



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

March 1, 1995

Mr. Robert Krivinskas  
U.S. Department of the Navy  
Northern Division - NAVFAC  
10 Industrial Highway  
Code 1811/RK - Mail Stop 82  
Lester, PA 19113-2090

Re: Comments on the Response to Comment Document on the Draft Phase III Remedial Investigation (RI) Work Plan for Site 09, Allen Harbor Landfill and Site 03, Solvent Disposal Area and Basewide Terrestrial Ecological Risk Assessment (ERA) at the former Naval Construction Battalion Center (NCBC), RI

Dear Mr. Krivinskas:

Pursuant to § 7.6 of the NCBC Federal Facility Agreement (FFA), please find attached the Environmental Protection Agency's (EPA) comments on the above referenced document.

EPA received the subject response to comment document on January 31, 1995 and attended a meeting in Davisville on February 3 to discuss draft comments and a conference call on February 24, 1995. Overall, after this response to comment document is incorporated into the workplan with a minor additions, the work plan will adequately address the objectives agreed to for the Allen Harbor Landfill ERA, the terrestrial ERA and the groundwater investigations at sites 03, 07 and 09. As EPA has previously requested, all site specific standard operating procedures must be included in the revised work plan.

The EPA expects the Navy to revise this work plan to address these comments. EPA also requests redlined pages to indicated how the comments have been addressed. I look forward to discussing these issues with you at your earliest convenience, please contact me at (617) 573-5736 if you have any questions.

Sincerely,

A handwritten signature in cursive script, appearing to read "Christine A.P. Williams".

Christine A.P. Williams  
Remedial Project Manager  
Federal Facilities Superfund Section

Attachments



cc: Richard Gottlieb, RIDEM  
Lou Fayan, NCBC  
Tim Prior, USF & WL  
Ken Finkelstein, NOAA  
Andy Beliveau, EPA  
Bill Brandon, EPA  
Jayne Michaud, EPA  
Scot Gnewuch, ADL

## ATTACHMENT A

This attachment A highlights the discussions and/or resolution, at a meeting with the Navy, Environmental Protection Agency (EPA), and Rhode Island Department of Environmental Management (RIDEM) on 2/3/95, regarding several issues on the Ecological Risk Assessment (ERA) Work Plans, ground water, and sampling and analysis at the NCBC site. Most of these issues had been submitted to the Navy by the EPA in a series of comments written in November and December, 1994. In January 1995 the Navy submitted comprehensive written responses to EPA which were reviewed prior to the meeting. Unless specifically noted, the numbering referred to in the following discussion pertains to the January 1995 document. The primary topics discussed at the meeting pertain to:

- those comments to which the Navy had been insufficiently responsive in their response document, and
- those issues raised in EPA comments for which the Navy's responses needed clarification and/or discussion by interested parties was needed.

These issues were discussed during the meeting in order to reach closure on proposed technical approaches. This attachment is only a summary of issues discussed at the meeting.

### ERA ISSUES

#### 1. Responsiveness to Written Comments on the ERA Work Plans

Most of the written responses, which included responses to EPA comments on the marine ERA Work Plan for Allen Harbor, sufficiently addressed the concerns that we had raised. Key ERA technical issues that were resolved in written responses, before the meeting, included:

- Navy agreed to systematically calculate COC-specific hazard quotients (HQs) and aggregate hazard indices (HI), for all COC/receptor pairings and exposure zones. During the meeting, Navy also clarified its intent to perform exposure assessments for all indicator species so as to include scenarios for individual watersheds, as well as more complex scenarios of foraging in multiple zones, across watershed and salinity regime boundaries.
- Navy agreed to develop a site-wide base map of all receptor habitats, including the intertidal zones of Allen Harbor, before finalizing the selection of supplemental sampling locations, jointly with the RIDEM and EPA, during a field trip

- Navy agreed with EPA's requirement to analyze non-purged shellfish (bivalve) tissue samples, to provide contamination body burden data for use in the ERA's exposure models to assess dietary risks to shellfish predators. During the meeting, Navy agreed that, in the event of too few samples to use both methods, the default procedure would be to analyze unpurged samples so as to assure availability of data from all sample locations, for use in assessing dietary exposure risks to predators consuming unpurged bivalves.
- Navy agreed to analyze shellfish and/or sediment samples in the unvegetated, intertidal and subtidal harbor zones, adjacent to Calf Pasture Point.

