arsenic concentration was 56 ppm. It should also be noted that the some results from agricultural crop fields, including the 56 ppm result, were identified as statistical outliers and may have come from locations of former orchards. Without these outliers, the highest background arsenic concentration found in agricultural crop fields was 11 ppm.

**RFI Report Revisions:** None.

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**Specific Comment No:** 3

**Specific Comment:**

On Figures 6.2 to 6.13 in RFI Report Volume II, some areas colored in white are not necessarily below 20 ppm of arsenic. For example the area of the ESI on FMC's property is not below 20 ppm. This area and similar areas on these maps should be colored appropriately.

**Agencies' Response:**

The colorization show on these referenced figures is limited to the arsenic concentrations within Air Deposition Study Area 1 which is the subject of RFI Report Volume II. Area 1 does not include the FMC Plant property which will be covered in a different RFI Report volume, or other properties outside Area 1 which is bounded by a blue line on these figures.

**RFI Report Revisions:** None.

**Specific Comment No:** 4

**Specific Comment:**

Figure 6.14 in RFI Report Volume II indicates the mean level for arsenic is in the upper 20 to 30 ppm range and that contamination does not extend below 9 inches in depth. So why is a depth of 24 inches in the area under consideration for study and remediation? Also if the mean is this low, would this indicate that the background level should be higher than 20 ppm and the amount of contamination from air deposition is limited, with significant contamination due to discharges?

**Agencies' Response:**

The extent of FMC-related arsenic soil contamination within Air Deposition Study Area 1 to be further evaluated in a CMS, was determined by comparing individual sample results to the 20 ppm background criteria with consideration of other factors such as historic wind patterns and surface discharges to ditches and Culvert 105. The mean arsenic concentrations shown on referenced Figure 6.14 were not used in these determinations since the data points in these averages with lower arsenic concentrations can mask the presence of elevated concentrations.

**RFI Report Revisions:** None.

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**Specific Comment No:** 5

**Specific Comment:**

Table 6.1 in RFI Report Volume II provides the tabular results of data from all sampling performed in the air deposition area. What is the significance of the standard deviation in this table? What is the significance of the different distribution curves for individual properties? There are more than 46 properties with a mean level of arsenic below 20 ppm. Why were only 46 given letters from the Agencies?

**Agencies' Response:**

In general, Table 6.1 presents statistical parameters for each properties arsenic data set. The standard deviation is a statistical representation of generally how much individual arsenic results vary from the mean concentration for each property's arsenic data set. For example, the standard deviation of 11.2 ppm for Property A2 in this table indicates that the individual arsenic results for this property generally fall within  $\pm 5.6$  ppm of the 15.4 ppm mean concentration (i.e., 9.8 to 21 ppm). The different distribution curves are identified in this table since it is necessary to identify the data distribution for each property in order to calculate statistical parameters such as the 95% UCL. The Agencies' letters indicating "no further action" for 46 properties were based on comparisons of each properties individual arsenic results to the local background criteria of 20 ppm, and not on each property's mean arsenic level.

**RFI Report Revisions:** None.

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**Specific Comment No:** 6

**Specific Comment:**

It should be noted on the maps in Volumes II and IV depicting historic orchard areas that some of those orchards existed before 1931 but data is not available for periods before 1931.

**Agencies' Response:**

As noted in the comment, there is no evidence (e.g., aerial photographs) to support the presence of orchards in the area prior to 1931. Therefore the Agencies do not consider it appropriate to add a note to these figures indicating the existence of these orchards prior to 1931 without documentation.

**RFI Report Revisions:** None.

**Specific Comment No:** 7

**Specific Comment:**

Surface water samples in the culvert and from the flood plain around the culvert area show no signs of contamination. Does this indicate that contamination from the culvert pipe or open ditch beds are not spreading to areas away from the culvert?

**Agencies' Response:**

The surface water analytical data (contained in Appendix D of RFI Report Volume IV) obtained in 1990 from three locations along Culvert 105 generally indicates that certain pesticides, arsenic, lead and other metals were not detected in the culvert's water at or above analytical detection limits, with a few exceptions where some constituents were detected above and below NYSDEC criteria for Class D surface water. Although this particular data does not show any significant evidence of soil/sediment constituents in these 1990 surface water samples, subsequent (post-1990) and future migration of these constituents via surface water flow remains possible.

