OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office

2110 E. Aurora Road
Twinsburg, Ohio 44087-1969

TELE (330) 425-9171 FAX (330) 487-0769

[redacted], Director

November 22, 2002

RE: DIAMOND MAGNESIUM,
RI/FS REPORT COMMENTS

11/22/02 Via Electronic Mail

[redacted]
Environmental Project Manager
U.S. Army Corps of Engineers, Buffalo District
1776 Niagra Street
Buffalo, New York 14207-3199

[redacted]

The Ohio Environmental Protection Agency (Ohio EPA) has completed its review of the Painesville FUSRAP site (a.k.a. Diamond Magnesium) "*Regulatory Review Draft - Focused Remedial Investigation/Feasibility Study (RI/FS) Report,*" dated September 27, 2002. The RI/FS was submitted by Science Applications International Corporation on behalf of the United States Army Corps of Engineers, Buffalo District.

Based on the information presented in the RI/FS, Ohio EPA believes the document needs to be revised and additional investigative activities are needed. Enclosed are Ohio EPA's comments on the RI/FS.

Should you have any questions concerning this letter, please contact me at (330) 963-1208.

[redacted]
Site Coordinator
Division of Emergency and Remedial Response

'K/kss

ıclosure

[redacted], Ohio EPA, DERR, NEDO
[redacted] Ohio EPA, OFFO, SWDO
[redacted] Crompton
[redacted] Ohio Dept. of Health

TECHNICAL REVIEW COMMENTS ON THE "PAINESVILLE FUSRAP SITE (A.K.A. DIAMOND MAGNESIUM) REMEDIAL INVESTIGATION/FEASIBILITY STUDY"

The following are technical comments on the "*Remedial Investigation/Feasibility Study*" (RI/FS) for the Painesville Formerly Utilized Remedial Action Program (FUSRAP) site (a.k.a. Diamond Magnesium) (Site), Painesville, Ohio, dated September 27, 2002. The Report was prepared on behalf of the U.S. Army Corps of Engineers (Corps) by Science Applications International Corporation.

Comments are grouped into "General Comments," summarizing significant, fundamental deficiencies, omissions, or deficiencies that recur throughout the document, and "Specific Comments" that cite the exact location in the document where a deficiency, inconsistency, or incomplete information was noted. The RI/FS was separated into a Remedial Investigation (RI) section and the Feasibility Study (FS) section, with each being numbered independently. The comments have been grouped into respective sections to maintain consistency.

For specific comments, each citation refers to the applicable section number(s), page number(s), and paragraph number(s). Page numbers are cited as listed in the Report. Paragraph numbers refer to the paragraph's numerical sequence on that **page**. "Paragraph **1**" refers to the first **complete** paragraph on a page; a partial paragraph that carries over from a prior page is denoted as "paragraph **0**." A stand-alone list of items (not located within the body of a paragraph) is considered to be a paragraph for counting purposes.

Remedial Investigation Comments

General Comments

1. A RI is intended to fully identify the nature and full extent of contamination, yet the boundary of the RI's "study area" appeared to have been limited irregardless of information indicating that associated contamination may be located outside of the "boundary." CERCLA defines a "site" to be an area where waste was placed or has come to be placed. A "site" is not necessarily limited by legal boundaries or other geographical features. The rationale for limiting the scope of the FUSRAP investigation was not clearly defined as to why it was limited to geographical features. If there is limits to the FUSRAP program, then it should be made very clear in the revised RI/FS.

2. The risk assessment for this site should be conducted using a risk-based approach following CERCLA guidance per U.S. EPA OSWER Directive 9200.4-31 (December

1999). Overall, the process for assessing radionuclide exposures and radiation risks parallels the process for assessing risk from chemical exposure. Therefore, a risk-based approach rather than a dose-based approach should be used to assess risk from exposure to both radionuclides and chemicals. EPA does not recommend computing estimates of cancer risk from radionuclide exposures using the Dose-Conversion Factors (DCFs). This approach may tend to inaccurately estimate potential risks due to technical differences between the approaches.

3. Outputs from the RESRAD computer program runs should be included in the appendix for review. Such information should include what pathways were evaluated and what pathways were "turned off" in the RESRAD code.

4. The RGO's developed for this site should be compared to those developed for other FUSRAP and DOE sites in Ohio, such as with the Lucky Beryllium site. This would be useful information for the risk managers to evaluate during decision making.

