

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

and

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

RESPONSIVENESS SUMMARY ON
FMC'S DRAFT CORRECTIVE MEASURES STUDY

June 2012

FACILITY INFO:

FMC Corporation

Middleport, New York

USEPA ID No.: NYD002126845

NYSDEC Site No. 932014

RESPONSIVENESS SUMMARY

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The draft Corrective Measures Study (CMS) for the FMC Corporation's ("FMC") Facility located in Middleport, Town of Royalton, New York, was prepared by FMC and public noticed for comment. The draft CMS was not approved by the New York State Department of Environmental Conservation (Department), the United States Environmental Protection Agency (USEPA) (collectively the "Agencies") nor the New York State Department of Health (NYSDOH). The CMS outlined the corrective measure alternatives evaluated by FMC to address the environmental contamination (i.e., arsenic) at Operable Unit 2(OU2) - Air Deposition Area 1, OU4 - Royalton-Hartland School property, and OU5 - Culvert 105 Area (collectively called "Study Areas"), at the FMC Facility in Middleport.

The public comment period occurred between May 17, 2011 and July 1, 2011. A public meeting was held on June 14, 2011 at the Middleport Fire Hall which included a presentation of the alternatives discussed in the CMS. The meeting was held based on the community desire, expressed through the Middleport Community Input Group (MCIG), to be afforded an opportunity to comment on the CMS before the Agencies make a tentative determination, which would also be subject to public comment, regarding the final remedy for these units. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the CMS. These comments have become part of the Administrative Record for this site. The public, including Royalton-Hartland and Middleport district residents were informed of the meeting through a mailing from the Agencies, a notice in the local paper, and through announcements in the Middleport community website.

This responsiveness summary responds to questions and comments raised during the public comment period. **Comments received during the June 14, 2011 public meeting were recorded by a stenographer. In addition, the Agencies received written comments. The comments are voluminous and are available for review at the DOCUMENT REPOSITORY NAME or by submitting a written request to the NYSDEC. These comments and the Agencies responses are set forth below. Where appropriate, the Agencies have combined the comments.**

Also included as part of this Responsiveness Summary are two NYSDOH fact sheets, "*FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions*," dated February 2012 and "*The Development of New York State Soil Cleanup Objectives for Arsenic*" dated September 2011. Those are attached herein as Exhibit 1 and Exhibit 2, respectively.

The Agencies received various communications and documents from the general public during the comment period, which are summarized in comments 1-10 below.

COMMENT 1: How can such a mammoth undertaking be commenced without relocating everyone affected? I don't feel comfortable allowing this to proceed unless that is accomplished and all affected parties are made whole by FMC for the disruption to their quality of life, safety, property and enjoyment of same. I have zero confidence that FMC will handle this invasive effort any better than the last token effort involving 14 homes. They did not follow their promised procedures to limit the spread of toxic dust then. This proposed effort is multiples of the previous one. It seems that two sessions of two hours in length are inadequate to fully explore the implications of this extraordinary project.

RESPONSE 1: Interim Corrective Measures (ICMs) were conducted on certain residential properties and various accommodations were used during those remediations depending on the scope of the remediation. When work was conducted on Vernon Street, residents were temporarily relocated for safety reasons due to the depth of the excavations around their homes. In contrast, residents were allowed to remain in their homes when work was performed on Park Avenue because the excavations were shallower. The need for accommodations will be included in the work plan developed by FMC to implement the remedial design. This work plan will be reviewed by the Agencies. To the extent future accommodations are recommended, property owners will be consulted. The future accommodations will be determined as part of the design of the remedial project in consultation with the property owner, FMC and the Agencies. Also, the remedial work plan will be designed to protect the local residents. There will be plans in place to protect the residents. Among other items, it will include a community air monitoring plan that will be done at a minimum while any intrusive work is occurring and contingency plans for anticipating problems that may arise and invoking appropriate responses.

COMMENT 2: Could the Department make clear which plan is on the “agenda.”

RESPONSE 2: The agenda for the June 14, 2011 meeting was to receive public comment on FMC's draft CMS. The Agencies considered the comments received on the draft CMS in making the preliminary selection of corrective measures for the Air Deposition Area 1 and the Culvert 105 Area (Study Areas). The Agencies expect to be issuing the Draft Statement of Basis, which sets forth its tentative selection of a corrective measure(s) for the Study Areas at or about the same time as the release of the response to comments on the CMS for the Study Areas.

COMMENT 3: The CMS provides for a ten year time frame for remediation, does this mean that the process will take 30 years from the time of the original order on consent? FMC estimates that Corrective Measure Alternative 2 (CMA 2) to require ten years and CMA 8, eight. This amount of time for construction activities to be carried out could be detrimental to the viability of the community. Another commenter requested that regardless of the alternative selected, the remedial actions should occur quickly. Yet others expressed frustration and complaints regarding the overall timing of the cleanup of the FMC Facility and off-site areas impacted by the Facility.

RESPONSE 3: The draft CMS provides estimated time frames for the various alternatives, as determined by FMC. The time frames are expressed in construction seasons and range from 0 to

10. The Agencies are mindful of the community's desire to see the remediation at the FMC facility and the affected areas of the community reach a conclusion. The Agencies share the Community's frustration with the timing of the overall remedial project and are committed to prioritize this facility to ensure the remediation is completed as quickly as possible. FMC's timeframes are based on a level of effort that they are proposing and that an increased level of effort will reduce implementation time frames. The Agencies consider the FMC proposed timeframes to be excessively long.

The NYSDEC will be devoting additional staff to accelerate the pace of this cleanup project. The Agencies are hopeful that FMC will welcome this commitment and work closely with the Agencies and the Community to complete the cleanup of the facility and off-site impacted areas.

COMMENT 4: One resident offered fill material from a planned construction project on his property.

RESPONSE 4: Comment noted.

COMMENT 5: A commenter noted that the Agencies directed FMC to expressly state in the draft CMS that i) some conclusions are the opinion of FMC and ii) the Risk Assessment Approach was not agreed to by the Agencies. The commenter stated that the Agencies had committed to make their opinions and conclusions available in separate documents. What is the status of these other documents?

RESPONSE 5: Attached are two NYSDOH fact sheets, *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions*, which discusses arsenic and human health risk information and *The Development of New York State Soil Cleanup Objectives for Arsenic* which discuss the above issues.

COMMENT 6: What are the key target dates for events that need to occur after the current public comment period ends.

RESPONSE 6: The release of the Draft Statement of Basis will commence a 45 day comment period, after which the Agencies will timely evaluate the comments and make a final selection of corrective measures for the Study Areas. Subject to comments received, the Agencies expect to release the final Statement of Basis in the summer of 2012.

COMMENT 7: Several commenters, from within and some from outside of the Middleport Community, supported the corrective action management unit (CAMU) proposal in the CMS. The Agencies also received comments opposed to the CAMU from residents and elected officials. For example, a resident within the Air Deposition Study Area opposed the CAMU for some of the same reasons as set forth below by the Middleport Community Input Group. (MCIG) and noted that lowering the height or shrinking the footprint would not satisfy her concerns. The Village also submitted a letter opposing the CAMU and asserting that it would violate the CAMU regulations. The MCIG provided a list of their concerns relative to the CAMU:

- Aesthetics and psychological impact for the community. The CAMU would be visible from Route 31 and the School, and lowering the height or shrinking the footprint would not satisfy many of the commenters concerns.