**RFI Report Revisions:** None.

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**Specific Comment No:** 8

**Specific Comment:**

The area just west of Property AE2 on Figure 7.18 in RFI Report Volume IV shows high levels of contamination while the area nearest the culvert shows much less contamination. One theory is that the culvert's path may have been historically moved, but there is no historical evidence this was ever done. The Agencies wish to discount historical use of arsenic containing pesticides in orchards because there is no documented evidence it was done. So how can it be theorized the culvert's path was changed when there is no documentation?

**Agencies' Response:**

The topographic contours on Properties AE1 & AF1 indicate lower elevations to the east of the culvert's present location which suggests that the historic ditch may have been located further to the east than the present culvert pipe. The culvert relocation may have occurred in conjunction with the pipe's installation. Also, the relatively flat topography east of the culvert as opposed to the steeper topography on its west side, suggests that any historic flooding would be more extensive to the east of the culvert. The Agencies do not discount the possibility that use of arsenic containing pesticides in historic orchards on Property AE2 may have contributed to arsenic concentrations in soil. However, the arsenic concentrations east of the culvert along the AE1/AF1 and AE2 property line are consistently above 200 ppm, which is significantly greater than the arsenic concentrations in soil samples from background orchards, and therefore seem unlikely to be solely attributable to any potential spraying of pesticides.

**RFI Report Revisions:** None.

**Specific Comment No:** 9

**Specific Comment:**

Will it be required that contaminated soil below 36 inches and deeper around buried culvert pipe be remediated when soils above that depth are below 20 ppm?

**Agencies' Response:**

Whether contaminated soils around buried pipe warrant remediation will be determined by the Agencies based on the results of the FMC CMS.

**RFI Report Revisions:** None.

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**Specific Comment No:** 10

**Specific Comment:**

The RFI Reports and the CMS could be better written so that the typical property owner in Middleport can more easily understand the content.

**Agencies' Response:**

FMC and the Agencies strive to produce documents that present information in a concise, uncomplicated manner. If there are specific aspects of the RFI reports that may need further clarification, FMC and the Agencies will be glad to respond to questions from property owners.

**RFI Report Revisions:** None.

**Specific Comment No:** 11

**Specific Comment:**

Copies of communications from the agencies which are sent to William Arnold, MCIG chairman should also be copied to Pat Cousins, Chairman of the Middleport Remediation Advisory Group.

**Agencies' Response:**

The Agencies are willing to discuss how copies of Agencies correspondence can be provided to these stakeholder group representatives, including the possibility of providing electronic copies via E-mail to reduce costs and conserve paper.

**RFI Report Revisions:** None.

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**Specific Comment No:** 12

**Specific Comment:**

Referring to the Property I5 on Vernon Street in Middleport, nothing needs to be remediated. Also, referring to Property R3, we wish no further action on our property. We feel as safe as possible.

**Agencies' Response:**

Properties I5 & R3 are included in the FMC CMS. Subsequent to completion of the CMS, if the Agencies require FMC to remediate specific off-site properties, owners of said properties will have the right to grant or refuse FMC access to their properties for such remediation.

**RFI Report Revisions:** None.

**Specific Comment No:** 13

**Specific Comment:**

Being the resident of Property S14, I feel that this property should have been included in the past excavation. It seems improbable and nearly impossible that our property isn't contaminated. As all of the surrounding properties have been excavated, it's only logical that our property's soil should also be replaced.

**Agencies' Response:**

There was an Interim Corrective Measure performed by FMC in 2003 to remove contaminated soil on residential properties in the vicinity of Property S14. The fact that Property S14 was not included in that remedial action does not exclude it from consideration in any future remediations. Property S14 is included in the FMC CMS. Subsequent to completion of the CMS, if the Agencies require FMC to remediate specific off-site properties, FMC will offer such remediation to the property owners.

**RFI Report Revisions:** None.

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**Specific Comment No:** 14

**Specific Comment:**

When will Property M9 be remediated. I am planning to landscape and I need to know if/when excavation will occur.

**Agencies' Response:**

Property M9 is included in the FMC CMS. Subsequent to completion of the CMS, if the Agencies require FMC to remediate specific off-site properties, FMC will offer such remediation to the property owners. It is anticipated that the FMC CMS will be conducted over the 2009-2010 time period.

**RFI Report Revisions:** None.

**Specific Comment No:** 15

**Specific Comment:**

We did not have sampling done on our property located in the proposed CMS area. Can sampling be done now? Can we refuse remediation if it is determined to be necessary based on the test results?

