

Summary Report

on the

**PALMERTON ZINC SITE
OU-3 FEASIBILITY STUDY**

PREPARED BY:

BLACK & VEATCH SPECIAL PROJECTS CORP.

FOR

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION III**

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and

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May 28, 1999

for:

The Palmerton Citizens For A Clean Environment

In Response to Task Schedule #29

OVERVIEW

The following memorandum has been prepared in response to PCCE Task Schedule #29, which requests that MKA Project Manager Robert H. Hosking, Jr., review and critique the Feasibility Study for OU-3 of the Palmerton Superfund Site. Task Schedule #29 specifically authorizes distribution, review and comment solicitation from MKA project staff specialists Bruce Rowell, Ph.D. and Dale Bruns, Ph.D., who's comments have been integrated into this summary report. The deadline for submission of the summary report to PCCE is Friday, May 28, 1999. PCCE Task Schedule #29 also requested that MKA Project Manager Robert H. Hosking, Jr. attend the May 14, 1999 meeting with U.S. EPA at the Palmerton Library, and attend a PCCE Board meeting on Tuesday, June 2, 1999, to discuss the contents of this report.

REVIEW

The Palmerton Zinc Superfund Site Draft OU-3 Feasibility Study is organized into an Executive Summary, eight (8) sections, and five (5) appendices. The eight sections are:

- 1.0 Introduction and Background Information
- 2.0 Remedial Action Objectives, General Response Actions and ARAR's
- 3.0 Identification and Screening of Technologies
- 4.0 Institutional Controls Summary
- 5.0 Remedial Alternatives Screening
- 6.0 Detailed Analysis of Alternatives
- 7.0 Other Tasks
- 8.0 References

The five (5) appendices are:

- Appendix A - Alternative Cost Estimate and Description
- Appendix B - Alternative Cost Estimate Data
- Appendix C - Predesign Sampling Cost Estimate and Sampling Protocols
- Appendix D - Delisting Memo
- Appendix E - Waste Management Determination

The four (4) page Executive Summary serves as a well organized, comprehensive overview of the Feasibility Study Document, and a template for this review. The first two paragraphs identify the project location (the Borough of Palmerton, the Village of Aquashicola, and other residential areas of Lower Towamensing Township exhibiting elevated levels of hazardous substances from the zinc processing activities in Palmerton); and the need for remedial action (to reduce the potential for ingestion of contaminated residential soil and ingestion of contaminated indoor dust). Paragraph three (3) summarizes the contents of Section 2 (Remedial Action Objectives, General Response Actions and ARAR's), and states that the primary emphasis is to reduce contaminant concentrations and create a vegetative barrier to contaminated soils to reduce the risk of exposure. The secondary goal of the remedial action objectives is to allow for unrestricted land use in the future and to allow for a timely delisting of OU-3.

The risk based goal established by U.S. EPA through completion of the risk assessment is 650 mg/kg lead for indoor dust and residential soil, but the actual clean-up levels that will be attained during the remedial action will be determined on a residence by residence basis. As stated in the risk assessment, EPA believes that attainment of remedial objectives for lead will also result in attainment of the remedial objectives for arsenic.

The fourth paragraph of the Executive Summary addresses EPA's Superfund policy regarding lead-based paint. Lead-based paint contamination is outside the scope of Superfund authority. Residences inside the Borough of Palmerton with lead-based paint contamination will be referred to the Borough's "Lead Safe" Home Grant Program. Lead-based paint contaminated residences outside the borough are not eligible for the Borough's "Lead Safe" Home Grant Program. The Summary suggests that all homes identified with lead-based paint contamination, both inside and outside the Borough, will be provided with public education information on the hazards of this contamination source.

The fifth paragraph of the Executive Summary provides a generalized description of the remedial action alternatives identified as feasible (Sections 3 and 4). All Feasibility Study alternatives analyses include comparison with a no-action alternative. For residential soils, feasible alternatives identified include:

- ◆ Soil removal and disposal to a landfill,
- ◆ "hot spot" removal and insitu treatment to reduce the contaminant mobilities, and
- ◆ barrier soil and/or a vegetative cover layer

For indoor dust, the feasible remedial action alternative identified involve specialized cleaning including HEPA vacuuming and hard surface wet wiping.

