

OVERVIEW

This review and comment were prepared in response to PCCE Task Schedule # 38 which requests that MKA:

- 1) Read the ROD, noting any pertinent questions.
- 2) Attend EPA's public meeting, TBA, (possibly October 24, 2001-I will advise).
- 3) For delivery to PCCE by November 15, prepare a brief synopsis highlighting the ROD's strengths and weaknesses.

The EPA Public Meeting was held November 7, 2001 at the West End Fire Company.

REVIEW

Two cleanup scenarios are identified in the Record of Decision, the "Selected Remedy", and the "Contingent Remedy". Since the "Contingent Remedy" is essentially the same as Alternative 5A, as described in the Proposed Plan, most of my comments and concerns expressed following review of the Proposed Plan still stand. The "Contingent Remedy" represents a more ambitious and therefore expensive attempt at cleaning up the contamination which resulted from more than 80 years of industrial emissions. The "Selected Remedy" provides the PRP's the opportunity to proclaim once again that the exposure problem is lead-based paint and not industrial emissions, so it is fair to assume that they will accept the "Selected Remedy".

The Selected Remedy, identified in Figure 2 accompanying the Record of Decision (ROD) as modified Alternative 7, appears to be essentially the same as PRP Alternative 7 described in the June 2000 Proposed Plan. The June 2000 Proposed Plan stated that PRP Alternative 7 was submitted to EPA on March 30, 2000 by Viacom International, Inc.. This is the same remedy defended by industry representatives at the June 28, 2000 public meeting at the West End Fire Company hall as the "Public/Private Partnership". The major differences between PRP Alternative 7 described in the Proposed Plan and the Selected Remedy described in the Record of Decision (ROD) are reviewed in section XI of the ROD. These differences are outlined in item 1 below.

1. PRP Alternative 7 proposed adjusting the "risk based" remedial action level for lead from 650 parts per million (ppm) to 1050 ppm " In the event that a home qualifies for indoor lead-based paint abatement and the homeowner denies access, or in the event the indoor lead-based paint assessment demonstrates no need for such abatement...". Through the use of statistical methods described in Section XI(A), EPA Region III determined that the proposed cleanup level of 1050 should be revised to 950 ppm. The statistical analysis completed to support the 950 ppm level was performed by EPA's National Exposure Research Laboratory (NERL), and presented to EPA Region III in a report dated February 2001, which has been included in the Administrative Record for OU#3. The ROD states that: "The underlying premise associated with this remediation goal is that no other predominant sources of lead exposure exists (i.e. lead-based paint). Consequently, the inherent protectiveness of using this cleanup level is contingent upon the abatement of lead-based paint at impacted residences".

Items 2 through 5 represent changes between the Proposed Plan and the ROD regardless of which alternative was selected.

2. EPA identified that they incorrectly estimated the cost for Alternative 5A in the Final Feasibility Study and the Proposed Plan. The original "total present worth costs" for Alternative 5A was \$11,121,000, which has been adjusted to \$10,710,000. The ROD indicates the revised cost estimates are found in Table 3, but they are actually found in Table 4.
3. As a result of comments received regarding "large undeveloped properties", EPA has decided that it will consider evaluating cleanup eligibility for tracts zoned residential but currently undeveloped on a case-by-case basis, in consultation with PaDEP. The eligibility evaluation determination will be based on "...the undeveloped property's proximity to existing residential properties, the potential for re-contamination to occur on adjacent residential properties, the existence (or lack thereof) of preexisting infrastructure for the large undeveloped lot, and any other factors which EPA determines would affect the protection of human health and the environment.
4. As a result of recent changes in Section 403 of the Toxic Substances Control Act, as amended by the Residential Lead-Based Paint Hazard Reduction Act of 1992, also known as Title X, EPA has decided that it will consider eligibility sampling and potential cleanup of play areas at a remedial action and cleanup level of 400 ppm. The intent is to focus cleanup efforts on the population most at risk. The ROD states that this change is in response to a change in the regulations that occurred after the Proposed Plan was released and after the end of the public comment period.
5. EPA will conduct clearance sampling for arsenic to verify the assumption stated in the Baseline Risk Assessment asserting that elevated lead and arsenic levels are located in the same geographic areas, therefore the cleanup can be effectively conducted based only on lead levels. This change is in response to the higher lead based cleanup level of 950 ppm.
6. During the Wednesday, November 7, 2001 meeting at the West End Fire Company EPA disclosed that they would not rely on existing vegetative cover for protection from exposure to contaminated soil.