**Agencies' Response:**

Owners of properties within the FMC CMS area can still have their property's soils sampled and analyzed by FMC without any cost to the owner. Subsequent to completion of the CMS, if the Agencies require FMC to remediate specific off-site properties, owners of said properties will have the right to grant or refuse FMC access to their properties for such remediation.

**RFI Report Revisions:** None.

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**Specific Comment No:** 16

**Specific Comment:**

I asked before about the cleanup at the R-H School of their chemical drain in 2005. The Agencies make a big deal about FMC and ignore the school and other parties. We deserve to know what was done.

**Agencies' Response:**

In responding to the above comment, the Agencies would first like to clarify that it deals with activities which are beyond the scope of the RFI Report.

As a result of the soil gas vapor intrusion study performed by FMC on the Royalton School property, contamination from the High School Chemistry lab was found in the acid drain sediment and water. Initial sampling by FMC indicated that elevated levels of metals, volatiles and semi-volatile compounds were detected. As a result, a spill file was opened in May 2006 (Spill number 0650387) and the Royalton Hartland Central School District was directed to clean up the acid drain area. The school district hired a remediation contractor, Nature's Way Environmental Consultants & Contractors, Inc to address the problem. Sampling of the acid drain contents by Nature's Way indicated the presence of hazardous wastes in the water (mercury, chromium and lead) and the sediments (lead, benzene, carbon tetrachloride and tetrachloroethene). Other contaminants were identified but were not at the level of hazardous waste. The acid drain contents and adjacent soil were excavated beginning in July 2006. Three drums of waste from the acid drain contents were disposed as hazardous waste at Chemical Waste Management. Excavation of soil around the acid drain resulted in approximately 112 tons of contaminated soil that was disposed at Modern Disposal. In addition, approximately 3100 gallons of excavation water was pumped into holding tanks and ultimately transported to the City of North Tonawanda Waste Water Treatment facility for disposal. Confirmation soil samples after removal of the former Acid Drain and excavation of adjacent soil indicated that satisfactory cleanup was achieved. In addition, investigation of the storm sewer associated with the acid drain and basement crawl space areas of the school indicated no evidence of migration of acid pit contents into the storm sewer or basement crawl space. A final site remediation report was submitted on October 6, 2006 and the spill file was closed on October 27, 2006. The spill file is available for review at the NYSDEC Region 9 office in Buffalo. An appointment to view the file can be made by calling 716-851-7220.

**RFI Report Revisions:** None.

**RESPONSIVENESS  
SUMMARY**

**SECTION II  
FMC COMMENTS  
&  
AGENCIES' RESPONSES**

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Section II – FMC Comments & Responses

**FMC Comment No: 1**

**Comment Topic:** Use of 20 ppm Soil Arsenic Level for RFI Delineation Purposes

**FMC Comment:**

As discussed in RFI Volumes II and IV (and as directed by the Agencies), soil arsenic data was compared to “*a delineation criterion of 20 parts per million (ppm; equivalent to milligrams per kilogram [mg/kg]), with consideration given to other factors (e.g., historical land use, data variability, wind patterns, ground features and flood zone topography) to delineate potential FMC-related soil arsenic.*”

The reports further state that “*the soil arsenic “delineation” criterion of 20 mg/kg is not necessarily a “remediation” criterion or standard, and that delineation of soil containing arsenic above 20 mg/kg does not mean that this soil will be required to be remediated in the future. The need for and the nature and scope of any final corrective measures will be based on the outcome of a CMS.*”

FMC emphasizes its understanding that the soil arsenic “delineation” criterion is fundamentally different from a “remediation” criterion. In other words, soil containing arsenic above 20 mg/kg may or may not be required to be remediated in the future.

In addition, FMC notes the following:

- Soil with arsenic concentrations greater than 20 mg/kg is not a sole indication that the arsenic is attributable to historical releases from the FMC Facility given the variability of arsenic in soil attributable to both natural conditions and non-FMC anthropogenic sources of soil arsenic. For example, it is common knowledge that arsenic-containing materials have been widely used by man for many purposes, including agricultural (e.g., orchards, crop land) and non-agricultural (e.g., treatment of trees, weed control along railroad and power lines, other historical uses by local industries/businesses). Such use of arsenic has been wide spread and has occurred both prior to and during the 50 years that FMC handled arsenical pesticides at the Middleport Plant. The 2001-2003 Gasport Background study (performed in areas not impacted by potential historical releases from the FMC Middleport Plant) identified the following background soil arsenic levels:

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<b>Property Type</b>	<b>Range of Concentrations (mg/kg)</b>
Orchard	3.1 to 121.3
Wooded / Overgrown / Agricultural Crop Field	3.1 to 56.7
Commercial / Industrial	2.2 to 32.8
Residential / School	3.3 to 21.1

- The Agencies have concluded that no further action is appropriate at some residential properties with arsenic concentrations exceeding 20 mg/kg. In February 2007, the Agencies provided letters to the owners of 46 residential properties in the Village of Middleport that stated the following: 1) the sampling data at these properties were consistent with background soil arsenic levels found in residential properties in Gasport; 2) it was not necessary to restrict uses on the property; and 3) “no further sampling or other actions are necessary at this time.” Soil arsenic data from these 46 properties range from 8.4 mg/kg to 27.5 mg/kg (excluding an anomalous result of 103 mg/kg at sample location WSS27 on Property T7).
- Properties with soil arsenic data above 20 mg/kg and properties proposed for inclusion in the Corrective Measures Study (CMS) **may or may not** require remediation. The need for and the nature and scope of any corrective measures will be evaluated during the performance of a CMS.

**Agencies' Response:**

The Agencies would like to express the following points in response to this FMC comment:

- As previously agreed to by FMC, the delineation of FMC related arsenic contamination in soil (i.e., the determination whether the arsenic concentrations in soil are related to historical releases from the FMC Facility) is based on site data indicating arsenic concentrations in soil above 20 mg/kg, with consideration given to other influencing factors (e.g., data variability, flood zone topography, wind patterns, etc.). While it is possible that other non-FMC related sources of arsenic in soil may be present, the possible presence of such sources does not negate the contribution of arsenic from historic FMC facility releases within the delineated area. Also, with regard to the table of background soil arsenic levels in FMC's comment, the Agencies would like to point out that the range of background soil arsenic levels for the Wooded / Overgrown / Agricultural Crop Field property type without outliers is 3.1 to 11.9 mg/kg.

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This is considered important since there is some evidence which suggest that the outlier data may be from former orchard land which is a separate property type.

- The Agencies agree with FMC's characterization of the Agencies' letters to 46 residential property owners in the Village of Middleport.
- The Agencies confirm FMC's understanding that, at this stage of the Corrective Action process, soil containing arsenic above 20 mg/kg may or may not be required to be remediated in the future.

**RFI Report Revisions:** None.

**FMC Comment No:** 2

**Comment Topic:** Middleport Background Soil Arsenic Levels

**FMC Comment:**

In the last paragraph on Page 2 of the Fact Sheet, the Agencies state “*Based on the results of these analyses [the 2001-2003 Gasport background study], the aforementioned governmental agencies selected an arsenic concentration of 20 parts per million (ppm) to conservatively represent the upper bound of the non-FMC related arsenic concentrations in soil/sediment.*”

The selected 20 mg/kg concentration represents the weighted 95th percentile of the Gasport background data calculated using historical land use weighting factors for the Middleport Study area identified in the Agencies 2001 Work Plan for the Gasport Study. In 2007, FMC recalculated background values, including the weighted 95th percentile, using updated historical land use weighting factors determined based on new historical aerial photographs of the Middleport study area. These values are identified on Table 5.3 of Volume II and Table 7.3 of Volume IV. FMC believes that the recalculated values better represent the Middleport background soil arsenic levels since more accurate information on historical land usages in Middleport were used.

In addition, and as previously proposed, FMC believes that the weighted 98th percentile of the Gasport background data should be used to represent the upper bound of non-FMC related arsenic soil concentrations in soil/sediment. Use of the 98th percentile for delineation of potential FMC-related arsenic in soil in the Middleport study area is consistent with the methods used by the NYSDOH and NYSDEC to determine the state-wide arsenic soil background value, as presented in the New York State guidance “New York State Brownfield Cleanup Program, Development of Soil Cleanup Objectives, Technical Support Document” (NYSDEC and NYSDOH, September 2006).

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Although FMC agreed to use a concentration of 20 mg/kg for the delineation of arsenic in RFI Volumes II and IV, FMC believes that the weighted 98th percentile, with consideration given to other factors (e.g., data variability, flood zone topography, wind patterns, ground features, etc.), better represents the upper bound of non-FMC related arsenic in soil/sediment in the Middleport study areas.