5. Soil concentrations and proposed cleanup levels should be evaluated against the Region 9 PRGs Soil Screening Levels for the migration of soil to groundwater, to determine if there's potential for contamination in soil to migrate to groundwater at levels that are not protective and unacceptable. This will help determine whether or not the proposed cleanup levels and any residual contamination remaining in the soils after remediation are within the acceptable levels and are protective.

Specific Comments

6. Page 1, 1st paragraph: The text discusses the rationale for conducting a "focused" investigation on radionuclides that "were the responsibility of the AEC/MED." The definition of "responsibility" appears to be a major obstacle in completing a thorough investigation of the contamination. The property owner, Crompton, razed buildings, some of which included structures utilized for AEC/MED related purposes. Crompton buried the resulting demolition debris on their property but outside of the "designated" FUSRAP boundary. Crompton asserts that the potential of radiological contamination being present on and/or within the structures was unbeknownst to them. Investigations conducted by both parties have found elevated levels of radioactivity outside of the Corps' FUSRAP "boundary." These areas included areas south of Fairport-Harbor Road in the Landfill 5 and Impoundment B (former pump house). Another potential area includes the area north of the railroad tracks that was never surveyed by the Corps to verify non-radiological contamination exists.

   Concurrent to the Corps' RI/FS, Crompton is obligated to complete a RI/FS for contamination stemming from past manufacturing work on the property. The contaminants of concern associated with their investigation are non-radiological in nature. The RI does not provide any justification for not investigating these areas.

The responsibility for characterizing radionuclides (the work may just verify that no radiological contamination exists) outside of the current FUSRAP area needs to be clarified. The areas need to be investigated similar to work undertaken by the Corps during its focused investigation. The results should be presented in the appropriate RI report.

7. Section 2.1.2, Geology, page 4: The RI does not include any diagrams showing geologic cross-sections. This information should be included to provide a better understanding of the till units/aquitards present in the area.

8. Section 2.1.1, Topography, 1st paragraph: The RI references that the Site occupies property owned by two separate companies. The RI does not provide a figure showing the location of the property line and extent of contamination on the same figure. The revised RI should include figures showing this information.

9. Section 2.1.3, Hydrogeology, page 5: The section fails to discuss ground water flow patterns nor provide figures showing flow direction. This information is needed to help determine proper monitoring well placement and fate and transport issues. The revised RI should include information on ground water flow.

10. Section 2.1.7, Ecology, page 7: The text states that the Site consists of two industrial complexes. It should be noted in the revised report the current conditions (i.e., building razed on Crompton property) of the properties/Site.

11. Section 2.2, Site History, page 9 ,2nd paragraph, 2nd sentence: The report states that sludge from the acid reaction was dumped onto waste beds. The report does not discuss the location, investigative findings nor potential impacts from the waste beds. The report should be revised to provide in-depth information on this potential source area.

12. Section 3.2, Background Sampling, page 17: A table must be included which summarizes the analytical results from previous background sampling. This table should include, but is not limited to, the range of detections (i.e., minimum, maximum), distribution of data set, detection frequency for each analyte, and a statistical summary of the background data.

13. Section 3.1.4, page 19, 1st paragraph: The nearest monitoring well to Area A, the Butadiene Tank, is MW 16, which is potentially located cross-gradient to the location and plume as shown on Figure 3.8 for Area A. If the well is cross-gradient, then the data is not representative. The revised report should clarify this issue, as well as an evaluation of the other monitoring wells/data relied on by the model. Additional monitoring wells should be installed if the network is found to be inadequate for the FUSRAP study or to support the SESOIL model.

14. Section 3.4.2, Background Statistics and Comparisons, page 20: Ohio EPA recommends defaulting to the maximum detected concentration for an individual constituent, if the calculated 95% UTL values exceeds the maximum concentration that was detected for that constituent in the background samples collected.

15. Section 3.4.2, Background Statistics and Comparisons, page 21: Clarify what concentration was used for a specific analyte detected in on-site data to screen against the background value. Ohio EPA recommends using the maximum detected concentration of a specific analyte from on-site data to compare to the background value in order to determine if background was exceeded.

