



June 18, 2008 Meeting Topics

MCIG Questions and Agencies' Responses

Topic 1:

MCIG Questions - In the past, residents believe they have not been considered in negotiations between the Agencies and FMC. Also comments expressed at open community sessions do not appear to have been considered or acted on. The residents are going to be the ones who have to live with whatever is decided. What are the agencies plans for public participation and consideration of our concerns?

Agencies' Responses - The US Environmental Protection Agency (EPA) has a Public Involvement Policy that provides guidance and direction to EPA (and the Agencies) on reasonable and effective means to involve and enhance public involvement in its regulatory and program decisions. This policy applies to all EPA programs and activities (www.epa.gov/publicinvolvement/policy2003).

The Administrative Order on Consent (AOC), issued to FMC by both the EPA and NYSDEC, require that public review and comment for the RFI Final Report, Corrective Measures Final Report and any summaries of these reports be provided under the Public Participation section (XVIII) of the AOC.

The Agencies continue to encourage all members of the community to join in the public participation process and voice their comments and concerns to the Agencies and FMC. All written, verbal and electronic comments the Agencies receive from community residents, elected officials and interested parties, are carefully evaluated and factored into the Agencies decision-making process. Some recent comments that have been voiced at open community sessions have resulted in the early clean-up of the Wooded Parcel north of FMC, including the incidental removal of a burned down structure, and the prioritization of the environmental investigation and corrective measures selection process for residential properties within the Village of Middleport ahead of other areas of suspected FMC-related contamination. Other comments that may not have been adequately addressed to the MCIG's satisfaction will hopefully be explained in this handout and in more detail if necessary at the June 18th MCIG meeting.

In the future, Agency staff will continue to attend MCIG meetings to hear, document and respond to the attendees' concerns. The Agencies will also be conducting numerous public sessions/meetings and comment periods regarding FMC's CAMU application, the RCRA Facility Investigation (RFI) Report, Corrective Measures Study (CMS) Work Plan and subsequent Report, and other investigatory/remedial matters that affect the residents of Middleport. It should be noted, however, that although the Agencies consider all comments carefully, we may not always agree with every comment, and we may therefore not take the action suggested by the comment.

Topic 2:

MCIG Questions - How will the agencies determine the final action level? Will it be the same for all properties?

Agencies' Responses - The final soil cleanup level will be determined in the Corrective Measures Study (CMS) phase of the project. This determination will consider many factors, including current and possible future property use. While it is unlikely that properties of similar use and character (e.g., residential properties) would have different final soil cleanup levels, the way in which the cleanup level is achieved and confirmed on individual properties may allow for some property-specific differences in remediation. Different remedial alternatives (e.g., soil removal, phytoremediation, etc.) and different approaches to confirmatory sampling will likely be evaluated in the CMS, as well as how property-specific considerations could be factored into the cleanup.

Topic 3:

MCIG Questions - Will the agencies demand all residential properties have soil arsenic levels equal to or lower than 20 ppm regardless of any risk considerations or soil background level considerations?

Agencies' Responses - No. Foremost, the Agencies cannot and will not demand or impose remediation on any private residential property. Additionally, the 20 ppm soil arsenic level is one tool being used to define the extent of elevated arsenic levels related to past releases from FMC's Middleport facility (i.e., delineation level) and has not been determined to be the final soil cleanup level. Recommendations for soil remediation and the extent of remediation will likely include property-specific considerations. Evaluation of arsenic concentrations in individual soil samples taken at specific locations and depths, and property-wide / area averages, where feasible, will likely be considered, as well as property use, potential exposure pathways etc. For example, on some P-Block properties, which were remediated during the 2007 Early Actions, soil with greater than 20 ppm was allowed to remain in some locations. In part, this resulted from the property owner's desired outcome for their property, the use of the property and the potential for exposure to soil arsenic at a given location, all being considered in the Agencies' cleanup recommendations to homeowners made during the 2007

Early Action work. The Agencies anticipate evaluating data and making determinations in a similar manner in the future with regard to remediation of residential properties in the Village of Middleport.