- Close proximity of the school and its athletic fields
- Property values and community morale
- Unfavorable publicity
- Migration of dust to the school yards
- No Environmental Impact Study completed
- Technical concerns including water runoff during severe storms, use of bottom liners, a buffer area around the CAMU, dust during construction; and placing contaminated waste in uncontaminated areas
- Length of time that the CAMU would receive waste and the associated truck traffic
- Short term benefit of timely completion using the CAMU compared to lifelong impact of the CAMU.

RESPONSE 7:

The Agencies have evaluated both the on-site CAMU and off-site disposal options using the seven criteria set forth in the CMS which include many of the concerns raised in this comment. Based on that evaluation, the Agencies have determined that both off-site and on-site disposal are reasonable options if all technical and regulatory requirements are met. An onsite CAMU would be built in a manner that ensures protection of human health and the environment, i.e., there will be no exposure to the community. And clearly the exposure to the community would be less relative to the potential for exposure that exists currently with soil in people's yards. Off-site disposal would also prevent exposure to the contaminated soils but would necessitate more truck traffic. The details of this evaluation are presented in Appendix B of the Draft Statement of Basis.

The Statement of Basis will not represent a final decision on FMC's CAMU application by the Agencies. If FMC was to want to build a CAMU it would be required to resubmit an application, meet all requirements in the regulations, and get approval of the application.

COMMENT 8: Some commenters provided support for FMC's proposed alternative CMA 1 (No Action) or CMA 3 (limited removal) and/or opposition to CMA 2 and CMA 8. A number of commenters, including the MCIG, indicated that CMA 2 and CMA 8 are unacceptable to them believing that the arsenic cleanup criteria is too conservative resulting in no flexibility for property owners who want to save trees or landscaping and the time required to execute is excessive. Several comments supported CMA 1 or CMA 3, since in their opinion these alternatives were both adequately protective of human health and environment, and best satisfied the Agencies' Corrective Action Objectives (CAOs).

RESPONSE 8: We appreciate the support voiced for different alternatives considered by FMC. The Agencies have carefully weighed each alternative in light of comments received and the remedial goals (corrective action objectives) as well as other criteria set forth in the 1991 Administrative Order on Consent and approved CMS Workplan. The draft SB discusses the Agencies' proposed remedy, which includes some case-by-case flexibility to accommodate preservation of certain property specific features (e.g., trees) where possible. Ultimately, the property owner does have the right to decide on whether or not their property will be remediated.

COMMENT 9: Some commenters opposed further cleanup at the Roy-Hart School. Many commenters indicated that the interim cleanup measures in 1999 were sufficient.

RESPONSE 9: The Interim Corrective Measures implemented in 1999 were limited to the School's athletic fields. There were additional areas of the school property where the Agencies decided to not make a decision to remediate until the completion of the RFI and CMS process. These areas exceed the cleanup values established in the Draft Statement of Basis and will, subject to public comment, require further remedial action.

After completion of this ICM, the Agencies conducted an evaluation of the remaining arsenic concentrations in school soils. This evaluation also included a recalculation of EPA's 1998 human health risk assessment for student athletes and non-athletes using arsenic data from school soils outside the remediated area. As a result, the Agencies provided a letter to Roy-Hart School officials which stated "the entire school yard is suitable for both athletic and non-athletic uses by all school children, in terms of their exposure to known school yard arsenic concentrations" However, this letter also indicated that no final decisions regarding the soils on the school property would be made until FMC completed the Corrective Measures Study (CMS) which includes the school property.

Although the property is currently used as a school the current zoning is "residential" and would allow for future residential use. Additional remediation is needed based on potential future residential development.

COMMENT 10: One commenter wrote that they were "disturbed" to hear that FMC consultants are proposing increasing the site specific background level above the presently proposed level of 20 ppm of arsenic. The commenter went on to note that the 20 ppm is "in concert" with the Part 375 soil cleanup objective (i.e., 16 ppm); which this commenter asserted is "high" compared to a national review including 15 states that had soil cleanup objectives and background levels for arsenic, including NJ, Connecticut and Michigan. The commenter disagreed with a cleanup level above 20 ppm. The commenter suggested that FMC's work is "based on incomplete understanding of the health effects of arsenic."

RESPONSE 10: See NYSDOH fact sheet, *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions #8*. The Agencies agree with this comment and note that we have not accepted FMC's proposal to revise the background levels upwards.

The Agencies received a letter from the Royalton-Hartland School District containing Comment 11 (paraphrased).

COMMENT 11: The school district submitted comments indicating that the future land use of the school property should be considered "residential." This was supported by a resolution by the Royalton-Hartland Board of Education, adopted at the January 14, 2010 meeting.

RESPONSE 11: The current Middleport Zoning designates the school property as residential. The Agencies' proposed remedy as it pertains to the school property allows for future residential usage without restriction. Also, see Response #9 for additional details.

The Agencies received various communications and documents from the Middleport Community Input Group (MCIG) during the comment period, which are summarized in comments 12-18 below.

COMMENT 12: The Department received “talking points” on the CMS for Air Deposition Area 1 and Culvert 105. These concerns were reiterated in an email dated June 20, 2011 from the MCIG. In summary, these documents state:

- that there is no evidence of a health danger in Middleport due to arsenic contamination;
- cite to numerous studies or statements over the years in support of the conclusion that no health risk is presented and support FMC’s site-specific health risk assessment in the Draft CMS Report;
- assert that the Agencies have not presented any evidence that the arsenic poses a hazard, that Agency conclusions are based on approximations and assumptions, that there is no evidence of arsenic uptake into homegrown produce, that arsenic bioavailability is not being considered by the Agencies, and requests for additional information relative to the health impacts of arsenic to the Middleport residents.
- assert that the information upon which the Agencies are considering levels over 20 ppm unacceptable are flawed. Agencies need to demonstrate with hard evidence the significant benefit of reducing 30 ppm to 20 ppm for a residential yard, and 40 ppm to 20 ppm;
- assert that levels of arsenic in Gasport range to 122 ppm, and ask why is this different;
- suggest that the trees will be taken away after remediation resulting in possibly lower property values and their absence will detrimentally effect future residential heating and cooling costs. The documents call for a plan to assure that FMC replants trees, shrubs, grass and flowers and that trees left in place have a post-remediation care program if their root structure was disturbed;
- oppose the use of a CAMU;
- request timely completion of the corrective action for the entire Facility including off-site areas;
- advocate for the input of the residents on the cleanup on their property;
- state that NYSDEC Soil Cleanup Objectives (SCOs) for arsenic were developed for “Brownfield” sites and are not applicable or appropriate for a non-Brownfield residential cleanup;
- assert that residents concerns which have been presented to the Agencies have not been addressed to the community’s satisfaction; and
- request that an environmental impact study be conducted to determine the potential adverse effects of remediation on the local ecosystem.

RESPONSE 12: With respect to the commenters concern regarding potential human health risks posed by exposure to arsenic in soil at specific concentrations, the Agencies have attached the NYSDOH fact sheet *The Development of New York State Soil Cleanup Objectives for Arsenic*. Also, with regard to the specific issues of arsenic bioavailability and arsenic in homegrown produce raised by this comment, responses have been provided by the NYSDOH fact sheet *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions #2 and #5* respectively. Also, see Response #46 in this document.