16. Section 3.4.3.1, ARARs, page 24, paragraph 0: The Corps identified two regulations as applicable or relevant and appropriate requirements (ARARs) in the RI. The two ARARs rely on radiological dose-based limits to determine protectiveness of human health. Dose-based limits are acceptable at sites under NRC jurisdiction and "non-agreement" states to which Ohio is not. To be consistent with the CERCLA process, the RI/FS must utilize risk based cleanup numbers, to demonstrate the protectiveness of any remedy will fall within the acceptable cumulative risk range established in the NCP of 10^{-4} - 10^{-6} (Ohio EPA consistently uses 10^{-5}). The RI/FS should be revised utilizing cumulative risk based standards to demonstrate protectiveness and during remedy evaluation.

17. Section 5.1, Secondary Sources, page 35, 3rd paragraph: The text states that the Government never owned the area south of Fairport Nursery Road (Road) nor conducted disposal activities there. There is uncertainty regarding potential radiological contamination in areas south of the Road. It is unclear if the acid pump station located in Crompton's Impoundment B on the south side of the Road was on property owned or operated on by DMC or the Government. The RI should be revised to provide detailed ownership records, including plot maps showing the property boundaries.

18. Section 5.2, page 36, 2nd paragraph: The RI states that the listed secondary sources have been eliminated by evaluation of the results of characterization. This may be an accurate statement if the reference to other secondary sources is better defined. The text states, "may have included lagoons, landfills ..." The RI does not provide details on the location and subsequent investigation/characterization of any landfill nor lagoon. Comments contained herein recommend additional work or information on such potential areas of concern. The RI should be revised to clarify the statement made in this section.

19. Section 5.2, page 36, 2nd paragraph: The RI states that secondary sources may include building surfaces and pipes used to transport acid waste. Crompton has reported that a former acid pump station and associated transport lines exist in areas of their property currently outside of the Corps' FUSRAP boundary, therefore,

not subject to the FUSRAP program nor evaluated during this RI/FS. It is not clear how the Corps limited the FUSRP boundary and/or material. Based on the referenced statement, the former acid pump house and associated piping clearly should fall under the jurisdiction of the FUSRAP investigation and needs to be evaluated under this RI/FS.

The assertion that building surfaces may be considered secondary sources of radiological contamination forces the issues of which party (i.e., Crompton, the U.S. Government, or both) is the responsible party for characterizing and, if necessary, conducting remedial action for radiological contamination that may be present in Landfill 5. The contamination would be a result of building surfaces contaminated through AEC/MEC actions later razed by Crompton and the resulting debris landfilled in Landfill 5.

Because the radionuclides were introduced at this Site by actions of the U.S. Government, Ohio EPA considers the U.S. Government to be a PRP for radiological contamination on the Site. In the case of Landfill 5, Ohio EPA considers both entities as a potentially responsible party. If this is not the position of the Corps, that these areas are not to be addressed under this action, then the RI should provide technical and possibly legal justification why this material is not subject to the FUSRAP investigation.

20. Section 6.0, Baseline Risk Assessment, 2nd paragraph: Add a discussion to explain how the RESRAD program (which is based on a dose approach) rather than a risk approach follows EPA RAGS guidance for evaluating CERCLA sites? This discussion should reflect and address some of the concerns discussed during past meetings with using risk versus dose approach, specifically, the evaluation of multiple exposures. In addition, this discussion can include a statement reflecting that RESRAD is the program used throughout the FUSRAP program.

21. Section 6.1, Methods Used for the Baseline Risk Assessment, last bullet: Add "and risk based screening values" to the end of this sentence. U.S. EPA has developed a tool used for screening sites with radionuclide contamination called the Radionuclide PRG Calculator. These screening values are risk based PRGs, similar to those developed by U.S. EPA Region 9 for chemicals. These screening values can be found at: http://epa-prgs.ornl.gov/radionuclides

22. Section 6.1, Methods Used for the Baseline Risk Assessment, page 41, last sentence of last paragraph: Typo. Remove "to provide" from this sentence ("to provide to provide"), since these words are repeated.

23. Section 6.1.1, Data Collection and Evaluation, page 42: Screening against background for the selection of COPCs, to evaluate in the risk assessment, should only be conducted for those constituents that are naturally, occurring inorganic constituents. Anthropogenic background concentrations should only be used for

discussion purposes in the uncertainty section. Clarify in the text of the second sentence of the second paragraph how background screening was conducted and information on background used in this evaluation. In addition, please add additional tables (similar to Table 3.5) to this report that presents the background concentration for naturally occurring constituents detected in other media than soil, such as "ambient air, surface water, sediment, land surface and building background, etc.)