## 2. ERA Technical Issues Discussed and Resolved at the Meeting

Since most ERA technical concerns raised by EPA had been adequately resolved in Navy's written responses, the ERA technical discussions at the meeting focussed primarily on the following:

- A current lack of accurate, site-wide base maps exists which show the locations of aquatic, vegetated wetland, and terrestrial habitat types and corresponding, field-measured, surface water salinity regimes. The Navy's proposed intertidal mud flat and subtidal biota/sediment sampling locations were accepted. Navy agreed to provide these base maps prior to a field reconnaissance with the agencies, during which new terrestrial and vegetated wetland sampling locations would be jointly selected. All wetland boundaries will be drawn conservatively, so as to include both federal and state jurisdictional wetlands. Navy will propose a schedule for map submittal and the field reconnaissance.
- Use of historical sediment and surface water data for Allen Harbor in the ERA should be used, in all pertinent risk analyses. Navy agreed to use historical surface water data to calculate HQs/HIs using marine AWQC. Although it was agreed to use historical sediment data, if found to be "comparable" to newer data, Navy proposed neither specific comparability criteria, nor a plan for using any "non-comparable" historical data in the marine ERA.
- Resampling should be conducted at historical Allen Harbor sediment sampling locations. Navy agreed to EPA's request that at least one old sediment sampling location (AH-5) be re-sampled to assess temporal changes in contamination levels and support evaluations of data comparability (see unresolved issues).

- A lack of a proposed surface water sampling and analysis program in Allen Harbor exists. EPA agreed that the use of existing surface water data for Allen Harbor would suffice for ERA purposes, if there were sufficient sampling points. The Navy will provide a justification.
- The proposed biota and sediment sampling program for Allen Harbor is unable to fill existing chemical data gaps for intertidal, vegetated wetlands. Navy agreed to sample biota and/or sediments from those estuarine vegetated wetlands not yet included in the Navy sampling programs.
- Navy's shellfish sampling and sample handling protocols, specifically with respect to where and when the bivalve samples are to be shucked before analysis was discussed. EPA agreed that the bivalves need not be shucked prior to freezing, if they are to be shucked while still frozen. A clearly written SOP designed to assure no loss of biological fluids during shucking should be developed.
- Choice of marine reference habitats in Narragansett Bay, for use in estimating incremental landfill contributions to Allen Harbor sediment contamination risks was discussed. Navy agreed to EPA's request that a combination of human-influenced and pristine (e.g., Prudence Island, from which the Navy collects PCB-free Blue Mussels for deployment studies) sites be used. If possible, biota and sediments should be sampled from subtidal, intertidal, and vegetated wetland habitats.
- Biota sampling and analyses for use in the terrestrial and freshwater ERAs was discussed. Navy's written response had agreed with EPA's recommendation (Comment No. 120), that biota sampling and tissue analyses not be conducted until and unless hypothetical risks warranted such efforts for confirmatory purposes. During the meeting, however, Navy's stated preference to proceed with biota sampling/analysis tasks was accepted by EPA and USFWS.
- A major issue discussed involved the potential for data gaps particularly in areas where the terrestrial and marine risk assessments may have overlapping areas (e.g., vegetated estuarine wetlands). It was suggested that sample locations be logically divided prior to sampling so that each Navy contractor was collecting the samples for locations where the data was necessary for their respective risk assessments. EA and SAIC stated a preference that samples be collected as described in the proposals with results shared freely by the contractors, as necessary. Each contractor would then assess the potential for overlapping areas to serve as habitats or foraging area for their selected species. Navy further suggested that since their

locations would be finalized in conjunction with the EPA and RIDEMs approval, their locations could potentially be relocated to cover areas of possible data gaps. It was agreed that prior to finalization of sampling plans, Navy would determine the basic salinity regime in the potential overlap area to the southwest of Allen Harbor and provide an approximated habitat map based on previous data. With this data the need for further sample collection in the southwest area of the harbor and vegetated wetlands surrounding the harbor will be evaluated. However, although the locations of the deep core and intertidal mudflat samples locations were agreed upon as proposed (with the exception of the addition of AH-5), no agreement on the sample collection locations of other areas could be reached without further information. Navy will collect samples from vegetated wetlands outside the intertidal mudflat areas. Navy is still expected to propose a plan for collecting samples from these potential data gap areas.

- Proposed sediment sampling depth intervals for Allen Harbor subtidal habitats, intertidal mud flats, and vegetated wetlands, for chemical analyses and toxicity testing has not been resolved. A confusing discussion and possibly unresolved issue is the different sample depth intervals to be used for different purposes in these three habitat zones of the harbor. SAIC's presentation at the meeting seemed not to entirely agree with the Allen Harbor ERA Work Plan, that proposed sampling surficial sediments from 0 to 2 cm for chemical analyses to support the ERA. Deep cores would be sampled over the 0-10 cm interval, for compositing across cores in the subtidal zone, for use in toxicity testing and matching chemical analyses. Two different intervals are proposed for the intertidal mud flats (0 to 2 cm) and vegetated wetlands (EPA & USF&WL asked for 0-5 cm). NOAA stated a preference of 0 to 2 cm for AVS measurement purposes. EPA and NOAA have conferred to clarify these issues. We request the Navy sample over the 0-5 cm intervals in the mudflats.