Topic 4:

MCIG Questions - Do the agencies believe remediation of contaminated soil can only be accomplished by cutting down all the trees and removal of approximately 12 inches of soil on a property? What rights will a property owner have in the selection of a remediation alternative for his or her own property?

Agencies' Responses - No. Remediation will not necessarily require "clear-cutting" of a residential property. With some exceptions, trees were removed during the 2003 and 2007 remediation of some residential properties along Vernon Street and Park Avenue. These remedial projects were performed as "Interim Corrective Measures" (ICMs) proposed by FMC. While a CMS evaluates both the extent of remediation needed and the remedial alternatives available to accomplish any such remediation, ICMs are performed in advance of completion of the CMS in cases where the Agencies or FMC consider that early remediation is necessary. As a result, ICMs employ well established remedial alternatives that are known to be effective (e.g., removal of arsenic contaminated soil), and which can achieve a remedial outcome that is consistent with the most conservative remediation that could be anticipated to come out of the CMS process (e.g., clean-up of all soils containing arsenic above established background levels) so as to avoid the need to perform additional remediation on an ICM property after completion of the CMS. Although concerns of individual homeowners were considered during the 2003 and 2007 ICM projects and some property-specific decisions were made to preserve trees where feasible, the nature of ICMs, as described above, somewhat limits remedial options. At this time, the Agencies have no plans to require FMC to perform additional ICMs with respect to arsenic contamination of off-site residential soils, prior to completion of the CMS process, nor has FMC submitted any such proposals.

The final corrective measure(s) selected as a result of the CMS process will depend on many factors, including, but not necessarily limited to: soil arsenic levels; locations of elevated levels, feasibility of remedial alternatives; and input from the affected community. To address soil remediation within the root zone of trees, it is the Agencies' expectation that FMC would include in the CMS, an evaluation of remedial alternatives which could be employed to preserve trees in situations where a property owner would like to retain a tree or trees. Remedial options such as "phytoremediation" (i.e., using plants to take up and remove arsenic from the soil), hand-excavation of root zone soil, and multi-year, segmented excavation of root zone soil (i.e., excavating segmented areas of the root zone each year), could be evaluated in the CMS in terms of their feasibility and effectiveness with regard to their ability to achieve soil cleanup objectives and tree preservation.

In addition, the Agencies realize that each individual property owner may have his/her own views with regard to soil remediation and tree preservation, and that these views may be different from their neighbors. As such, the Agencies will work with FMC and the Middleport community to provide some flexibility within the selected remedial alternative(s), to the extent practicable, so as to address the desires of individual property owners.

Topic 5:

MCIG Questions - How do the agencies plan to gain community acceptance of the decisions for Middleport and the final outcome of the remediation project?

Agencies' Responses - As stated previously in the Agencies' response to MCIG questions under Topic 1, it is the Agencies goal to continue to listen, respond to and work with the residents of the community and FMC. This would include determining the scope and extent of remediation which will reduce/eliminate exposures to elevated arsenic in the community on a property-by-property basis, in a way which will be acceptable to property owners in Middleport and other members of the community. During the course of this process, the Agencies will continue to attend MCIG meetings, hold public information meetings with the community and meet independently with affected homeowners to solicit their input. The Agencies believe that a presentation of all the facts and information to the community in an uncomplicated manner, along with a frank discussion of remedial options with community members, is the best way to gain substantial community acceptance of the final remedial outcome. Of course, the Agencies do recognize that it will probably be impossible to satisfy all homeowners and residents.

In the context of determining the extent and type of the cleanup to be recommended to Village residents, the Agencies are sympathetic to, and will carefully consider, the concerns of residents and Village officials regarding the removal of trees, property values and quality of life impacts related to the remediation of contaminated soil. The Agencies and FMC met numerous times on a one-on-one basis with homeowners on Park Avenue prior to and during the 2007 soil remediation of their properties, and made every effort to accommodate their individual needs and concerns to the extent practical. It is hoped that for future remediations, homeowners, the Agencies and FMC would all work together to perform a remediation and restoration which is acceptable to all affected Village residents.