24. Section 6.2, Identification of COPCs, page 42, 1st paragraph: Clarify whether or not the baseline risk assessment and selection of COPCs was limited to radionuclide constituents? The text is confusing and states that the BRA evaluated radionuclides associated with MED/AEC-related contamination. This implies that only radionuclide contamination resulted from MED/AEC activities. It is possible that contamination, other than radionuclide contamination, could have resulted from MED/AEC activities during magnesium processing. Documentation should be presented to support and justify the assumption that only radionuclide contamination could have resulted from MED/AEC activities. Review of Table 3.3 indicates soil was analyzed for VOCs, SVOCs, metals, mercury, PCBs, and pesticides. These constituents were detected in samples collected on-site, however, were not selected as COPCs and evlauted in the BRA. If these constituents are above risk based screening values and the screening criteria, then Ohio EPA recommends that these constituents be evaluated in the BRA, to evaluate the total exposure that a receptor would receive if there is exposure to both types of contaminants. This issue has been discussed at past meeting and a possible approach to address this comment would be to add text explaining that the FUSRAP program is mandated to address only radionuclides. Otherwise, justification is needed to support why they are not assessed, especially if a receptor is or will be exposed to both types of contaminants and the information/data is available.

25. Section 6.2, Identification of COPCS, 2nd paragraph: In the second sentence, add a sentence to explain what is involved with the weight of evidence approach that is used for selecting COPCS? Is this screening on basis of frequency of detect, etc.? Clarify in the third section that there are now risk based Region 9 PRGS specific to radionuclides that are available for screening and selecting COPCs. These can be found at: http://epa-prgs.ornl.gov/radionuclides

26. Section 6.2.1, Initial Data Reduction, last bullet: Radionuclides with short half-lives and no parent radionuclide to support ingrowth may be considered for exclusion, however, careful consideration must be given to its initial and current activity, it's half-live, decay products, and its parent, since radionuclide concentrations may change over time due to decay and ingrowth. Please address whether or not there were any short lived radionuclides that were present without the presence of the parent and how this was handled in the risk assessment process?

27. Section 6.2.1, Initial Data Reduction: Data should be evaluated to determine if the assumption of secular equilibrium is appropriate for this site. For instance, if radionuclides were processed for a particular isotope, then this isotope was removed from the decay chain and the assumption of secular equilibrium may not be appropriate. Provide documentation to support that this assumption of secular equilibrium is appropriate for this site, given that the site received waste containing radioactive material from other sites.

28. Section 6.3, Exposure Assessment, page 45 2nd paragraph: The referenced figure, Figure 6.1, as well as any of the Section 6 figures, are not included in the RI report.

29. Section 6.3.1, Characterization of Potentially Exposed Populations, 2nd paragraph: Since this site is in a state of transition, it is reasonable to assume that a construction worker may be present at this site in the future. This receptor should be evaluated, along with the appropriate exposure pathways, in this risk assessment or include a statement regarding how exposure to this receptor would be accounted (either through the evaluation of the other receptors, such as resident) or how exposure would be managed if this type of exposure would occur.

30. Section 6.3.2, Exposure Pathways, page 46: The RESRAP model appears to use data and exposure parameters that are inconsistent with exposure parameters discussed in the text of the RI (Table 6.9). The discrepancies should be corrected in the revised RI.

31. Section 6.3.2, Identification of Exposure Pathways: a) Default U.S. EPA assumptions should be used for the industrial worker and resident receptors. Refer to OSWER Directive 9285.6-03, Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Assumptions (1991) and Exposure Factors Handbook (1997) for guidance. In general, it is assumed that industrial workers are exposed to contaminants for eight hours per day and that this exposure time is not partitioned between time spent indoors versus time spent outdoors. However, site-specific considerations are taken into account when developing exposure assumption, therefore, documentation is needed to support the assumption that industrial workers spend seven hours indoors and one hour outdoors, if this is based on site-specific considerations. b) A construction worker receptor can potentially be exposed to shallow groundwater during excavation and grading activities and the installation of utility lines. Therefore, this exposure pathway should be evaluated in the risk assessment. c) Please present the associated risk estimates and hazard index estimates separately for the adult and child resident receptor and farmer.

32. Section 6.3.3, Quantification of Exposure Concentration and Pathway Specific Intakes: Clarify how results reported as non-detected for an individual constituent were used to calculate the EPC.