The sixth paragraph of the Executive Summary addresses disposal of remediation wastes. The methodology used to determine disposal of remediation wastes is the Toxic Characteristics Leaching Procedure (TCLP). Simply put this methodology involves depositing the subject material in a mildly acidic solution, agitating the mixture for a specified period of time, and then measuring the concentration of contamination that leached from the solid to the liquid media. Soil and dust that passes the TCLP test can be disposed of as non-hazardous materials. Remedial wastes that do not pass the TCLP test will either be treated, or disposed of in a Subtitle C hazardous waste landfill.

The remaining body of the Executive Summary, with the exception of the last paragraph, summarizes Section 6, the "Detailed Analysis of Alternatives". The stated emphasis of the alternatives analysis are:

- ◆ Protection of human health and the environment,
- ◆ compliance with Applicable and/or Relevant Appropriate Requirements (ARAR's),
- ◆ long-term effectiveness,
- ◆ reduction of contaminant toxicity, mobility or volume,
- ◆ short-term effectiveness,
- ◆ implementability, and
- ◆ cost.

The first alternative discussed is No Action. The cost of the No Action alternative is listed as \$657,000 (for monitoring). No mention is made in the Executive Summary of the acceptability and/or feasibility of the No Action alternative, however in section 5.0, the “Remedial Alternatives Screening”, it is stated that if the No Action Alternative were implemented for soils, that deed restrictions and public education would be implemented and environmental monitoring would be conducted at regular intervals. The No Action Alternative for indoor dust (Dust Alternative 1) does not include provisions for either deed restrictions or public education, only periodic monitoring would be conducted.

The second alternative discussed in the Executive Summary of the Feasibility Study is titled “Dust Alternative 3”. It is interesting that there is no discussion of Dust Alternative 2 (Public Education) in the Executive Summary or Section 6 of the Feasibility Study document (pgs. 6-8, 6-9). Presumably, Alternative 2 was eliminated from consideration in Section 5.0, Remedial Alternatives Screening (pg 5-4), but the justification for eliminating public education about contaminated indoor dust is not provided. In Section 5.2, “Screening of Initial Remedial Alternatives”, it is stated that the justification for elimination of Dust Alternative 2 is provided in the screening comments section of Table 5-1, however there is no mention of Dust Alternative 2 in Table 5-1. As described earlier, Alternative 3 involves specialized cleaning including HEPA vacuuming and wet wiping of hard surfaces. Again, the potential relevance of lead-based paint is discussed in this section.

The third alternative discussed is titled “Soil Alternative 4: Removal/Revegetation.” Soil Alternative 4 is complete removal of all residential soil above 650 mg/kg lead. For cost estimation purposes it is assumed that 80% of the soil would be removed to a depth of four (4) inches, and the remaining 20% removed to a depth of six (6) inches. Excavated soil would be replaced with clean soil, as well as plants and other vegetation. Post remediation sampling would be performed to confirm achievement of remedial objectives. It is specifically stated that this alternative would be protective of human health and comply with all ARAR’s. This alternative appears to require the greatest level of remedial effort. The cost of this alternative is estimated at \$26,349,000.

Soil Alternative 5: Removal/Insitu Treatment/Revegetation, is the fourth alternative discussed. This alternative involves removal of soils and vegetation in “hot spots”, insitu (in-place) treatment of remaining soils, and revegetation. It is interesting that one aspect of this process may involve compaction of the replacement soil prior to revegetation. This seems inconsistent with the goal of establishing and maintaining healthy turf grass cover. Soil Alternative 5 also includes a provision for educating the homeowner to assist in maintaining the newly-grown vegetative cover. This alternative also includes post-remediation sampling and vegetative cover observation to confirm achievement of remedial objectives.

Soil Alternative 5 includes two (2) alternatives: 5A, Tilling amended soil into the existing soil; and 5B, chemical treatment of existing soils so that they pass the TCLP test. The estimated cost of Soil Alternative 5A is \$11,121,000. The estimated cost of Soil Alternative 5B is \$11,786,000.

It is specifically stated that Soil Alternative 5 would be protective of human health, and provide the opportunity for unlimited future land use and timely delisting of OU-3.

Soil Alternative 6, the fifth alternative discussed, is essentially a contractor implementation of “Neighbor Helping Neighbor” (NHN). Another stated difference between Soil Alternative 6 and NHN is that Soil Alternative 6 will involve pre- and post remediation sampling and observation to show that remedial goals are achieved. Under Soil Alternative 6, no soil would be removed. It is specifically stated that Soil Alternative 6 would be protective of human health, and would provide the opportunity for unlimited future land use and timely delisting of the operable unit. The estimated cost of Soil Alternative 6 is \$11,255,000.