The full range of the arsenic concentrations from the Gasport soil sampling was used in establishing arsenic background for the Middleport area. Discussion of Middleport arsenic background derivation from the Gasport data is provided by No. 8 in the attached fact sheet *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions*.

There are a number of elements in the Agencies' proposed remedy which are designed to preserve mature trees and replace trees which are removed. These elements are presented in the Agencies' draft Statement of Basis and are summarized below:

- For each individual property where remediation is required, the proposed remedy allows the Agencies to employ flexibility to determine whether remediation is complete on a property. This may occur when some discrete samples do not meet the established arsenic cleanup goal based on the inherent variability of arsenic concentrations in soil, the uncertainty of sampling and analysis, or some other case-specific factors. This flexibility in determining achievement of the arsenic cleanup goal on each property may be used to avoid or limit excavation in a tree's root zone, and thereby result in the preservation of some mature trees.
- The proposed remedy requires the development and implementation of a Tree Preservation Plan. This plan would require an independent arborist's evaluation of individual trees, additional sampling to better characterize arsenic concentrations in soils within each tree's root zone, and a number of excavation methods and techniques designed to minimize damage to the tree's root system. An outline of this plan is provided in Appendix C of the draft Statement of Basis.
- Where mature trees cannot be preserved and still meet arsenic cleanup goals or where the property owner would like the tree(s) removed from the area to be excavated, the proposed remedy requires tree replacement at the discretion of individual property owners.

The Agencies have determined that both off-site and on-site disposal are reasonable options if all technical and regulatory requirements are met. As stated above, the details of this evaluation are presented in Appendix B of the Draft Statement of Basis (dSB). The Statement of Basis (SB) will not represent a final decision on FMC's CAMU application by the Agencies. If FMC was to want to build a CAMU it would be required to resubmit an application, meet all requirements in the regulations, and get approval of the application.

The Agencies agree that the remedy should be completed in a timely manner. It should also be implemented to the property owners' satisfaction and to minimize disruption to the community. Also, see Agencies' Response #3 for further discussion.

Input from residents has been solicited and considered through the public comment process associated with FMC's Draft CMS Report. It is also being considered through the public comment process associated with the Agencies' draft Statement of Basis and future work plans developed to implement the remedy. In addition, the Agencies' proposed remedy requires that each affected property owner be provided an opportunity to provide input on the development of remedial plans pertaining to his/her individual property.

This comment alleges that the NYSDEC SCOs are not applicable to non-Brownfield residential areas; the Agencies must point out that this is incorrect. While it is true that the SCOs were developed as a result of State legislation governing “Brownfield” properties it is not true that their usage is limited to such properties. In 2006, the NYSDEC promulgated revisions to its Part 375 regulations which made clear that the SCOs were applicable to State Superfund Sites which includes the FMC site and releases from this site. Also in 2010, the NYSDEC issued a Commissioner’s policy which made clear that the SCOs were also applicable to facilities regulated under the Resource Conservation and Recovery Act (RCRA), which also includes the FMC site and off-site areas impacted by releases from this site (see Commissioner’s Policy-51/Application of Soil Cleanup Objectives at: http://www.dec.ny.gov/docs/remediation_hudson_pdf/cpsoil.pdf). Further, the Agencies would note that the proposed remedy does not apply the State’s arsenic SCO of 16 ppm but rather utilizes a site-specific SCO developed from local background data (20 ppm).

The Agencies have and will continue to make every attempt to satisfy the community’s concerns to a practical extent through the public involvement initiatives described above.

The Agencies have evaluated the potential adverse impacts on ecological systems in our selection of the proposed remedy. These evaluations are described in Section 7.1 and Appendix A of the draft Statement of Basis.

COMMENT 13: The Agencies have MCIG’s Response to Corrective Measures Alternatives, dated June 14, 2011. This document requests consideration of community acceptance relative to the correctives measure alternatives. Further, it advocates for CMA 1 as the most appropriate corrective measures alternative, but makes a secondary recommendation for CMA 3. The document states that CMA 2 and CMA 8 are unacceptable.

RESPONSE 13: See Response #8.

COMMENT 14: Past comments by the Agencies concerning FMC’s risk assessment approach indicate that the Agencies do not consider it appropriate to look at “incremental risk” (i.e., the difference in risk between site and background arsenic concentrations) as FMC has done in their risk assessment. However, FMC’s risk assessment also provides results in terms of “total risk” (i.e., risk presented by each CMA’s remaining arsenic levels), so why does it matter whether the report contains incremental risk results?

Agencies’ past comments have indicated that FMC’s assumed arsenic concentrations in their risk assessment representing current conditions for Central Tendency Exposure (CTE) and Reasonable Maximum Exposure (RME) (22.7 ppm and 24.6 ppm, respectively) are too low and not representative of current arsenic concentrations on most of the properties within the affected areas. However, FMC’s report indicates that these values were derived from property specific ranges where higher values were included for 190 properties. Is it the Agencies intention to have FMC perform a separate risk assessment for each property? Such an endeavor seems excessively time consuming, costly and unnecessary.

The risk assessment used by New York State to support the derivation of the State’s Soil Cleanup Objectives (SCOs) present an acceptable cancer risk range for arsenic which is lower than any of the CMA arsenic goals. If the agencies intend to use this State risk assessment to

justify their CMA selection in terms of protection of human health, why was a site-specific risk assessment performed by FMC and required by the Agencies' CAOs?

The Agencies need to understand the position of the property owners and residents. This is our personal property we are dealing with here, something many have spent a lifetime to develop and our biggest investment. This is not an abandoned industrial brownfield that is in the process of being reused for other purposes. However this has all been presented to the Agencies on behalf of the MCIIG, residents and property owners many times in the past without results. At this point we believe it most likely will not change anything now either. This appears to be in complete violation of EPA standards for public participation on RCRA projects.

RESPONSE 14: The Agencies acknowledge the concerns of the residents and have carefully considered the concerns in the development of the Draft Statement of Basis.

The Agencies' disagreement with FMC's risk assessments are in no way limited to FMC's use of "incremental risk" analysis. The Agencies find that the FMC risk assessments use assumptions that do not adequately address the significant uncertainties associated with estimating arsenic exposure and the potential cancer and non-cancer human health risks. As a result, the Agencies consider that these FMC assessments may substantially underestimate the potential human health risks associated with arsenic exposure, and therefore do not serve as an appropriate basis upon which to make risk management and remedial decisions. Also, see attached NYSDOH fact sheet *The Development of New York State Soil Cleanup Objectives for Arsenic*.

The Agencies consider the assumptions used by FMC in their risk assessments for existing arsenic concentrations in soil (i.e., 22.7 ppm CTE and 24.6 ppm RME) as marginally above local background and not representative of the higher arsenic concentrations on most properties within the study areas. They are statistically derived values designed to represent a "community-wide" exposure which is inappropriate since residents are far more likely to be exposed to the arsenic concentrations in the soil on their own property than anywhere else in the community. Therefore, FMC's use of these values in their risk assessments results in an under-estimation of arsenic risk to residents whose properties have higher arsenic concentrations in their soils.