33. Section 6.4, Toxicity Assessment: a) Cancer slope factors and non-cancer reference dose toxicity information and dose conversion factors must be summarized and presented as a table in this report. This table should identify the COPC, the toxicity value listed by specific exposure pathway, the source of the information, and the date when these sources were reviewed. b) Ohio EPA assumes that excess cancer risks are additive for purposes of evaluating the total cumulative risk and hazard index estimates for a receptor that is exposed to a contaminated area. While it is true that the assessment can be conducted separately, the excess cancer risk estimates, due to exposure to both radionuclides and chemical carcinogens, should be summed to provide an estimate of the combined risk to that receptor, due to all carcinogenic contaminants as specified in OSWER Directive 9200.4-18 (U.S. EPA 1997).

34. Section 6.5, Risk Characterization, page 48: a) [first paragraph]: Provide a reference for guidance that allows for the contribution from background to be excluded from consideration in a risk assessment. Per Ohio EPA, the risk assessment and characterization for CERCLA sites should follow the approach outlined in U.S. EPA (1989) Risk Assessment Guidance for Superfund, Volume I Human Health Evaluation Manual, Part A.

35. Section 6.6.6, Remedial Action Objectives, 3rd paragraph: The reference to ARARs being identified at a later date should be corrected to reference the appropriate section of the FS, since the FS has been completed.

36. Section 6.6.6, Remedial Action Objectives, 3rd paragraph: EPA concluded that to be considered protective under CERCLA, remedial actions should generally attain dose levels of no more than 15 mrem/yr EDE for those sites at which a dose assessment is conducted. This dose level corresponds to an excess lifetime cancer risk of approximately 3 x 10-4. Ohio EPA has stated that 10-5 is the acceptable risk level for cumulative exposures for unrestricted reuse. EPA reviewed the dose limits that are contained in the NRC's Radiological Criteria for License Termination (see 62 FR 39058 July 21 1997). The NRC rule allows a cleanup level of 25 mrem/year EDE with exemptions allowing cleanup levels of up to 100 mrem/year. These levels are equivalent to approximately 5E-4 to 2E-3, respectively. These levels are beyond the upperbound of the risk range for making risk management decisions at CERCLA sites. This determination is consistent with EPA's explicit rejection of a risk level of 5.7E-4 for elemental phosphorus plants (54 FR 51670).

37. Section 6.7.3, Screening Soil Invertebrates: Ohio EPA recommends a soil zone of compliance of 0 - 4 feet (instead of 0 - 2 feet) to assess exposure for burrowing terrestrial receptors.

38. Section 7.2.1, AEC Related COCs: See comment above regarding 25 mrem/year vs. 15 mrem/year.

39. Section 7.2.2, Recommended Remedial Action Objectives: See comment above regarding 25 mrem/year vs. 15 mrem/year. This would be useful information for the risk managers to evaluate during decision making. Also, soil concentrations and proposed cleanup levels should be evaluated for the potential of contamination in soil to migrate to groundwater at levels that are unacceptable, in order to determine whether or not the proposed cleanup levels and any residual contamination remaining in the soils within the acceptable levels. The RGO's developed for this site should be compared to those developed for other FUSRAP and DOE sites in Ohio, such as with the Lucky Beryllium site.

40. Section 7.2.3, page 61: The text states that the RI adequately determined the nature and extent of FUSRAP-related contamination and provides an evaluation of the potential impacts to human health and the environment. Based on the comments/issues raised in the previous comments, Ohio EPA does not agree that a complete characterization of FUSRAP-related contamination has been conducted. Additional work is necessary to fulfill the data needs of the RI. The determination of potential impacts to human health should be performed consistent with the CERCLA processes.

41. Section 7.2.3, Recommendations for Future Work: Please include a statement in the FS providing the rationale for completing the FS (e.g., risk is greater than acceptable risk range).

42. Table 6.15: The Table should contain an evaluation for the Industrial Worker's exposure to radionuclides in the subsurface soil (e.g., pipe worker).

Feasibility Study (FS) Comments

General Comments

43. The Corps is aware that the property owner is undergoing a Site-wide RI/FS. Any remedial actions proposed by the Corp for the FUSRAP material should be consistent with the Site-wide anticipated remedy(s). The parties should work together to understand and develop appropriate remedies that work in harmony and will not jeopardize, destroy or otherwise alter the protectiveness of any existing or anticipated remedy.

44. The FS evaluates several remedial options that require long-term operations and maintenance and possibly deed-restrictions. The property owner has gone on record of not accepting any but a "free-release" standard for radiological contamination on their property. Since the property is not owned or operated by representatives of the U.S. Government, it is not clear how these actions will be implemented. In order to fully evaluate the options present in the FS, the FS should include discussion on the "administrative" procedures that will allow the proposed remedies to meet the NCP's nine evaluation criteria.