The final paragraph of the Executive Summary states that the USEPA preferred alternative will be presented for public comment. USEPA Guidelines require that two additional criteria be evaluated after the public comment period ends: public acceptance and state preference. After the additional two criteria are evaluated, EPA will prepare the Record of Decision (ROD), “setting forth the selected criteria”.

COMMENTS

Dr. Bruns’ comments:

1. It appears that the document does follow federal guidelines for a feasibility study of this type. Nevertheless, as the report states, a preferred option is not identified in this study. Except for the screening from a wide range of original options, the remaining five options are generally treated as being “equal” even though they are evaluated against seven criteria.
2. A wide range of options was originally considered (e.g., Table 3-1, p. 3-2 to 3-5) and then narrowed through a two step selection process. In general, even though this was done in a very brief and cursory fashion, it did not seem that they eliminated any critical options from final consideration (except see point 5 below relative to the State ARAR for lead).
3. The semi-final selection of remedial alternatives (pp.3-8 and 3-9) all seemed feasible as identified (given “No Action” alternatives were there strictly for comparison purposes).
4. Throughout the document, reference is made to the evaluation criteria of the “overall protection of human health and the environment”. In general, the Site Specific Risk-Based Cleanup Levels (e.g., Table 2-1 on p. 2-7) imply an approach that accounts for human health and earlier documents on human health risks are cited and identified. However, from an ecological risk assessment perspective, the Feasibility Report seems totally inadequate. We have identified this continuing deficiency in a number of our earlier reviews for various other studies and assessments at the Palmerton Superfund Site. My point here, as we have discussed on numerous occasions, is that ecological concerns and issues generally have not been given sufficient consideration and the problem continues with the present document.

5. Mention is made of State ARARs (e.g., p. 2-6) and the State Regulations are even cited. However, Table 2-6, p. 2-18, only lists the applicable requirement (Land Recycling and Environmental Remediation Standards Act), but fails to mention that the residential level for soil is 500 mg/kg lead. Since this is only a feasibility study, targeting the State ARAR could have easily been considered one of the options in order to defend explicitly why the Federal Site-Specific targets were used and not the State targets which are more protective of environment and health. It is not clear in this Feasibility Study why such an option was not considered. At a minimum, previous documents or agency decisions should have been briefly considered, discussed, and cited. In this context, I am not sure that the evaluation stated at the top of p. 6-21 is true that “Alternatives 4, 5, and 6 would meet Federal and **State of Pennsylvania** ARARs and TBCs”.
6. On page 2-7, it is not explicitly clear why MSCs for protection of groundwater was not considered. Presumably, because groundwater is a component of OU-4, and/or monitoring indicated that contaminants are concentrated in the upper layers of soil and migration to groundwater is not a problem for human health and the environment, but this is not discussed.
7. Tables 3-4 (p.3-10) and 6-2 (p.6-2) indicate that there will be no environmental monitoring needed for Alternatives 4, 5, and 6. While these options are more “proactive” in removing risks and lowering or treating contaminants of concern, it would seem that some follow-up baseline monitoring would be a prudent activity if even on a very limited basis to at least document longer term performance with real data. However, there does seem to be some “post remediation sampling and observation” suggested for these soil alternatives (ES-3, ES-4 and p.6-21).
8. Soil alternative 4, Removal/Revegetation, has two identified advantages over the others: the permanence of remedial actions is greater (p.6-20) and long-term effectiveness (p.6-21) is better. In general, except for cost (see below), all soil alternatives are evaluated at about the same level for all the other criteria (see selection 6.3.2, starting on p. 6-20). On this basis, one might anticipate that Alternative 4 could be considered the preferred option when this later document is released. However, it is difficult to ascertain to what extent Alternative 4 actually exceeds the others given that only a subjective evaluation and qualitative ranking are provided and only for these two criteria.
9. For the obvious reasons, Alternative 4, Removal/Revegetation, is more than double the costs of all other Soil Alternatives. Since this is based on explicit quantitative data, the cost criteria appears to overshadow the two positive, but qualitative, criteria mentioned in Point 8 above. Since the Feasibility Report is not intended to select a preferred option or alternative, the relative scoring and summing of these various alternatives across all seven criteria is not done. However, I would guess that the high costs of Alternative 4 will be a major issue when the final preferred option(s) is/are identified. Alternative 5 does have some removal of “hot spot” soils and may represent a kind of “compromise” but the issue may arise as to what constitutes a “hot spot” and how many of those are excavated until costs climb above those estimated in the Feasibility Study.