It should be understood that FMC proposed to perform the particular site-specific arsenic risk assessments contained in their Draft CMS Report. It should also be understood that prior to the development of these risk assessments, the Agencies provided FMC with comments on FMC's proposed risk assessment approach and assumptions, and FMC elected not to incorporate all of the Agencies comments into its risk assessments. Failure to revise their risk assessment approach and assumptions consistent with the Agencies comments has compromised the conclusions drawn by FMC.

While the Agencies have not accepted FMC's site-specific risk assessments, this should not be interpreted to mean that we are opposed to site-specific risk assessments in general, as illustrated by their inclusion in our CAOs. As stated in the Agencies' draft Statement of Basis, the Agencies consider the arsenic risk assessments performed by NYSDOH in conjunction with the NYS Soil Cleanup Objectives to be appropriately site-specific in terms of addressing arsenic exposures in the Middleport community and adequately conservative with regard to the assumptions used to characterize those exposures (see above-mentioned fact sheet).

COMMENT 15: Necessary proof has not been presented that the levels of arsenic in most areas of farm land R1a and R1b is a health concern. This is farm land used to raise feed for animals and a sanctuary for wildlife. Remediation of this property would result in the removal of many food producing plants such as fruit trees and berry bushes, and it is doubtful that the tree preservation techniques described in the CMS would be successful in preserving the older fruit bearing trees. Also, remediation would result in a loss of a seasonal hay crop needed for others livestock. CMA 4 seems adequate for these farm land properties.

RESPONSE 15: The Agencies consider the arsenic concentrations in soil on these farm land properties to be a health concern based on the arsenic risk assessments performed by NYSDOH in conjunction with the NYS Soil Cleanup Objectives which account for ingestion of produce grown in garden or farm land soil. Although the comment points out some adverse effects associated with remediation of these properties, these must be weighed against the greater benefit such remediation would provide in terms of protecting human health and the environment. Also, in overseeing implementation of the proposed remedy, the Agencies would work closely with the property owner to minimize any adverse effects to the greatest extent practical. In addition, it should be noted that each property owner will have the final say as to whether their property will be remediated.

COMMENT 16: The process has been unbelievably long. At first some residents were scared by what they were told of the arsenic danger, but now that it has dragged on, most do not care and simply want it over and done with. It has held up a residential development for years. Residents should be given the final say as to what they want done with their property. The whole process is out of control and has been allowed to drag on far too long.

RESPONSE 16: See Response #3. Also, each property owner will have the final say as to whether their property will be remediated through the process of granting access for such remediation. The Agencies expect the remediation to be conducted and completed pursuant to a time schedule set forth in an Order.

COMMENT 17: Why was the Exponent Study from 2003/2004 not considered? In that Exponent Study, none of the 439 people (from children to adults) showed any health risk from the arsenic in the soil. The CDC was integrally involved with this study, and the NYSDEC and the NYSDOH were also involved. It has been reviewed by many toxicologists, epidemiologists, and other highly educated scientists involved. This peer reviewed study concludes with the following statement: "No clear evidence of elevated exposure from arsenic in soil was found for participants in this investigation. The overall low urinary arsenic levels and lack of relationship between arsenic in soil and arsenic in urine indicate that sources of inorganic arsenic other than soil (likely background levels in water and diet) are the primary contributors to inorganic arsenic exposure in this community." Again, why was this not considered?

RESPONSE 17: The Exponent study examined arsenic levels in biological samples from a small subset of the population. The Exponent study did not determine the amount of exposure participating individuals may have had to the soil in their yards over the period in order to evaluate whether arsenic would be expected to be observable in the biological samples collected (which generally reflect recent exposures). The study report shows that the arsenic levels in many of the soil samples collected from play areas and residential yards were generally around 20 ppm, or a bit higher. These facts, and the small study size, reduce the possibility that elevated

arsenic levels would be observable in the biological samples. This study did not examine the incidence of health effects in the community, nor does it estimate health risks. These results do not address the agencies' concerns about the potential long-term health risks, including cancer, presented by elevated arsenic concentrations in Middleport soils. See NYSDOH fact sheet, *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions*.

COMMENT 18: Why was the oral bioavailability of arsenic not considered by the Agencies in the risk assessment? By omitting any bioavailability factor in assessing risk, the Agencies are denying the research and reputable science behind this factor. FMC's evaluation of the arsenic bioavailability in Middleport soil was done in concert with the USEPA and NYSDEC, and was peer reviewed by third party experts in the field of toxicology. Although the Agencies have not challenged the way this study was conducted or disputed its results, they have refused to consider the resultant bioavailability in any risk assessment without justification for its omission.

Similar research has been performed with regard to dermal bioavailability which is also not being considered. "Research on arsenic in solution, and arsenic in solution in the presence of soil, conducted by Dr. Wester using Rhesus monkeys (Wester et al, 1993) forms the technical basis for guidance from EPA regarding dermal absorption of arsenic from soils (U.S. EPA 1992, 2004). However, our understanding of the geochemistry of arsenic suggests that, for soils that are weathered in the environment, arsenic is likely to be present in more stable alteration phases and would not be expected to behave like soluble arsenic." "Similarly, research directed at understanding the potential for dermal absorption of arsenic from soils indicates that arsenic in soil is not absorbed across the skin as well as soluble forms of arsenic. These results indicate that dermal absorption of arsenic from soil is negligible, is unlikely to contribute to human exposures, and does not warrant quantification in assessment of exposures from site soils."

Finally, in a study published September 13, 2007, in "*Tox Sci Advance Access*", which includes DR. WESTER who is aware now of these new findings), the following statements are made. "Recent studies on parameters associated with soil ingestion pathway suggest that the default parameters [which NYSDEC, NYSDOH, and the EPA are using as THEIR accepted numbers] may significantly overestimate exposures via ingestion. As the estimates for ingestion become lower, it becomes even more vital that we refine the estimates for dermal contact, or risk assessors [NYSDEC, NYSDOH, EPA] could significantly overestimate the contribution of dermal contact to total exposures from arsenic in soil." ...Even an upper bound soil ingestion rate is almost 2-fold lower than the current default of 200 mg/day. ...Our findings suggest that dermal absorption or arsenic from soil is truly negligible, and that EPA's current default assumption of 3% dermal absorption of arsenic from soils results in significant overestimates of exposure."

In light of the above recent research, the Agencies need to justify the over-estimation of oral and dermal bioavailability that are being assumed for Middleport soil.

RESPONSE 18: The bioavailability of arsenic in soil, or the amount of arsenic ingested in soil that actually gets absorbed into the body, depends on many factors, including the solubility of the chemical form of arsenic in the soil, the type of soil, the arsenic soil concentration, the presence of other contaminants, and the fasting status and age of the person ingesting the soil. There is limited information on how these factors can change the bioavailability of arsenic in any given exposure situation, and therefore it is difficult to make accurate estimates of bioavailability of

arsenic that would apply to every situation. Because of this we assumed a bioavailability factor of one, which means that the bioavailability of arsenic in the soil matrix is considered equal to the bioavailability of arsenic in water.