The significant components of the Selected Remedy are outlined on page ii of the Record of Decision and include:

1. Participation in the cleanup is not required (is voluntary). Participation will be solicited through letters, fact sheets, local media outlets, and personal contacts.
2. Households that agree to participate will be evaluated for eligibility. For a household to be eligible for cleanup, soil samples taken from multiple "representative" locations must have 650 parts per million lead or greater.

3. Residences determined to be eligible for cleanup will be evaluated for lead-based paint and remediated if necessary, pending permission of the homeowner. Lead-based paint remediation and HEPA vacuuming of home interiors will be performed until clearance standards consistent with Subpart D of 40 CFR Part 745 ("Lead-based paint poisoning prevention in certain residential structures" - Toxic Substances Control Act) are attained.
4. Various types of exterior soil cleanup are proposed including tilling in either pre-amended soil, or agricultural-type amendments, and/or excavation, removal, and proper disposal of targeted soils until appropriate cleanup standards are attained. The appropriate cleanup standard could be either 650 ppm or 950 ppm depending on the presence or absence of lead-based paint, and whether it is cleaned up or not, in accordance with the remediation protocol illustrated by Figure 2. In short, if the owner of an eligible property declines an interior lead-based paint evaluation using HUD guidelines, or if the homeowner declines lead-based paint abatement after a state-licensed lead-based paint inspector has determined that abatement is appropriate, exterior soils will be remediated to 650 ppm. Alternatively, if interior lead-based paint abatement is performed, or otherwise unnecessary, the residence will be HEPA vacuumed and the exterior soil cleaned up to the 950 ppm standard.
5. Residential play areas will be sampled and cleaned up to the 400 ppm level as described earlier.
6. Institutional controls will be implemented to notify potential home buyers where sampling determined that the site is eligible for a cleanup, but the homeowner declined to have the appropriate cleanup performed.

COMMENTS

1. EPA Region III revised the Baseline Risk Assessment (BRA) for exposure to lead in two significant ways, each time increasing the targeted cleanup level. Initially, EPA participated in the "pig" study to determine if the lead in Palmerton soil is absorbed into the blood as efficiently as the default absorption parameter used by the IEUBK model. When the "pig" study demonstrated that lead from Palmerton soil is as efficiently absorbed as the IEUBK default parameter, EPA adjusting the ingestion value from 100 milligrams per day to 84 milligrams per day, which resulted in elevating the risk based cleanup level from 500 ppm to 650 ppm. The justification for this adjustment is based on studies conducted by Binder, et al., as well as supposed statistical anomalies. It is strongly worth considering that there is a substantial degree of uncertainty in the Binder, et al study, as an earlier study using a very similar methodology produced very different results. In addition, while the ingestion rate is apparently one of the more sensitive input parameters of the IEUBK model, the practical difference between 84 and 100 milligrams of soil is so small as to be beyond verification. The typical Tylenol® capsule contains 500 milligrams of acetaminophen, which is less dense than mineral soil. Consequently, 100 milligrams of soil has a volume less than one-fifth of a Tylenol® capsule, and the difference between 84 and 100 milligrams is less than one-fifth of that.

Next, after the Baseline Risk Assessment was completed, EPA revised the cleanup level for lead in soil again, by establishing a site-specific soil-to-dust transfer rate. Not having had the opportunity to review the February 2001 report issued by the National Exposure Research Laboratory (NERL), I lack all of the details of this adjustment, but as described by EPA in the ROD, it goes something like this:

EPA initially assumed that 100 percent of the lead in interior dust was the result of lead being tracked into residences from exterior soil. That is, they assumed a "soil-to-dust transfer rate" of 100%. After conducting statistical analysis of the various metals in different media identified at the site, EPA determined that the soil-to-dust transfer rate for other metals associated with smelting activities was much lower (arsenic = 31 percent, cadmium = 29 percent, and zinc = 32 percent). Using the 95th percent Upper Confidence Limit (UCL) of the mean transfer rate for all metals associated with smelting activities (a type of average, with a high degree of statistical certainty), EPA Region III arrived at a "site-specific soil-to-dust transfer rate" for lead of 41 percent. Apparently, the assumption is that the higher interior lead concentrations observed were the result of lead-based paint. The 41 percent soil-to-dust transfer rate was then somehow used to reevaluate (adjust) the target lead in soil cleanup level from 650 ppm to 950 ppm.