10. Regarding PCCE's question about EPA's maintaining the 650 mg/kg lead as being the eligibility criteria for clean-up, I do not see anything in the present document that would indicate a problem. Protection of Health and Compliance with ARARs are two explicit criteria that were evaluated throughout the document and 650 mg/kg is the identified target for lead. I cannot see how a less protective cutoff could be justified from the present document. I would not expect this to be a problem on the basis of the present study and it would appear to be difficult to justify another approach that did not attain the same goals as indicated in the Feasibility Report.

Dr. Rowell's comments:

Overview

The proposed Feasibility Study is inordinately convoluted and repetitious. It does, however, present viable remedial alternatives for contaminated soils and house dust in Palmerton, PA.

A risk-based goal of 650 mg/kg lead in soil and indoor dust is proposed in this plan. No basis is established for this standard in the proposed Feasibility Study. The 1998 CDM Final Risk Assessment Report (FRAR) (unseen) is mentioned in this proposal as relating to this standard. However, "Both federal and state Relevant and Appropriate Requirements (ARARs) must be complied with during Superfund response actions" (this report p. 2-4). Table 2-6 (p.2-18) identifies Pennsylvania statutes for soil contamination but provides no values for remedial action. Thus, Table 2-6 and Section 2.3.2 are unsatisfactory as the state standard for remedial action is not defined. Further, the CDM Draft Study of the Palmerton Zinc Site dated 10/28/92 identifies an action level for soil and dust exceeding 500 mg/kg lead (the State of Pennsylvania risk based corrective action level for residential soil).

The Feasibility Study fails to define specific goals for contamination levels following remediation of soils and dust in homes. This shortcoming should be overcome with a definite numerical upper limit (e.g. 500 mg/kg) for lead levels following any type of remedial activity.

Alternatives five (5) and six (6) for soil remediation do not identify post treatment monitoring as part of the action plan. However, monitoring is mentioned once on page 3-9 as part of soils option six (6). To my mind, "post-remediation confirmation", i.e. pages 5-2 and 5-3 for soil alternatives 5 and 6, is essentially monitoring. The question of monitoring is essentially one of sampling frequency and/or time frame. To insure satisfactory remediation, I recommend additional spot sampling one year post treatment if soil remedial alternative 5 or 6 is employed in whole or part. This would affirm the long-term efficacy of the soil remediation process.

Remedial Alternatives

Six soil remedial alternatives were initially proposed. Following analysis for effectiveness and cost, the list was trimmed to four. The four soil remedial alternatives were: 1) no action, 4) soil removal, replacement and vegetation, 5) removal and insitu treatment plus revegetation, 6) soil amendment and revegetation. Alternative one is not viable as there is no remediation. Options four through 6 represent a continuum of treatment ranging from complete soil removal through no soil removal. Rather than choose one alternative to fit all site conditions, perhaps the best solution would be to pick from either alternative 4, 5, or 6 on a case by case basis depending on the extent of contamination and cost effectiveness. A logical extension of this scenario would be to then de-list homes/properties on a case by case basis.

Three alternatives were presented for the remediation of contaminated house dust. These alternatives were: 1) no action, 2) public education, 3) specific cleaning. Alternatives 1 and 2 do not remediate contaminated dust in homes. Only alternative 3 meets goals of the Feasibility Study. As stated above, no standard for remedial performance is identified for dust in homes. Equally important, no alternative action to carpet cleaning is proposed if the cleaning procedure is not “successful”. Perhaps replacement of carpet should be included as an alternative under this remedial option.