Compared to the incidental soil ingestion pathway, the amount of arsenic exposure through desorption of the contaminant from the soil and subsequent absorption through the skin is small. Consequently, the absorption of arsenic through the skin was not a major contributor in the derivation of the risk-based residential soil clean-up objective (SCO) for arsenic. With respect to the oral bioavailability, there may be specific circumstances where less than 100% of the arsenic is absorbed into the body from soil after incidental ingestion. However, even assuming lower relative oral bioavailability values for arsenic in soil (e.g., the default value of 50% suggested by US EPA Region 8, or the range of values from studies of arsenic bioavailability in monkeys (5 to 31%) (US EPA Region 8, 2012)) will still result in a risk-based arsenic SCO that is lower than typical background levels. As specified by the legislation that required the SCOs, the final SCO is set at background levels when the risk-based SCO for a chemical is lower than background levels. Thus, use of lower oral bioavailability estimates would not change the value of the final SCO for arsenic, which is set at background levels.

Also see response to comment #46.

Attached is the NYSDOH fact sheet *FMC-Middleport, Arsenic Soil Contamination Frequently Asked Questions*, that provides responses to some routinely asked questions which have been expressed relative to FMC and arsenic. Also attached is the NYSDOH fact sheet *The Development of New York State Soil Cleanup Objectives for Arsenic*, that provides further information relative to the adverse health effects in humans from arsenic and information relative to the Soil Cleanup Objective for arsenic. These two documents are responsive to this comment.

The Agencies received a 13 page letter from FMC dated June 30, 2011, which are summarized in comments 19-25 below.

COMMENT 19: FMC stated that the Agencies have discretion in the decision on the CAMU but that discretion must be exercised consistent with the fundamental predicates and purposes of the CAMU rules, as follows: (1) facilitate more extensive cleanups; and (2) ensure that the resulting remediation materials are managed safely and in a manner that is protective of human health and the environment. FMC also set forth the regulatory criteria under 6 NYCRR 373-2.19(c) and 40 CFR §264.552(c).

RESPONSE 19:

The Agencies have determined that both off-site and on-site disposal are reasonable options if all technical and regulatory requirements are met. As stated above, the details of this evaluation are presented in Appendix B of the dSB. The SB will not represent a final decision on FMC's CAMU application by the Agencies. If FMC was to want to build a CAMU it would be required to resubmit an application, meet all requirements in the regulations, and get approval of the application.

COMMENT 20: FMC commented that it understood that there are some community concerns that the proposed CAMU may have negative effects on Middleport economics (e.g., property values), reputation and aesthetics. However, it posited that the company's actual experience to date in performing the corrective action program in Middleport demonstrates that the CAMU, as proposed, will not harm the long term economics, reputation and aesthetics of the surrounding community.

RESPONSE 20: See Response #7 and Appendix B of the Draft Statement of Basis.

COMMENT 21: FMC indicated that the proposed CAMU will facilitate a broad, reliable and cost-effective remedy, will not impact the environment, will be consistent with the current industrial use of the property, and will not degrade (or even substantially alter) the aesthetics of the FMC Facility.

RESPONSE 21: See Response #7 and Appendix B of the Draft Statement of Basis.

COMMENT 22: FMC discussed the application of the Soil Cleanup Objectives set forth in 6 NYCRR 375 as relevant standards to consider. FMC advocates that while not binding, that in the framework created by the CAOs, the Part 375 rules and SCOs are bodies of relevant information to be considered in the evaluation of CMAs and as part of the corrective action decision-making process.

RESPONSE 22: The Agencies agree that the SCOs, alone, are not controlling. However, the SCOs, and the science and evaluations upon which they were developed, are appropriate and relevant information forming one line of evidence to consider. Also see Response #12.

COMMENT 23: FMC requested that the Agencies' Fact Sheet regarding the Draft Corrective Measures Study Report dated May 2011 be revised to provide additional information relative to the 20 ppm arsenic level.

RESPONSE 23: The Agencies decline to revise the Fact Sheet. The information in the Fact Sheet is accurate. The entire background study performed by FMC is available in the document repositories.

COMMENT 24: FMC discussed the derivation of the local arsenic background value and advocated use of its re-calculated value based on the weighted 98th percentile of the Gasport data set instead of the weighted 95th percentile which was used by the Agencies to establish the 20 ppm background arsenic concentration from the approved 2003 FMC Background Study. FMC also pointed out that use of the 98th percentile would be consistent with the statistical approach used by NYSDEC in developing the SCOs.

RESPONSE 24: A number of statistical values were derived from the Gasport arsenic data set and presented in FMC's 2003 Background Study Report. After a careful evaluation of the entire Gasport data set and Middleport weighting factors, the Agencies selected the value derived from the weighted 95th percentile (i.e., 20 ppm) since it was determined as best representing the upper limit of local arsenic background taking into account the human health and environmental concerns associated with establishing such a value. With regard to difference in statistical

parameters pointed out by this comment (i.e., 95th percentile for local arsenic background vs. 98th percentile for SCOs), the Agencies consider that the selection of a statistical parameter should be based on a careful evaluation of each data set, and not set in a vacuum that does not consider the data distribution of these individual data sets, as well as other factors (e.g., human health concerns).

COMMENT 25: FMC discussed and defended its Human Health Risk Assessment. The information contained in this comment is also set forth in FMC's Risk Assessment Approach.

RESPONSE 25: See Response #14

The Agencies received a letter from the Village of Middleport dated June 30, 2011, which are summarized in comments 26-34 below.

COMMENT 26: The Village is opposed to selecting arsenic remedial goals based on non-residential future use which were not reviewed by the Planning Board and may limit future development in the Village. The Village opposes the use of institutional or engineering controls within the Village, and especially on Village owned property.

RESPONSE 26: The Agencies are aware of the Village's opposition to controls. The Agencies proposed remedy does not include institutional or engineering controls on properties within the Study Areas, except for those already established on the Wooded Parcel (i.e., Coe property). Complete implementation of this proposed remedy will result in un-restricted use of all remediated properties within the Study Areas (including residential use) except for the Wooded Parcel.

COMMENT 27: The Village opposed different cleanups based upon use.

RESPONSE 27: The Agencies' proposed remedy establishes a single arsenic remedial goal (i.e., 20 ppm at all locations with limited case-specific flexibility) for all properties within the Study Areas regardless of current or future property usage. The exception is for the Wooded Parcel as discussed in Response #26.

COMMENT 28: The Village stated that FMC has embarked on a public relations campaign regarding the CAMU. The Village opposes the CAMU based on numerous factors including the proximity to school, the negative impact on future development, economic and quality of life issues. The Village questioned the legality of bringing off-site soils back to the Facility under the CAMU regulations.

RESPONSE 28: See Response #7 and see Appendix B of the Agencies' draft Statement of Basis.

COMMENT 29: The Village requested that the selected CMA for Wooded Parcel should be revised to require more frequent mowing.

RESPONSE 29: The Agencies will consider this request, in consultation with FMC, as part of our evaluation of the Wooded Parcel Site Management Plan.

COMMENT 30: The Village requested that the culvert and ditches be replaced and not slip lined.

RESPONSE 30: The Agencies proposed remedy requires replacement of any Culvert 105 pipe sections that are removed during implementation of the remedy. Slip lining the pipe was not included as an alternative in the CMS nor would it be an acceptable remedy to the Agencies.