It is significant that EPA Region III requested input throughout the BRA process and during recalculation of the "soil-to-dust transfer rate" described above from EPA's Technical Review Workgroup (TRW). The TRW recommended using the IEUBK default value of 70 percent because it is based on several large, controlled studies. The TRW also expressed concern to EPA Region III that potential "noise" in the Palmerton analytical data may have artificially suppressed the predicted transfer coefficient. However, EPA Region III "believes that use of the 95th percent UCL of the mean transfer rate provides a sufficient safety factor to account for uncertainties, and recognizes the benefit of lead-based paint abatement (which allows for a higher cleanup level in soil)."

QUESTIONS

Many of the components of the Selected Remedy still lack sufficient detail to adequately evaluate the effectiveness of the ROD. For example:

1. What specific mechanism will be used to notify potential homeowners that a given residence was eligible for a cleanup, but was not appropriately addressed. If a deed notice is not used, what mechanism will alert potential home buyers that such a concern exists in and around Palmerton? What mechanisms are available for alerting potential home owners in the neighboring communities included in OU#3, but outside the Palmerton Borough boundaries?
2. Regarding residential play areas, how permanent is the protectiveness of the 950 ppm exterior soil remediation target when a new swing set or sand box is constructed, exposing unremediated soil? Since young children are young for only a short time, and new families are constantly being formed (new house - new baby!), swing sets and sand boxes are rarely in use for more than a decade. This means that they are constantly being removed and rebuilt at various locations about town. If the intent of the 400 ppm level is to focus cleanup efforts on the population most at risk, why shouldn't this level be applied to all areas where young children might conceivably play?

3. Where can the PCCE get a copy of the most recent regulation establishing the 400 ppm level for residential play areas.
4. Will EPA conduct the eligibility sampling, or will it be conducted by industry contractors? What level of oversight will EPA maintain to assure that sample collection and analysis is done properly, for eligibility and post remedy confirmation?
5. What criteria will be used to determine the representativeness of sample collection, especially in light of the use of composite samples where one unusually clean sample could skew the results of several samples that exceed the eligibility standard?
6. Who will pay for interior lead-based paint remediation, if it is deemed necessary?
7. What is the anticipated scope and extent of proposed arsenic confirmation sampling?
8. Over what time period will eligibility sampling be offered, and what is the proposed response to new sub-division and land development activity?
9. Why was the village of Kittatinny excluded from OU#3, and what sampling has been conducted in the vicinity of Kittatinny to determine the level of COPC's at that location? The presence of severe phytotoxicity clearly extends as far west as the Pennsylvania Turnpike.
10. Why wasn't the PCCE made aware of the February 2001 NERL report.
11. Page 5., paragraph 1 states: The ecological risk assessment for OU#4 has been completed and the remedial investigation is underway. Why hasn't the ecological risk assessment been released for review yet?
12. The exposure pathways identified in the Baseline Risk Assessment (BRA) included:
 - Inhalation of contaminants in ambient air
 - Incidental ingestion of contaminated soil
 - Incidental ingestion of contaminated indoor dust
 - Ingestion of garden vegetables grown in contaminated soil
 - Ingestion of livestock and dairy products raised on contaminated land
 - Dermal contact with contaminated soils and dusts

However, in section XI(A) of the ROD it is stated that the underlying premise associated with the 950 ppm remediation goal is that "...no other predominant sources of lead exposure exists (i.e. lead-based paint). Consequently, the inherent protectiveness of using this cleanup level is contingent upon the abatement of lead-based paint at impacted residences." The logic behind this justification fails to recognize that lead-based paint was never included as an exposure pathway in the first place. Consequently, it is appropriate that the site specific risk based standard for lead in soil remain at 650 ppm (if not to the 500 ppm risk based standard for residential properties established by PaDEP under Act 2). What is the real reason behind revising the 650 ppm cleanup standard established under the BRA, to the 950 ppm cleanup standard proposed in the ROD?