**Agencies' Response:**

The Agencies would like to express the following points in response to this FMC comment:

- As FMC is aware, the Agencies evaluated the additional historical aerial photographs provided by FMC in 2007. As a result of this evaluation, the Agencies determined that the property type weighting factors used in the 2003 Gasport Arsenic Background Study remained appropriate for local arsenic background determination. Specifically, the Agencies found that when each aerial photo was temporally weighted for its time period, the increase in the amount of orchard land was negligible from its original 3% value and that this would not have a measureable impact on the original background statistical values.
- The selection of the 98<sup>th</sup> percentile in the case of the NYS Brownfield program and the Agencies' selection of the weighted 95<sup>th</sup> percentile in the case of the Middleport study were both based on a careful evaluation of the actual data sets used, and with regard to the implications such selections could have on human health and/or the environment. The Agencies do not consider it appropriate to use a specific percentile from a data set and apply it to other data sets without regard to the makeup of the data sets in terms of the sampling matrix.

The Agencies maintain our position on the determination of local arsenic background for the Middleport area as expressed in our March 10, 2008 letter to FMC which provides an expanded explanation of our position.

**RFI Report Revisions:**       None.

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Section II – FMC Comments & Responses

**FMC Comment No:** 3

**Comment Topic:** Comparison of Non-Arsenic Data to Soil Cleanup Objectives

**FMC Comment:**

As part of FMC's revision of RFI Volumes II and IV, the Agencies requested that the Remedial Program Soil Cleanup Objectives (SCOs) provided in Table 375-6.8(b) of 6 NYCRR Subpart 375-6 be used to define the extent of FMC-related contamination from non-arsenic constituents. After discussion, FMC and the Agencies agreed to include in RFI Volumes II and IV a comparison of the non-arsenic data to both the SCOs and the Soil Screening Levels (SSLs) that were developed by FMC using USEPA guidance and that were previously presented in the 1999 draft of the RFI Report.

The SCOs that appear in Table 375-6.8(b) were developed by the NYSDEC for use at "Brownfield sites" in the voluntary "Brownfield Cleanup Program" established under New York Environmental Conservation Law (ECL) Article 27, Title 14. The FMC Middleport facility does not qualify as a "Brownfield site" as that term is defined in ECL Section 27-1405.2, and is not in the State's Brownfield Cleanup Program. The facility is subject to the above-referenced Administrative Order on Consent ("AOC") issued on the authority of RCRA §3008(h) and ECL §71-2727(3), which requires that FMC perform a RCRA corrective action program in accordance with the specific terms of the AOC.

Further, even assuming some relevance, the Brownfield Cleanup Program allows for the use of site specific and contaminant-specific soil cleanup objectives. Section 27-1415.6(b) of the ECL directs the NYSDEC to promulgate regulations which create a multi-track approach for remediation of contaminated sites. Section 27-1415.6(a) requires the regulations to include three (3) generic tables of contaminant-specific remedial action objectives for soil based on current, intended, or reasonably anticipated future use, as follows: (i) unrestricted; (ii) commercial; and (iii) industrial. Section 27-1415.4 specifies the four (4) program tracks that are to be established in the regulations. A remedial program under Track 1 or Track 2 must achieve remedial action objectives for soil which conform to those established in the generic tables. A remedial program under Track 3 must achieve remedial action objectives which are determined using *site-specific data* and the *criteria* used to develop the generic tables, as an alternative to the numeric values in the tables. Section 27-1415.6(b) provides that a site-specific soil cleanup value developed under Track 3 may not exceed an excess cancer risk of one in one million (i.e.,  $1 \times 10^{-6}$ ), unless the background concentration for the contaminant in rural New York soils exceeds that risk level, in which case the cleanup objective is the background value.

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A remedial program under Track 4 expressly recognizes and authorizes the development and use of site specific soil cleanup objectives which exceed an excess cancer risk of  $1 \times 10^{-6}$ , either with or without the use of long-term institutional or engineering controls, upon a finding by the Commissioner, in consultation with the Commissioner of Health, that such a level will be protective of public health and the environment in that specific case.

The authority to use site-specific and contaminant-specific soil cleanup objectives which may exceed a one-in-one million excess cancer risk is also reflected in the implementing regulations for the Brownfield Cleanup Program. Specifically, those rules provide at 6 NYCRR §375-3.8(a)(3) that “the risk presented by residual contamination ... at a site shall not exceed an excess cancer risk of one-in one million for carcinogenic end points..., except:

- i. for remedies provided in accordance with paragraph (e)(4) below, with a cleanup level which exceeds the parameters in paragraph (3) above, the remedial party must demonstrate that such level would be protective of public health and the environment... and
- ii. a cleanup level which exceeds the parameters in paragraph (3) above, may be approved by the Department in accordance with paragraph (e)(4) below, without requiring the use of institutional or engineering controls to eliminate exposure only upon a site specific finding by the Commissioner, in consultation with the State Commissioner of Health, that such level will be protective of public health and the environment.”