COMMENT 31: The Village stated that the cleanup levels should allow the Agencies to declare that no abnormal health effects based upon cleanup - nothing more and nothing less.

RESPONSE 31: The Agencies are proposing a select cleanup level which, based on presently known information, will be protective of human health.

COMMENT 32: The backfill should be of same/similar quality as the material removed. The Village indicated that this may not have been the case in the past.

RESPONSE 32: The Draft Statement of Basis requires that the backfill material meet the requirements set forth in 6 NYCRR 375-6.8. Inasmuch as 6 NYCRR 375-6.8 does not address the organic content or the suitability of the soil to support vegetation these concerns will be addressed in the restoration plans, which are required by the proposed remedy and to be developed during the remedial design phase.

COMMENT 33: The Village supports tree preservation efforts, but only if it doesn't result in elevated levels remaining post-cleanup that require deed restrictions.

RESPONSE 33: As discussed in Response #12, the Agencies will have some flexibility to determine that remediation is complete where some discrete samples do not meet the established cleanup levels. This may allow for limited or no excavation within tree root zones in some cases. Also, the remedy requires a Tree Preservation Plan which will include excavation methods with root zones designed to preserve trees which could be implemented in certain applicable situations. However, situations could occur where excavation within root zones to achieve the cleanup goal would require the tree to be removed and the property owner refuses such removal. In such situations the Agencies do not intend to impose deed restrictions, but would not be able to provide the property owner with documentation stating that the cleanup goal was achieved on their entire property. Also see Response #26.

COMMENT 34: The Village is opposed to the timing predicted by FMC in the CMS or anything near that.

RESPONSE 34: See Response #3.

The Agencies received various communications and documents from the general public during the comment period, which are summarized in comments 35-36 below.

COMMENT 35: One commenter living along Culvert 105 inquired as to what accommodations with regard to pets or other things, which he may need to make during remediation.

RESPONSE 35: See Response #1.

COMMENT 36: Some commenters stated that they had landscaping that they did not want destroyed by remedial activities.

RESPONSE 36: Property owners always have the ability to reject a cleanup on his/her property. The proposed remedy provides some limited flexibility in determining achievement of the arsenic cleanup goal on each property, which may, in specific cases, allow for preservation of landscape features. Where preservation has been deemed not possible, landscape features will be replaced in-kind. Specifics regarding landscape preservation will be addressed during the remedial design phase in consultation with individual property owners. Also, see Response #12 and Section 8 of the Agencies' draft Statement of Basis for additional discussion.

The Agencies received the following additional comments from the Middleport Community Input Group (MCIG) during the comment period, which are summarized in comments 37-39 below.

COMMENT 37: The residents attending MCIG meetings believe the Agencies will select an alternative based on regulation for brownfield cleanups that will not meet the criteria of community acceptance, causing vast excavation of the community and destroying the character of the village in an effort to make the area pristine. We absolutely oppose any remediation efforts like those performed on Vernon Street several years ago. However, depending on the cleanup alternative selected, the outcome this time could be similar. This goes against what the MCIG has fought for the past several years. It also violates the intent of the Corrective Action Objectives which calls for other lines of evidence to be used to make the selection which was agreed to by the Agencies, FMC, the residents and other stakeholders associated with the project such as local governments. Ignoring residents' concerns and agreed to documents goes against EPA standards for public participation for RCRA projects.

RESPONSE 37: The Agencies believe that the alternative proposed in the Draft Statement of Basis best meets the applicable regulations and the CAOs. It also is proposed based on multiple lines of evidence which are more fully set forth in that document. It is the Agencies' intention to work very closely with individual residents and the community as a whole, in developing various implementation plans to both minimize community disruption during remediation and maximize preservation of elements that contribute to the character of the community (e.g., mature trees). Also see Responses #1, #8 and #12, and the evaluations presented in the Draft Statement of Basis.

COMMENT 38: The MCIG has heard many times the Agencies want to protect human health. If a CMA is selected that is not acceptable to some residents, they may not allow remediation on their properties possibly leaving high levels of contamination in place. This would not be protective of human health. Protection can be implemented by selecting a more flexible alternative that will clean up higher levels of contamination but not necessarily leave the area in a pristine state.

RESPONSE 38: The Agencies understand that some residents may refuse to allow access and/or remediation of their properties based on the Agencies' proposed selected remedy. It is the Agencies' intention to work closely with individual property owners during implementation planning and restoration to accommodate their property specific concerns to the greatest extent practical. It is possible that after consultation with the Agencies to make an informed decision regarding remediation, owners may refuse to allow access and remain exposed to elevated arsenic concentrations in their property's soil. The proposed remedy provides opportunities to rectify such situations by requiring FMC to periodically offer remediation to property owners who initially refuse access and to any new owners of such properties in the future. Also, see attached NYSDOH fact sheet *The Development of New York State Soil Cleanup Objectives for Arsenic*

COMMENT 39: The MCIG does not believe there is a real health risk in the community based on past testing and analysis performed by the Agencies and FMC and no evidence of widespread diseases in the community. The MCIG asks Agency management to seriously consider the concerns of the residents of Middleport when making their selection of a CMA.

RESPONSE 39: See the attached NYSDOH fact sheets, *The Development of New York State Soil Cleanup Objectives for Arsenic* and *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions* #3, #6, and #7.

The Agencies received various communications and documents from the general public during the comment period, which are summarized in comments 40-43 below.

COMMENT 40: Nothing has led me to believe that the numbers for cleanup that the Agencies are working toward are really in the best interest of this community. If this arsenic contamination is really such a danger, why has this issue dragged on for so many years? I can't help but feel that the agencies have backed themselves in a corner. You don't want to settle on a number since that would set precedence in New York State. Meanwhile, this community and its residents live in limbo while our property values decline. Please listen to the residents of this community and give our voices a stronger level of importance. To come out now and say that the risk assessment done is not to your liking, without any figures from testing of your own, is just so frustrating. Remember, you are dealing with a community of human beings not an abandoned factory site. I believe that the process we are going through should give equal weight to the Agencies, FMC and the community. Sadly, I think that our side of the triangle is out of balance with the rest.

RESPONSE 40: The Agencies are committed to selecting a remedy that is adequately protective of human health and the environment, and which will achieve unrestricted use for the maximum number possible of affected properties. We are also committed to seeing that the remedy is implemented in a manner that accommodates the community and individual residents to the greatest practical extent and is completed in as timely a manner as possible without an unnecessary amount of disruption. Also, see attached NYSDOH fact sheet, *The Development of New York State Soil Cleanup Objectives for Arsenic*.

COMMENT 41: Where will the dirt come from to backfill the excavations? Where will you find “clean” soil?

RESPONSE 41: The source of backfill will be determined during the design stage of the project. Also, see Response #32.

COMMENT 42: Today, we know much more about how arsenic affects people, especially children. Arsenic is a Class A Carcinogen. Class A classification is not rendered without significant data to validate that conclusion. Arsenic is a carcinogen and causes cancer.

What isn't being discussed are the major impacts arsenic has on children both medically and educationally. The EPA's web site has numerous reports available that document the serious life altering affects of children exposed to arsenic in all stages of development. The exposure can happen as early as prenatal development and continue through all stages of development.