Specific Comments

45. Executive Summary, page vii, 7th paragraph: The text references PRGs, yet in the preceding RI Section 7.2.2 (page 61), the RI states that PRGs have been replaced with site-specific radiological action levels. The discrepancy should be corrected.

46. Section 1.0, page 1, 3rd paragraph: The text references that changed site conditions have occasioned the Focused RI/FS. The text should clarify, in specific detail, what has "occasioned" at the Site and the extent of impact to the RI/FS and what has been done to adjust to the changes.

47. Section 1.0, page 1, 4th paragraph, last sentence: The text references that unacceptable levels of COCs are not present in certain media. The term "unacceptable" is ambiguous. The text should be revised to include what evaluation criteria is being used to determine unacceptable (e.g., risk range.)

48. Section 1.0, page 2, 1st sentence: The text should be revised to include the phrase "and the NCP" at the end of the sentence.

49. Section 2.0, page 3, 1st paragraph: The text states that PRGs are initially based on chemical-specific ARARs. The PRGs should also be based on location-specific ARARs and to the extent information is available, action specific ARARs. The text should be revised and additional discussion in the FS should be added, as appropriate.

50. Section 2.1, Remedial Action Objectives (RAO), page 3: The FS fails to include a bullet for meeting ARARs as part of the RAO process. This is a critical element of the RAOs. If a potential action will not comply with ARARs, then it should not be an objective for cleanup. In addition, it is not clear if the bulleted list maintains removal as an objective. Removal is a viable action that will achieve protectiveness, but its "up-front" cost will be higher. The FS should evaluate the RAOs to ensure their accuracy and provide all cleanup objectives.

51. Section 2.2.2, Identification of ARARs, page 5: It would be beneficial if the FS included a list of all potential regulations and the technical justification for determining which ones are considered an ARAR.

52. Section 2.2.2.1, page 6 3rd paragraph: The text identifies three radionuclides as the substances to be address by the RI/FS. The text should be revised to include the associated decay products.

53. Section 3.0, General Response Actions, page 8, bulleted list: The FS should add another bulleted general response action that was not evaluated under the FS. The response action should include consolidation. Consolidation of radiological

contaminated soil may be a viable option that needs to be evaluated in conjunction with removal and capping.

54. Section 6.2, Alternative 2, page 32, Figure 5.2, page 30: The use of asphalt caps as part of this potential remedial action. It is unclear and unsupported why the use of clay, multilayer, or native soil caps were eliminated from the detailed screening process. The use of asphalt as the capping material may not be conducive to long-term permanence and use. The other capping alternatives should not have been screened out, since they appear to have the same advantages and disadvantages as asphalt and should be included in the evaluation process.

55. Section 7.0, page 34: The section provides alternative arrays for Areas A, B, C, D, and G but does not provide details on Area E, F, G, H or I. It is unclear why alternatives information was not presented for these Areas. The FS should be revised to provide the required information for all areas of concern.

56. Section 7.2, Alternative 7.2, page 36, Capping and Figure 7.1, page 37: The heading and discussion in this section references soil capping, yet in Section 6.2 soil caps were screened out. The Figure under Alternative 2 references soil cap. It is unclear if the evaluation is for a soil or an asphalt cap. The FS needs to be revised to consistently use and evaluate viable remedial options.

57. Section 8.3, page 46, Long-Term Effectiveness: The FS acknowledges that without land-use controls and long-term maintenance that certain alternatives would not be protective. It is Ohio EPA's understanding that no mechanism or agreement-in-principal exists between the Corps and the property owner regarding land-use controls/deed restrictions. Absent the ability to implement a deed restriction or land-use control, then these alternatives should be screened out of the remedial process based on the failure to meet several of the NCP's assessment criteria.

58. Section 8.7, page 48, Cost: It is unclear if the cost comparison for each alternative includes Operation and Maintenance (O & M) costs. Given the length of time that O & M would be needed, the associated costs will need to be factored into the evaluation process. The FS should be revised to include O & M costs for each alternative.

59. Figure 6.1: It is unclear how the SOR for the industrial worker can extend beyond the SOR for the subsistence farmer (northern portion of Area A) or, in other areas, almost share the same boundary. The FS should be revised to clarify and explain the information presented in the figures.