



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
ONE CONGRESS STREET
BOSTON, MASSACHUSETTS 02203-2211

June 30, 1995

Mr. Robert Krivinskas
U.S. Department of the Navy
Northern Division - NAVFAC
10 Industrial Highway
Code 1823 - Mail Stop 82
Lester, PA 19113-2090

Re: Preliminary Comments on the Draft Phase III Remedial Investigation (RI) Report, dated 19 May 1995, for the Management of Migration Operable Unit for Allen Harbor Landfill (Site 9) at the former Naval Construction Battalion Center (NCBC), Davisville, Rhode Island

Dear Mr. Krivinskas:

The Environmental Protection Agency (EPA) received portions of the Draft Phase III RI report on May 22, 1995. While the outstanding portions of the report are critical to the overall understanding of the site, I have attached preliminary comments on the sections already provided for you to begin revisions immediately. These comments are in addition to the ones attached to the letter from Mary Sanderson to Al Haring, dated June 30, 1995.

EPA will submit additional comments 45 days after receipt of the complete report. EPA will consider the report to be complete when the five outstanding portions of the RI have been submitted.

Please feel free to contact me at (617) 573-5736, to arrange a meeting to discuss these issues.

Sincerely,

Christine A.P. Williams, RPM
Federal Facilities Superfund Section

Attachment

cc: Judy Graham, RIDEM
Lou Fayan, NCBC
Tim Prior, USF&WL
Ken Finkelstein, NOAA
Andy Beliveau, EPA
Bill Brandon, EPA
Bob DiBiccaro, EPA
Jayne Michaud, EPA
Patti Marajh-Whittemore, EPA
Mary Sanderson, EPA



EPA Preliminary General Comments on Volume I, Technical Report, IR Program Site 09, Allen Harbor Landfill Phase III Remedial Investigation for the Management of Migration Operable Unit, NCBC

1. This document is a simple statement of the facts with no explanations of field anomalies or the effects on the data. The matter of fact style of the document leaves the reviewer with many unanswered questions. The document should also interpret the data for the reader.

2. The sampling section describes the well development and the well purging of three well volumes of ground water. The wells were developed and purged using the low flow technique which is designed to remove water at the same rate as water enters the well. When the water has reached a equilibrium state after purging then the water is sampled. Developing the wells for up to 22 hours by pumping or bailing to try and reach equilibrium was difficult for some of the newly installed wells. In some cases according to the sampling logs, three well volumes could not to be removed due to; low flow pumps having problems, stopped, or not functioning properly. When the water monitoring parameters reach equilibrium using low flow then the development can cease. During the well development some of the wells went dry, the new water entering the well had much different monitoring parameters. The monitoring parameters at the end of development in many cases are different than those during purging and sampling. The affect of these monitoring parameter differences on the data is not even discussed.

3. The fact that the monitoring parameters have totally changed after evacuation, further development and purging indicates that maybe this water is not at equilibrium and is not representative and that the resultant chemical data is in error or at least biased. The fact that the reported analytical data was not validated also makes evaluation of the results somewhat problematic. Some of the detected compounds may be real or they may be due to blank contamination.

4. The supplemental sections received for review of this document have similar problems as the sections in the original document. The sections do not explain or interpret the data presented. The conclusions to the entire document are very limited and have no real substance. There are several overlapping/interacting problems with the information presented in the RI. Because the data was not validated at the time of the writing of the document, some of the data may be qualified and interpreted differently after validation and the RI conclusions may change. The questions that are left unanswered possibly due to non-validated data are:

A. Are acetone and the other detected ketones artifacts of

using isopropanol used as a solvent in the decontamination of field equipment? The presence of isopropanol as Tentatively Identified Compound in samples with high acetone concentrations is suspicious. The isopropanol may not have evaporated from the field equipment during the cold weather period this work was performed. The acetone concentrations found in soil and water samples may not be originate from the environmental media.

B. Are there cosolvent effects in the ground water due to the presence of water soluble chemicals such as acetone, butanone, glycols, and alcohols, or the presence of natural organic chemicals such as humic/fulvic acids or other carboxylic acids? Do the cosolvent effects prevent the formation of DNAPL?

C. Does the presence of high levels of vinyl chloride in the groundwater indicate that the more chlorinated organic solvents have either chemically degraded or biodegraded? Does the presence of vinyl chloride in water "only" mean that the vinyl chloride is solvated by the presence of other water soluble chemicals and the soil does not absorb this chemical mixture? The presence of carbon/oxygen containing, water soluble, cosolvents would make the biomicrobes more accessible to the chlorinated solvents and in turn would make the mixture more mobile. The carbon source would also act as a food source for the microbes.

D. If the COCs are more soluble due to the presence of cosolvents, then are the individual compound physical measurement criteria chosen for the groundwater transport modeling representative of the actual conditions? Wouldn't the values chosen for the absorption/adsorption, volatility, and trasmissivity be different? Would the results of the modeling be different and would the conclusions change if the criteria used was for the chemical mixture actually present?

E. Would the risk assessment results be different if the chemical mixtures were taken into account rather than use only individual analyte criteria?

If some of the above questions could be answered then a remedy could be correctly postulated for this site.

5. The solute transport modeling in based on modeled hydraulic conductivity. The Navy did not use the site specific data gathered as part of the slug tests performed as part of the field investigation. The hydraulic conductivity model is based on qualitative grainsize analysis. The Navy did not conduct sieve analysis on the borings. No supporting calculations were provided for many of the conclusions. Therefore, without site specific supporting documentation and without supporting calculations, the Navy has not sufficiently supported the contaminant transport conclusions.