Editorial suggestions

- a. Pg. 1-1 line 32 - ...soils and *metals contaminated* indoor dust.
- b. Pg. 1-2 line 34 - change rock to *bedrock*.
- c. Pg. 2-7 line 2 - COPCS is not defined.
- d. Pg. 2-7 line 6 - change Table 2-7 to 2-6.
- e. Pg. 4-3 line 16 - ... *and continue enforcement controls*.
- f. Pg. 6-5 line 9 - add ... *soils with lead contamination*.
- g. Pg. 6-15 line 16 - change to - *Alternative 5 would remove soils that are above 1200 mg/kg lead and...*

Bob Hosking's comments:

Overall it is somewhat disappointing that the alternatives analysis in the feasibility study is not both more creative and aggressive in attempting to remediate the extensive heavy metal contamination that threatens both human health and the environment in the Palmerton Valley. While it is specifically stated that several of the alternatives described will be protective of human health, EPA's mandate to protect both human health and the environment is not adequately addressed. Furthermore it is never considered that, without protecting ecological endpoints in terms of productivity and the myriad of free services provided by ecological systems, human health is also compromised. This tunnel vision approach to environmental restoration is an artifact of EPA's dividing a valley-wide problem into four (4) discrete operable units, and public/institutional acceptance of ecological triage. Psychologically it separates human interests from those of the ecosystem that sustains us, and discourages public participation in productive community based environmental renewal.

It is also disappointing that the feasibility study document, while straight-forward in some respects (identification of the remedial objective of 650 mg/kg established by the Final Risk Assessment Report - FRAR), is confusing in others (what ever happened to Dust Alternative 2?). Furthermore, the assertion that some of the remedial alternatives meet long-term effectiveness goals is speculation, since the long term-term effectiveness of those alternatives has not been demonstrated. The assertion of long-term effectiveness is made without recognition that environmental and ecological systems are dynamic and, within the context of human systems, unpredictable. Finally, the adequacy of the 650 mg/kg remedial objective established through the risk assessment is dubious, and this feasibility study sets the stage for a potential further reduction in the level of remedial effort required for de-listing OU-3.

COMMENTS AND QUESTIONS RELEVANT TO THE MAY 14, 1999 TECHNICAL INFORMATION SESSION AT PALMERTON LIBRARY

The most important aspect of the OU-3 feasibility study to consider is that it does not identify EPA's preferred alternative. The purpose of a feasibility study is to determine the feasibility of a range of options, and in this context, the report is superficially adequate. Participation in the May 14, 1999 Technical Information Session at the Palmerton Library was very beneficial in terms of imparting relevance to the Feasibility Study document. Consequently, it is appropriate that comments on the May 14, 1999 Technical Information Session accompany the Feasibility Study document review.

During the May 14, 1999 Technical Information Session held at the Palmerton Library, Remedial Project Manager Charlie Root stated that the ultimate remedial design is anticipated to be more like a menu of potential remedial options that EPA can apply on a residence by residence basis. The subject feasibility study is designed to allow for flexibility in development of the Record of Decision (ROD). Mr. Root envisions that each residence will need their own mini work plan, establishing the types of sampling conducted, the locations of samples, depths of samples, etc. Flexibility in site characterization will follow through to flexibility in remedial design, on a residence by residence basis. Not all eligible residents are likely to participate, and it is EPA's policy to make participation in the remedial action completely voluntary. It is also EPA's goal (policy?) to eliminate the need for deed restrictions and deed notices, even for those residences where no sampling and/or remediation has occurred. Mr. Root also suggested that although the exit plan has not yet been developed, the time span for eligibility in the removal action is likely to be limited, by necessity, due to EPA's ultimate goal of eventually delisting the site.

Mr. Root's comment that it is EPA's goal to eliminate the need for deed restrictions and deed notices is consistent with the secondary goal stated in the feasibility study of allowing for unrestricted land use, but inconsistent with the No Action Alternative for soil (Section 6.2.3.1) where it is specifically stated that implementation of the No Action Alternative would "...consist of deed notices, public education and post-remedial administration". The potential use of deed notices for properties not included in the removal action needs to be clarified.

EPA's interest in flexibility, while laudable in terms of individual rights and public acceptability, raises several serious quagmires. For example, if a significant number of residences fail to participate in the removal action, how can EPA demonstrate that their goals of protecting human health and the environment have been achieved? What incentive is there for residents to participate in the removal action, if EPA maintains its current confidentiality policy, and refuses to allow deed notices or deed restrictions for homes where sampling has never occurred? Lead-based paint evaluation as part of the indoor dust remedial action is likely to actually serve as a deterrent to participation, since only certain income levels within the Borough are eligible for the Borough's "Lead Safe" Home Grant Program, and residences outside the Borough proper are ineligible regardless of income level. Consequently, it should be considered that many residents outside, and some inside, the Borough may refuse to participate in the removal action for fear that their participation will result in identification of a lead-based paint problem, and they will personally bear the costs associated with lead-based paint remediation. Home owners who are aware of a lead based paint problem that has not been remediated are required by law to disclose the hazard prior to closing. Further, some homeowners may be intimidated or concerned that participation in the removal action may make them liable for future cost recovery by the industry, who has never given up their right to file suit against residents. How will these confidentiality issues affect participation in the removal action and future property values in the Palmerton area?