Topic 6:

MCIG Questions - Will the Agencies place deed restrictions or other controls on a residential property where the owner declines to have their property remediated? If not, exactly what will happen to a property for which the owners have decided not to have a remediation carried out?

Agencies' Responses - As the Agencies have stated at previous information sessions, in the

event that remediation is determined to be necessary for a property and the owner does not choose to have his/her property remediated, deed restrictions will not be imposed on any residential property. Such restrictions can only be incorporated in a deed by the property owner, and the Agencies cannot require an owner to do so.

However, owners who do not allow such remediation will not receive any letter from the Agencies indicating that potential threats to human health or the environment associated with the contamination on the property have been resolved. Additionally, State law requires owners who are selling their property to disclose to potential buyers the known environmental conditions present on the property (including any known soil contamination data). This may have an affect on property value.

Over the years, many Village residents have voiced their concerns to the Agencies regarding the stigma attached to the FMC-related soil contamination within the Village of Middleport which they feel may be adversely affecting the perceived character of the community. The perceived stigma is the result of past activities at the FMC facility that resulted in emissions and discharges which contaminated soil/sediment on area properties and drainage pathways. It is the Agencies' responsibility to ensure that environmental problems caused by the FMC facility releases are corrected. The Agencies believe that any perceived stigma can be removed through the cleanup, by FMC, of all affected properties which require remediation, in a cooperative manner involving the Community, and approval by the Agencies.

Topic 7:

MCIG Questions - Why is NYSDEC Albany controlling the project and not the local Region 9 office in Buffalo? Wouldn't this change enhance the communications between residents and the agencies?

Agencies' Responses - The assignment of NYSDEC staff to the FMC remedial project is primarily based on legal and workload considerations. While the FMC facility is subject to regulation under both the State's Inactive Hazardous Waste Site program (State Superfund) and the Federal and State Resource Conservation & Recovery Act (RCRA), the RCRA program took the lead on this project in 1991 with issuance of the joint USEPA \ NYSDEC Administrative Order on Consent (AOC) to FMC. This RCRA AOC provided a somewhat greater degree of legal authority and is the primary legal mechanism being used to require FMC's performance of remedial activities. As a result, USEPA staff out of the New York City office and NYSDEC RCRA staff out of the Albany office, share the lead role on this project, with assistance provided by NYSDEC Region 9 State Superfund staff. The primary functions of Region 9 project staff are to support RCRA program staff in performing required field oversight during the investigation and remedial phases of the project. Additionally, Region 9 staff will participate in community meetings, as necessary, in support of RCRA program staff. It is anticipated that NYSDEC Region 9 staff will continue to function in these community involvement and oversight roles.

Topic 8:

MCIG Questions - Why haven't the agencies recognized FMC's derived arsenic bioavailability factor or their biomonitoring study and use the results in assessment of risk and possible cleanup levels?

Agencies' Responses - FMC's bioavailability study will likely be considered in the risk assessment that FMC will likely submit as part of the CMS. The absorption of contaminants from a soil matrix is a complex process, and there is uncertainty about the effects that various factors (e.g., soil type, soil contaminant concentration, arsenic speciation, absorption differences between adults and children, fasting status, etc.) may have on the bioavailability of arsenic from soil. However, it is important to note that, with respect to arsenic, the soil concentration levels that the Agencies would consider acceptable based exclusively on human health risk, would likely be well below what we believe to be the "background" levels in the Middleport area. As discussed in the Agencies' response to MCIG questions under Topic 11, below, the New York State-developed arsenic concentration in soil which corresponds to a one-in-one-million lifetime cancer risk is 0.11 ppm. This arsenic concentration level was derived by taking into consideration the following:

- the New York State Brownfield Cleanup Program (BCP) legislatively mandated risk level for soil clean-up objectives for carcinogens (an increased lifetime cancer risk of not more than one-in-one-million), which is a legislated requirement of the BCP program, but is applicable as guidance for other New York State remedial programs; and
- the value of the US EPA's cancer potency factor for arsenic due to its known ability to cause human cancer.