Data compiled from several University studies (available on the EPA website) show that environmental exposure to the neurotoxicant arsenic causes permanent cumulative cognitive harm to children. Some of the most recognized issues caused by arsenic are Autism, Neurodevelopmental Disorder, Attention Deficit Hyperactivity Disorder and lower IQ scores.

FMC produced one study it says documents no adverse exposure. There was no chain of custody controls on the samples taken to verify who they actually belonged to. Participants were instructed to place samples in a cooler on their porch in the morning and someone would pick it up during the day. This study tracked 24 children. Three of those children had just moved to Middleport and do not live within the historic air deposition area. That significantly skewed the findings of the report.

In contrast, the EPA used several studies performed at universities throughout the Country. These studies were not contracted and financed by the company/companies responsible for the contamination. They were completely unbiased and used verifiable data.

Perhaps a controlled study of measurable cognitive abilities of the Royalton- Hartland students should be conducted with proper controls, by an organization chosen by the school district. Given the amount of research available, this might prove a better way to gauge exposure.

RESPONSE 42: The New York State Department of Health is aware of the potential health effects of arsenic on children, particularly with respect to recent evidence from studies in people and animals that suggest the very young may be more sensitive to the carcinogenic effects of arsenic than adults. The potential sensitivity of children to the health effects of arsenic, as well as the contaminant's ability to cause human cancers are among several factors leading to our conclusion that remedial goals for arsenic should be at levels consistent with those of typical soils (i.e., background). Also see attached NYSDOH fact sheet *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Question #1*.

Reference: US EPA Region 8. 2012. Bioavailability. Accessed on-line (February 27, 2012) at http://www.epa.gov/region8/r8risk/hh_rba.html#recs.

COMMENT 43: FMC would like to use a remedial action level that would not meet the current residential standard in the Village. The school property is zoned residential and will continue to be. It is unrealistic to expect that a school building that is over 100 years old to remain a school indefinitely. At some point the school will need to calculate the cost of maintaining against the cost of rebuilding. FMC stated they spoke with people in the community and determined the school would most likely always be a school. They did not speak with school officials who would have access to all the pertinent information regarding the issue. They relied on nothing more than gossip to make a determination they had no right to make.

The information regarding the effects of arsenic on children is becoming increasingly clear. Even in small doses, it has life changing implications. The main priority should be their well being above all else. I support the classification of residential property for the school grounds and that it be remediated accordingly.

RESPONSE 43: The Agencies proposed remedy pertaining to the School property would allow for future residential use. Also, see Responses #9 and #11.

All of the remaining comments were derived from the transcript of the June 14, 2011 public meeting.

MCIG comments from the public meeting are paraphrased in comments 44-55.

COMMENT 44: The Agencies need to identify what has changed or if any new data has been discovered that alters the conclusions of the study on comparative cancer incidences in Middleport performed by Dr. Holley L. Howe for the DEC in 1987. This study estimated health risk due to the environment to be about five percent of all other risks with smoking and diet being the highest risk. Hereditary factors were not mentioned in the study but today, it is known that this is a significant factor to cancer risk.

RESPONSE 44: See attached NYSDOH fact sheet, *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions #7*.

COMMENT 45: Referring to the USEPA risk base soil screening levels, does .1 to 10 parts per million of arsenic soil concentration now correspond to the cancer risk range of one in a million to one in 10,000 expected incidences of cancer over a lifetime rather than the .4 to 40 parts per million of soil concentration as we have had in the past or currently have. If so, the Agencies must explain the study or studies that were used to arrive at the new criteria including the effect of any new criterion has on the New York State background level of 16 parts per million, which would be outside the new risk range. If the new criterion is to be used as a standard, then the Agencies should explain why it is not a health risk to live in New York State.

RESPONSE 45: See the NYSDOH fact sheets, *The Development of New York State Soil Cleanup Objectives for Arsenic* and *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions #4*.

COMMENT 46: The MCIG disagrees with the use of a bioavailability factor of one in the calculations of risk assessment as being unrealistically and unnecessarily conservative. Studies have shown typical bioavailability to be less -- much less than one for arsenic in soil. And that's not arsenic and drinking water, which is a different factor. Using a factor of one could result in remedial alternatives that are unnecessarily intrusive and that fail to reflect actual conditions in Middleport.

RESPONSE 46: See the NYSDOH fact sheets, *The Development of New York State Soil Cleanup Objectives for Arsenic* and *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions #2*.

In addition, it should be noted that applying alternative bioavailability factors for arsenic in the risk assessment component of deriving the SCOs would not materially affect the outcome of that effort. The combination of the carcinogenic potency of arsenic and the legislative mandate to link the SCOs to a one per million risk level drive the resulting risk-based concentrations to very low levels. Consequently, the arsenic SCO was ultimately based upon the statewide background sampling results, not on the results of the risk assessment. Substituting lower bioavailability factors for arsenic into the risk assessment would raise the resultant risk-based concentration estimate somewhat, but that estimate would still be lower than the background level that was used to set the final SCO for arsenic.

COMMENT 47: There must be a plan for FMC to assure that replanted trees, shrubs, grass, and flowers get well established and that any tree that has its roots disturbed is given sufficient care to recover. This should not be left to the property owner to spend their time and money. Village water is not free.

RESPONSE 47: The Agencies agree that care should be taken to protect trees and that habitats should be restored. Also, see Responses #12 and #36, as well as Section 8 and Appendix C in the draft Statement of Basis for additional information in response to this comment.

COMMENT 48: The MCIG objects to the consumption of home grown produce as a factor in risk assessment. The Agencies need to demonstrate that home grown produce is a significant threat to residents. FMC study, which was done by Exponent, an outside group, indicated it was not. The final remediation study indicated that plants used in the study with the exception of break ferns had no significant arsenic uptake. Data needs to be provided that shows common garden plants uptake sufficient amounts of arsenic to cause health problems and simple washing is not enough to reduce the risk.

RESPONSE 48: See attached NYSDOH fact sheet *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions #5*.

COMMENT 49: Since there's been no concrete evidence or statistical data that point to the health hazards in Middleport, community acceptance should carry the most weight in the CMA evaluation criteria. What solutions will be provided to property owners who agree to have their property sampled have elevated levels of arsenic, but are not included in the CMS, to leave them on their own is unacceptable. Property owners should be part of the discussion when selecting a

CMA alternative for their property. Owners should be allowed to a less stringent CMA knowing that restriction may be applied to their deeds and that FMC would still be responsible for cleanup if property usage were to change in the future.

RESPONSE 49: See Responses #40 and #55. Some sampled properties were found to have elevated levels of arsenic in their soil (i.e., arsenic concentrations above the 20 ppm local background level), but which were determined to not be attributable to releases from the FMC facility. Since FMC is not legally obligated to address contamination that is not suspected to have originated from its Middleport facility, these properties were not included in the CMS. The Agencies have notified each of these property owners of the situation and that we are available to advise them on a course of action should they inquire. The Agencies have no intention of placing any formal restrictions on these properties.