EPA's position is that they can legally inform prospective buyers whether or not a home has been tested, but not the results of the analysis. EPA also can inform a prospective buyer if a property was or was not included in the removal action. Again, this policy may serve as a disincentive for property owners to participate in the clean-up. For a property owner to demonstrate to a prospective buyer that their home is safe, they must have their home tested, and then either qualify for a removal action, or keep a copy of their sample analysis until the house is sold. Further, the future owner must also maintain a record of the sample analysis until they have sold the home and so-on ad infinitum.

During the May 14, 1999 Technical Information Session, numerous interesting comments were made. I record them here for further consideration by the PCCE membership.

Barbara Forslund mentioned that there were several commitments EPA made in the Risk Assessment that were not followed through on in the Feasibility Study document. For example, the potential contribution of current operations to cumulative risk and possible re-contamination of adjoining residences was not addressed in the feasibility study as promised. EPA asserted that all previous commitments in the risk assessment are or will be met.

John McAleese asked whether composite or individual sampling will be applied to determine the appropriate remedial action. Charlie Root responded that the appropriate remedial design, including sampling, will be decided on a residence by residence basis. As an example, a residence with 700 mg/kg lead in soil (composite sample), and good vegetative cover will likely not need remediation. Conversely, a residence with 700 mg/kg lead in exposed soil (discrete sample) around a childrens play area would probably need to be remediated.

Teresa Bowers from Gradient Corp. stated that EPA guidance (OSWER 81/1998 Lead Guidance at CERCLA Sites) states that EPA should refrain from remediating indoor dust contamination. Ms. Bowers further stated that because of short term indoor dust circulation rates, and because remediation of contaminated exterior soils removes the source of indoor dust contamination, remediation of indoor dust is a waste of resources. Charlie Root responded that he would study the issue for further consideration.

Regarding indoor dust contamination, Jon Reid, University of Cincinnati Technical Advisor to the Task Force, stated that indoor dust risk characterizations should be determined by loading (total mass) instead of concentration, since loading rates are typically too small to pose any significant risk (i.e. of what significance is 500 mg/kg if the loading rate is only 0.05 mg?). One option Mr. Reid suggested is that instead of EPA remediating indoor dust via contract, that a HEPA vac be made available to residents for use at their convenience. Jon Reid commented that statements in the feasibility study alternatives analysis regarding delisting should be removed from the narrative. Jon Reid also asked "If nobody participates in the removal action, can the site still be delisted?" Charlie Root responded that the EPA's preferred action would likely be shifted to the No Action alternative, and then the site could be delisted.

Richard Wright asked why EPA did not consider cleaning residential HVAC units as part of the indoor dust remediation? Art George commented that very few residential buildings in the Borough of Palmerton have hot air heat and central air. Most residential buildings are heated with hot water. One of the Black & Veatch representatives responded that remediation of HVAC systems was deemed to be too expensive for the anticipated level of protection it would provide.

It is encouraging to see that preparation of the subject draft Feasibility Study document has been completed in that hopefully additional removal actions will occur in the near future. Because participation in the removal action will be on a strictly voluntary basis, I have expressed numerous concerns regarding the level of participation anticipated, and the implicit incentives and disincentives in the analysis section.

It seems logical and within EPA's mandate to protect human health and the environment, that OU-3 be delisted on a residence by residence or block by block basis. However, Remedial Project Manager Charlie Root specifically excluded that option during the May 14, 1999 meeting. For the removal action to be effective on a comprehensive level, every property needs to be investigated, even property that is not yet developed, but has the potential for future residential land use. For EPA to fulfill their mandate, while simultaneously keeping participation in the clean-up of OU-3 completely voluntary, maintaining confidentiality, eliminate the need for deed restrictions or deed notices, limit clean-up eligibility to a specified time-span, and progress toward delisting of the site; it is appropriate, and probably necessary for EPA to enter into a negotiated ROD which establishes an adequate escrow account to address current residential and potential residential properties not addressed in the removal action before de-listing. Also, EPA needs to eliminate institutional disincentives to participation in the removal action by not focusing indoor dust remediation on lead-based paint.