Therefore, even if it is assumed that only a small percentage (e.g., 20%), of arsenic is absorbed (bioavailable) from soil, the risk-based arsenic soil concentration will still be well below arsenic background levels, given the objective of achieving a lifetime cancer risk of not more than one-in-one-million, and the value of the US EPA cancer potency factor for arsenic.

FMC's biomonitoring study was performed without Agencies' involvement. FMC's study concluded that there was no clear evidence of elevated arsenic exposure, as measured in urine arsenic levels in the study participants. However, measuring arsenic in urine can only be used to evaluate whether an exposure has occurred several days before the test is done, and cannot provide information on past exposure (i.e., months or years prior to the test). Nor can it provide information about arsenic exposures that may occur in the future. Urinary arsenic testing also cannot provide information on the likelihood that adverse health effects might occur. The biomonitoring data may be considered in risk evaluations performed during the CMS, however, given the limitations of biomonitoring data, the Agencies will not solely rely on this type of data to make decisions.

Topic 9:

MCIG Questions - The NYS Brownfield Cleanup Program and Development of Soil Cleanup Objectives site the statistical 98th percentile for background calculations. Why do the agencies insist on using the statistical 95th percentile instead of the 98th when calculating arsenic background in Middleport?

Agencies' Responses - The 98th percentile used in the establishment of the New York State Brownfield Cleanup Program (BCP) Rural Soil Background Concentrations (RSBCs) was part of a comprehensive evaluation approach. The objective of this effort was to establish statewide background concentrations of several chemicals in rural soil (i.e. not in orchards, not near a hazardous waste site etc.). The nature of the data set and the types of sites the RSBCs were intended to apply to were all considerations in their development. Therefore, the 98th percentile is not a stand-alone evaluation or a New York State endorsed statistical percentile and it is not appropriate to assume this statistical percentile is appropriate for all background calculations.

The RSBC for arsenic (16 ppm) was the estimated 98th percentile value for arsenic concentrations in rural New York soils based on a review of multiple data sets, and after excluding deep soils, orchard soils, and soils near industrial facilities or waste disposal sites. If the BCP methodology is to be applied in the calculation of local soil arsenic background levels in Middleport, then data reflecting arsenic levels in soil samples collected at orchards, deep soils, soils near industrial facilities etc. should be excluded from the data set. While neither FMC nor the Agencies has applied the BCP methodology to the Middleport soil arsenic background data set, given the existing soil background data set, the 98th percentile of the remaining data is likely consistent with or lower than 20 ppm.

In considering the Middleport site-specific situation, the Agencies strongly believe that in setting a criterion to assist in the delineation of FMC-related soil arsenic contamination, we should err on the side of ensuring that we do not mistakenly ascribe to “background” any arsenic concentrations that may have resulted from, or been influenced by, FMC plant operations. Thus, for the specific purposes of delineation at the Middleport site, we continue to believe that the weighted 95th percentile of the Middleport Site-Specific Arsenic Background Data Set forms an appropriate basis for developing a site-specific delineation criterion, in light of the need to protect against the possibility of mistakenly excluding areas of FMC-contaminated soils from further evaluation and the potential effects such improper exclusion could have on human health and/or the environment.

Topic 10:

MCIG Questions - Arsenic is present at elevated levels in Middleport (due to past orchard use, pesticide spraying, etc.) therefore, isn't the local soil arsenic background level likely higher than 20 ppm regardless of any possible contribution by FMC?