The RCRA corrective action program that FMC is performing on the authority of the AOC is not governed by the New York State Brownfield Program statute or regulations. However, even if the latter did have some relevance, that law and those rules when read in their entirety are not limited to the SCO values but expressly provide for the development of site-specific and contaminant-specific soil cleanup objectives that are not bounded by an excess lifetime cancer risk of  $10^{-6}$ .

FMC believes that site-specific human health risks associated with arsenic levels in soils should be estimated using health protective and site-specific assumptions. The site-specific health risks should be compared to the USEPA non-cancer target risk level of 1.0 and the USEPA acceptable excess lifetime cancer risk range of  $10^{-4}$  to  $10^{-6}$ . This is consistent with the policies of the AOC and RCRA, which is applicable to the site.

FMC RFI REPORT VOLUMES I, II & IV  
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**Agencies' Response:**

As previously detailed in our January 27, 2009 letter, the Agencies consider the Soil Cleanup Objectives (SCOs) in 6 NYCRR Subpart 375-6 of the NYSDEC regulations, to be Applicable Relevant and Appropriate Regulatory guidance for consideration of soil contamination related to the FMC facility. NYSDEC is in the process of drafting a Commissioner's Policy Memorandum which will reference the use of these SCOs for all NYSDEC regulatory programs (i.e., CERCLA, RCRA, etc.). Also, as FMC is aware, the FMC-Middleport site is an Inactive Hazardous Waste Site pursuant to NYS Environmental Conservation Law 27-1301 (ECL § 27-1301). As such, the FMC-Middleport site is subject to regulation under Part 375, including Part 375-6 which contains the SCOs. However, FMC's above comment is correct in the fact that the Part 375 regulations allow for establishment of site-specific soil cleanup objectives.

**RFI Report Revisions:** None.

**FMC Comment No:** 4

**Comment Topic:** Potential Impact Along the Pathway of Culvert 105

**FMC Comment:**

As part of FMC's revision of RFI Volumes II and IV, the Agencies requested that language be included to state that FMC-related contamination may have potentially impacted subsurface soil surrounding the Culvert 105 buried pipe along its entire length. However, sampling conducted immediately adjacent to the buried pipe in 3 of 6 sampling transects south of the Erie Canal exhibit maximum soil arsenic concentrations consistent with soil arsenic background levels. This data documents why it should not be assumed that contamination exists in all un-sampled areas along the pathway of Culvert 105.

**Agencies' Response:**

As FMC is aware, there is evidence of numerous locations where Culvert 105 pipe sections are broken, cracked or have poorly sealed joints, and at some of these locations where subsurface soil samples were obtained in the vicinity of such defects, analytical results indicate elevated arsenic concentrations in these soils. Also, some pipe sections were reportedly originally open ditches which would have made these now buried ditch soils directly susceptible to impact from FMC released constituents in the surface water flow. Therefore, the Agencies maintain our position that subsurface soils in un-sampled locations along Culvert 105 may be potentially impacted by past FMC facility releases.

**RFI Report Revisions:** None.

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Section II – FMC Comments & Responses

**FMC Comment No: 5**

**Comment Topic:** Notification of Owners of Sampled Properties

**FMC Comment:**

During the week of May 11, 2009, FMC informed the owner of each property within the RFI Volume II and IV study areas of FMC's proposal regarding whether each property would be included in the CMS and that the Agencies will be making a final decision on FMC's proposal after the end of the public comment period. FMC encourages the Agencies to send each property owner a letter that states whether or not the property will be included in the CMS, and explains that inclusion in the CMS does not necessarily mean that remediation under the AOC will be necessary at that property.

**Agencies' Response:**

The Agencies agree with this comment and we understand the importance of providing individual property owners with adequate information specific to their property's soil and whether their property's soils will be evaluated in the FMC CMS. It is therefore the Agencies' intention to provide letters to owners of properties within Air Deposition Area 1 and the Culvert 105 flood zone soon after our approval of RFI Report Volumes I, II & IV, except for owners of specific properties who were previously provided such letters.