6. Revision of the Screening of COCs

Risk based concentrations (RBCs) for noncarcinogens are the values based on a Hazard Index of 0.1, not 1.0 (explained in EPA comments Dec.1994). This needs correction and revise COC list accordingly.

Chemicals detected in both shallow and deep groundwater should be retained as COCs. For example, aluminum (Table 6-4) is a COC in shallow groundwater, but is not included as a COC in deep groundwater. It should be retained as a COC in deep groundwater.

Surface water COCs should not be excluded if the same chemicals are identified as groundwater COCs.

7. Exposure Pathways

The amounts of vinyl chloride found in the Phase III Remedial investigation must constitute a health risk to construction workers who would eventually install venting systems in the landfill as part of a remediation. Workers may also be exposed to volatiles, i.e. vinyl chloride, in shallow groundwater; therefore, inhalation exposure needs to be evaluated in the risk assessment.

8. Groundwater Migration (Mass Flux to surface water)

Section 6 needs a qualitative discussion of the implications of the mass flux analysis results to the potential human health and ecological risks for Allen Harbor receptors. Discuss implications of modeled versus measured chemical concentrations in groundwater/surface water.

9. Inconsistencies/Omissions

Tables 6-12, 6-13 show 95th UCL on mean for groundwater, which is not applicable. Include maximum groundwater concentrations since they are used in the risk assessment.

Vinyl chloride is not discussed in Section 6.2.2, Hazard Identification or in Section 6.3 Dose Response, or in the Toxicological Profile Appendix.

EPA Preliminary Comments on the NCBC Davisville Site-wide ERA

General Comments

1. Data transcribing errors throughout the document must be corrected.
2. The CoC screening process may have underestimated the number of CoCs that should have been carried through the risk analysis. Key CoCs were omitted. The Navy has not used the lowest published screening value (i.e.; acute rather than chronic AWQC values)
3. TRV derivation has significantly differed, with the resulting risks being biased low, from the most recent ERA submitted by the Navy (Sites 5 & 8 terrestrial ERA). Also some of the TRVs used were more than 1 order of magnitude higher than published literature values. The TRV derivation problems previously identified in the 5 & 8 ERA have not been corrected.
4. There has been no clear explanation of which/how old/new data from previous studies were merged/reduced/replaced to produce the data summaries and food chain models. A map and a table should be presented showing all sample locations and identifiers in all the studies, and the ones used in the evaluation of site risks and the rationale for data exclusion.
5. Salinity regimes for Allen Harbor wetlands and tributaries and Hall Creek have not been mapped, as was requested.
6. All media/CoCs were not carried through the food chain models and risk calculations and not enough rationale was provided for the reduction in numbers of CoCs. The uncertainty section should then provide a discussion of the conservatism of this approach.
7. The large wetland between Sites 2 & 3 and Allen Harbor remains a significant data gap.
8. The mass contaminant balance of the wetland should have included surface water calculations instead of sediment calculations.
9. Insufficient explanation is provided about the derivation and use of BAFs, which are one of the most critical inputs to the food-chain models. Key issues affecting the risk estimation are:
 1. All BAF calculations should be tabulated, listing the chemical, chemical concentration in tissue, species, chemical concentration in media and resultant BAF, this format will assist the reviewer.
 2. BAFs are said to have been computed using maximum tissue/maximum medium concentrations. This is likely to bias the

BAFs low, since the Navy should have used the average tissue and media concentrations to calculate BAFs

3. Fish and shellfish BAFs reported by the Navy for the off-shore ERA are several orders of magnitude higher than the BAFs reported by the Navy in this terrestrial ERA.

4. In most cases the exposure doses were dominated by risks from incidental ingestion of soil an/or sediment. The diet of each ROC includes soil/sediment as part of the diet, not as incidental ingestion in addition t the food items. This was not justified and could under-estimate the total risk.

10. The summaries of COC-specific HQs and COC Class-level aggregate HIs, for all COC/media pairings, is missing. The COC specific tables should be provided for each watershed and each media (including channelized and non-channelized sampling, soil, surface water and sediment).

11. The uncertainty section should have been more extensive, (i.e.; include the rationale for using higher screening values & for using different TRV values that published values).

EPA Preliminary Comments on Allen Harbor Landfill and Calf Pasture Point Offshore Ecological Risk Assessment Report

General Comments:

1. The uncertainty section must be expanded to include the uncertainty of the data comparability, especially the use of historic data, the use of three different labs for metal analysis and the poor field duplicate comparability.

2. Data summaries were not extensive and CoCs were not related to site specific data. Additional data summaries should be included for average, maximum, minimums and the standard deviations by physical media and tissue analysis. HQs should be developed for surface water and pore-water data, (If pore-water was not sufficient for direct analysis, equilibrium partitioning could be used). Hqs should be summed and presented for each zone. The HQs should be compared with the toxicity results, condition indices and incidence of neoplasia. These additional data presentations may shed some light on which CoCs are causing the toxicity.

3. PCB analysis was totaled by congener not by arochlor for this ERA, but the PCBs were totaled by arochlor in the terrestrial ERA. This inconsistency should be corrected since the total PCBs could be different by an order of magnitude and may have shown less risk for the terrestrial ERA than is actually at the site.

4. Additional rationale/justification should be provided to support the conclusions of no adverse ecological impact. How does the Navy explain the 6 out of 10 toxic stations?