Agencies' Responses - For arsenic to be elevated in soil as a result of past pesticide spraying in orchards, two things must occur. First, an historic orchard must have been present on the land area and second, its owner or operator must have conducted significant spraying of arsenic based pesticides. With regard to the first element, past aerial photographs of the FMC Middleport Study Area (i.e., the suspected area of FMC-related arsenic contamination), indicate that somewhere between 17% and 23% of this area was occupied by orchards in 1931, which decreased considerably soon thereafter, and that most of these orchards were located north of the Barge Canal. This evidence indicates that over 75% of the land within the Study Area was not occupied by orchards, and as such would not be expected to have elevated arsenic in soil attributable to past orchard spraying. With regard to the second element, where historic orchards were present, no direct evidence has been discovered which would confirm that orchards within the Study Area or orchards sampled to estimate arsenic background, were significantly sprayed with arsenic based pesticides (not surprisingly, no known records have been identified documenting actual spraying events and amounts used). While indirect evidence suggests that **some** orchards were likely sprayed with arsenic pesticides based on comparing local orchard and non-orchard background soil sample results, the same local orchard background data also indicates that soil arsenic levels are often not higher than 20 ppm. Of the 3 orchards sampled during the 2001 Gasport Background Study, only 1 had soil arsenic levels consistently above 20 ppm. Furthermore, of the approximate 133 local background samples collected from 23 historic orchard areas located north of Pearson Road, only 2 sample results marginally exceeded 20 ppm, and only 8 were above 10 ppm.

Therefore, in general, the Agencies do not consider the local arsenic background level to be higher than 20 ppm in terms of determining the presence of FMC-related arsenic soil contamination. There may be some locations within the Study Area with soil arsenic levels above 20 ppm where evidence of former use as an orchard and other evidence suggests that it is unlikely such arsenic levels are primarily FMC-related. The Agencies consider that any sites with such circumstances can best be addressed on a case-by-case basis.

Topic 11:

MCIG Questions - What is the reduction in human health risk if a residential property is reduced from an average contamination level of 40 PPM to 20 PPM of arsenic taking into account other health risks that exist?

Agencies' Responses - As presented in the Table below, assuming unrestricted use of the property, a lifetime exposure to arsenic at 20 ppm in soil is estimated to result in two excess cancers for every 10,000 people (commonly expressed as 2×10^{-4}). Under the same exposure scenario, the number of estimated excess cancers is doubled to four excess cancers for every 10,000 people (4×10^{-4}) for exposure at 40 ppm in soil. It is important to note, however, that the calculated risk estimates associated with 20 ppm and 40 ppm soil arsenic are greater than the one excess cancer for every one million people (1×10^{-6}) risk decision level mandated by

the New York State Brownfield Cleanup Program (BCP) legislation. Additionally, it is the mission of the Agencies to minimize exposures, and therefore risk, to the extent possible. Accordingly, the final soil cleanup level will take into account other factors in addition to risk assessment.

Soil Arsenic Concentration (ppm)	Estimated Excess Cancer Risk Level Associated With Exposure to Arsenic in Soil at Specified Concentration	
0.11	One-in-One-Million ¹	1×10^{-6}
1.1	One-in-One Hundred Thousand	1×10^{-5}
11	One-in-Ten-Thousand	1×10^{-4}
20	Two-in-Ten-Thousand	2×10^{-4}
40	Four-in Ten-Thousand	4×10^{-4}

FOOTNOTE:

1. Cancer Risk Level Mandated by NYS BCP Legislation.

It should be noted, that under the NYS BCP legislation, which is considered an applicable guideline for other NYS remedial programs, if the background concentration in rural soils is greater than the soil concentration associated with the 1×10^{-6} cancer risk level (as is the case with arsenic), then background concentrations may be used to set a soil clean-up objective.

Topic 12:

MCIG Questions - Once an area is used as an orchard and arsenic containing pesticides historically used, won't the arsenic remain in the soil so that the theory "once an orchard, always an orchard" be valid when calculating the background level?