COMMENT 50: In the past, comments and concerns from residents have been addressed in a less than satisfactory manner by the Agencies leaving those comments unanswered and concerns unresolved. During this and subsequent comment periods, all comments and concerns should be resolved so that the residents' concerns are satisfactorily addressed or they acknowledge that agreements cannot be reached. Agencies' responses that do not directly address residents' concerns or that appear to be evasive will not be acceptable. It will also not be acceptable for the Agencies to be dismissive and then cut off discussion with the phrase, quote, the Agencies have made their decision and are moving on, unquote.

RESPONSE 50: The Agencies have, and will continue, to strive to be responsive to all the comments received. Also see Responses #6 and #12.

COMMENT 51: The MCIG does not believe that it is good science for the Agencies to rely on studies relating to cancer risk and arsenic exposure performed in China that were based on arsenic intake from drinking water, not exposure to soil contamination. The MCIG would expect the Agencies to understand and help residents understand exposure to arsenic dissolved in drinking water is a much higher risk concern than arsenic bonded to soil and has different affects when consumed. The MCIG understands that ingestion is a signature pathway for human exposure. However, the scientific evidence points to a result different for arsenic in soil versus arsenic in water.

RESPONSE 51: See attached NYSDOH fact sheet *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions* #2. The Agencies and DOH are happy to meet with citizens and discuss any concerns they may have regarding arsenic exposure and/or help residents understand the risks.

COMMENT 52: The MCIG spokespersons repeated their opposition to the selection of CMAs 2 and 8 (as expressed in previous written comments), and endorsed CMA 1 (No Further Action) based on FMC's health risk assessment and the fact that in their opinion it best satisfies all of the Agencies' CAOs. They also repeated that they found CMAs 3 (FMC's recommended) and 4 acceptable.

RESPONSE 52: See Response #8.

COMMENT 53: An MCIG member repeated previous written comments on the 2003/2004 Middleport Exposure Study performed for FMC by Exponent.

RESPONSE 53: See Response #17 and attached NYSDOH fact sheet *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions #6*.

COMMENT 54: The MCIG repeated previous written comments that the Agencies continue to over state arsenic health risks from soil and uptake by garden vegetables based on theoretical assumptions which they offer no scientific evidence to support, while ignoring actual results from past studies that challenge these assumptions.

RESPONSE 54: See attached NYSDOH fact sheet *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions #5*.

COMMENT 55: The Gasport study sampled areas of orchard and found levels as high as 122 parts per million, which is higher than most people's yards in the Air Deposition Area, but yet the Agencies are apparently not concerned about that. There's no plan to remediate that.

They are only looking at Middleport trying to get 30 parts per million down to 20 parts per million, trying to rip up everybody's yard and when they do it, they are going to take out every movable building in your yard except your house and the garage, all the shrubs, all the trees, all the flowers, all the sheds, all the pools, all the swing sets. Everything will go. Your yard will be dug up a foot deep or so. You will get clean fill brought in, new grass. Hopefully, it will grow in the dirt that they brought in. It didn't on Vernon Street. And for what? You wouldn't have any more shade trees in your yard. That will be gone and just to lower it to 20 parts per million from 30 or 35, whatever it is.

To assist property owners in making an intelligent decision on remediation, the Agencies need to explain with data not theories or assumptions that the arsenic levels in typical residential yards is a health risk. They also need to demonstrate with hard evidence the significant benefit to reducing an average of 30 parts per million per residential yard to 20 parts per million and 40 parts per million to 20.

This is not a project that needs to take place at the scale that we have been lead to believe it needs to take place at. We just wish the Agencies would deal with us and not talk in scare tactic terms to get people to think that we really got to do something here. Do it with hard facts.

RESPONSE 55: The commenter is correct in pointing out that the proposed remedy will not address elevated arsenic levels found on orchard properties in Gasport during FMC's background study. This is in an area that is believed to be unaffected by releases from the FMC facility, where arsenic levels are attributed to the former orchard use of the property. Potential concerns about the magnitude of the result are mitigated by the fact that the public are not routinely exposed to arsenic on the property, as the parcel is currently being used. In the event that such parcels are converted to other purposes in the future (e.g., developed for residential or public uses), elevated arsenic levels would be addressed as a part of the development plan, with

oversight from the permitting agency(ies) (a town planning board, county health department, etc.)

With regard to affected Middleport property owners, the Agencies are committed to provide each such owner with sufficient factual information for him/her to make an informed decision regarding remediation of their property.

Town of Royalton comments from the public meeting are paraphrased in comments 56.

COMMENT 56: A Town of Royalton Board Member read the following Town Board resolution in opposition to the proposed CAMU:

Whereas FMC has proposed to locate a Correction Action Management Unit, CAMU, on property located within the Town of Royalton and whereas, FMC proposes to use the CAMU to store arsenic contaminated soils removed during the various FMC remediation projects for permanent storage and whereas, the Town of Royalton Zoning Ordinance does not list a CAMU as one of the permitted or specialty permitted uses for the proposed CAMU site and whereas, locating a CAMU for storage of arsenic with a mound that is proposed to be 35 feet, will represent a potential hazard to the health, safety and economic welfare of the Town of Royalton residents will further stigmatize the area of the town that because of prior FMC generation of hazardous waste is known as an area that has been polluted and may violate the Town's Zoning Ordinance. Now, therefore, it is hereby resolved that the Town of Royalton Town Board opposes the existence of a CAMU on any property located within the town.

RESPONSE 56: The Agencies are aware of the Town's opposition to a CAMU. Also, a CAMU, if constructed, could not violate local zoning laws. See Appendix B of the Agencies' draft Statement of Basis for further discussion.

Village of Middleport comments from the public meeting are paraphrased in comments 57 - 58.

COMMENT 57: The Village of Middleport Mayor read a January 17, 2011 letter in opposition to the FMC proposed CAMU. This letter was submitted with previous written comments from the Village government dated June 30, 2011 which are summarized in Comment Nos. 26 – 34.

RESPONSE 57: The Agencies are aware of the Mayor's opposition to a CAMU. Also, a CAMU, if constructed, could not violate local zoning laws. See Appendix B of the Agencies' draft Statement of Basis for further discussion.

COMMENT 58: The Village of Middleport Mayor repeated the Village's opposition to non-residential arsenic remedial goals and any institutional / engineering controls on off-site properties within the Village.

RESPONSE 58: With the exception of the Wooded Parcel, the Agencies' proposed remedy does not require institutional or engineering controls. Also See Response #26.

The Agencies received various communications and documents from the general public during the comment period, which are summarized in comments 59-61 below.

COMMENT 59: One resident stated she had removed her children from the Royalton-Hartland school due to her concern with the arsenic levels in school yard soils.

RESPONSE 59: Comment noted.

COMMENT 60: One resident stated that what was in the soil on Middleport properties was hazardous. It is just not classified as hazardous waste for land disposal purposes.

RESPONSE 60: The contaminated soil is not classified as a “hazardous waste”. However, this classification does not suggest that arsenic may not pose hazards. See the attached NYSDOH fact sheets *The Development of New York State Soil Cleanup Objectives for Arsenic* and *FMC – Middleport, Arsenic Soil Contamination Frequently Asked Questions #1 - #7*.

COMMENT 61: One resident stated that with regard to the school property, she was not sure if the school property can be subjected to institutional controls under the law, and that that should be looked into.

RESPONSE 61:

The Agencies’ proposed remedy will not result in the need for institutional controls on the school property. Also, see Responses #9 and #11.