Agencies' Responses - It is generally true that the arsenic, once present, tends to remain in the soil. While there would likely be some reduction in arsenic concentration over time due to surface water run-off and vertical migration through the soil, arsenic from pesticide spraying operations would tend to remain in surface soils due to its bonding with soil particles, especially in soils with a high clay content. However, the Agencies do not consider that this necessarily conflicts with the results of the Middleport area background study. As stated in the Agencies' response to the MCIG questions under Topic 10, it is not correct to assume that arsenic pesticides were used in all orchards, or if used, that they were applied to similar degrees leading to similar levels in the soil. Even in orchards where arsenic was sprayed, the amount of arsenic deposited on the soil would likely depend on how long the site was used as an orchard, how often the arsenic solution was sprayed, the concentration of arsenic in the solution, and differences in how it was applied. For instance, a piece of land that was used as an orchard for 2 years and then as residential property for the next 20 years, can be expected to have a different arsenic character from a piece of land that was used as an orchard for all 22 years if arsenic pesticides were applied. As a result, the Agencies consider

it appropriate to factor in changes in property usage over time in an estimation of arsenic background.

Topic 13:

MCIG Questions - Would a risk-based approach likely result in a higher soil arsenic “trigger level” or cleanup level than using a standard statewide cleanup level?

Agencies’ Responses - As discussed previously in the Agencies’ response to MCIG questions under Topic 8, risk calculations will likely not yield a soil arsenic cleanup level which is higher than background. Many other states use background to establish soil cleanup objectives for arsenic, with arsenic levels similar to those typically used in New York. However, some states have used arsenic cleanup levels which are higher than some of the background arsenic levels which have been discussed for the Middleport area. This is likely because other states have different background levels in their soils and/or allow different risk decision points (i.e., greater than a 1×10^{-6} lifetime cancer risk) to be used in remedial decisions. It is doubtful that a carcinogenic risk decision point less protective than 1×10^{-6} would be applied to this or other remedial projects in New York State without a change in New York State legislation.

As discussed previously in the Agencies’ response to MCIG questions under Topic 9, the New York State Brownfield Cleanup Program Rural Soil Background Concentration (RBSC) for arsenic is 16 ppm for all land uses (13 ppm where ecological resources are involved). While developed in consideration of human health risk, the 16 ppm arsenic RBSC represents a state-wide rural soil background concentration and is not a risk-based level. State regulations do allow for the use of site-specific, local or regional soil background concentrations where deemed appropriate.

Topic 14:

MCIG Questions - The Agencies have failed to communicate the comparative risk of arsenic exposure to other “real” risks such as smoking etc. Aren’t there other risks we should be more concerned about than arsenic buried in our soil?

Agencies’ Responses - It is important to make the distinction between voluntary and imposed risk. Some people may willingly engage in many "high risk" lifestyle activities that may increase their excess lifetime cancer risk (e.g., smoking, drinking, sunbathing, high fat/low fiber diet, etc.), but they have a large measure of control over these risks. For chemicals that contaminate the water we drink, the air we breathe, or the land we live on, it is the responsibility of regulatory agencies to insure that no more than a minimal level of additional risk is imposed on the affected population. Arsenic is a known human carcinogen whether it is inhaled or ingested. Accordingly, the Agencies’ mission is to limit the amount

of such chemicals in water, air and soil to minimize risk that cannot be readily managed through voluntary actions.

Topic 15:

MCIG Questions - Wouldn't any additional RFI sampling requested by the Agencies cause a delay in the RFI/CMS process for Middleport properties?

Agencies' Responses - No. The Agencies and FMC have agreed that the RFI and CMS should be completed in phases, for different geographical areas. The Agencies' and FMC's first priority will be working on completing the RFI and commencing the CMS with regard to properties in the Village of Middleport affected by FMC-related soil contamination. FMC has submitted, and the Agencies have approved schedules for submitting the RFI Report and a CMS Work Plan in 2008 for Village of Middleport properties within the historic FMC arsenic air deposition area. The Agencies do not intend to allow the additional RFI sampling to impact or delay the RFI/CMS process for Middleport properties. FMC provided a written notice to the Agencies indicating that they will submit a work plan for the additional RFI sampling in November 2008 for suspected FMC arsenic air deposition areas along/north of the Barge Canal and east of the Niagara/Orleans County line. It is likely that this additional RFI sampling will not occur until sometime in 2009.