**3. Key ERA issues discussed, but not yet resolved, are:**

- No resolution was attained on the proposed use of dissolved metals in surface water to calculate HQs/HIs on the basis of ambient water quality criteria (AWQC). EA's written response to Comment No. 106 cited a new policy of the EPA Office of Water, that AWQC are intended only for use to set and measure compliance with water quality standards. EPA will decide this issue after reviewing the new policy.
- Definition of "comparable" data, was discussed for the purpose of deciding if/how to integrate historical sediment data for Allen Harbor into the ERA (EPA Comment No. 82).

The Navy neither defined their criteria for assessing comparability among old and new data, in the written response nor during the meeting. Also unresolved is if/how the historical data will be used in the ERA if they are found to not be comparable to new data. This issue was identified previously in EPA's comments on the TRC ERA Report, which failed to incorporate into the risk calculations for fish-eating species such as the Mink and Least Tern, older data that show much higher harbor sediment PCB levels than those found in the more recent samples.

#### 4. Unresolved ERA Technical Issues

Several technical approach issues identified in EPA and/or RIDEM comments on the Work Plans, not fully resolved in Navy's written response document, remain unresolved due to either a lack of discussion or closure at the meeting.

Key ERA technical issues, that were not discussed, are:

- Although Navy agreed to calculate both COC-specific HQs and aggregate HIs for all exposure zones in the ERA, EA's written response included a caveat, that HIs would be calculated "where possible." The responses on this key issue, thus, indicate continued reluctance to apply this risk estimation method. Hazard indices should be calculated systematically, and that the risk assessor should discuss the scientific validity of this approach in the uncertainty section.
- The wetland functional evaluation issues discussed in the written responses to Comment Nos. 126 and 127 were not discussed and require resolution. Navy rejected EPA's request for simple comparisons of surface water quality entering, within, and leaving the wetlands (Comment No. 126), essentially stating that this is oversimplified from a hydrogeologic perspective. EPA's comment had recognized that a hydrogeologic budget and chemical mass balance analysis of the wetland was not warranted, and thus sought only a rough inference as to whether or not the wetlands appear to be reducing contaminant levels in surface water as it traverses the wetlands. The simple arithmetic comparisons requested for surface water would be an important improvement over the baseless conclusion in the Vol.3 of the Phase II RI (ERA) Report, that none of the NCBC wetlands are impaired with respect to their innate capacity for surface water pollution attenuation. Secondly, Navy must explain the Corps of Engineers' hydrogeomorphic approach they proposed for assessing wetland functions, since the article cited in response to Comment No. 127 presents an assessment concept for which no methodology has

yet been developed by the Corps. Whatever assessment method is to be used, the comparison of surface water contamination levels across the wetlands, as requested by EPA, should be provided to allow an inference as to the wetland's current functional effectiveness at pollution attenuation.

Key ERA issues discussed, but not yet resolved, are:

- Proposed sediment sampling depth intervals for Allen Harbor subtidal habitats, intertidal mud flats, and vegetated wetlands, for chemical analyses and toxicity testing has not been resolved. A confusing discussion and possibly unresolved issue is the different sample depth intervals to be used for different purposes in these three habitat zones of the harbor. SAIC's presentation at the meeting seemed not to entirely agree with the Allen Harbor ERA Work Plan, that proposed sampling surficial sediments from 0 to 2 cm for chemical analyses to support the ERA. Deep cores would be sampled over the 0-10 cm interval, for compositing across cores in the subtidal zone, for use in toxicity testing and matching chemical analyses. Two different intervals are proposed for the intertidal mud flats (0 to 2 cm) and vegetated wetlands (EPA asked for 0-5 cm). NOAA stated a preference of 0 to 2 cm for AVS measurement purposes. EPA and NOAA should confer to clarify these issues prior to formally submitting a response.
- No resolution was attained on the proposed use of dissolved metals in surface water to calculate HQs/HIs on the basis of ambient water quality criteria (AWQC). The Navy's written response to Comment No. 106 cited a new policy of the EPA Office of Water, that AWQC are intended only for use to set and measure compliance with water quality standards. EPA will decide this issue after reviewing the new policy.
- Current EPA policy on the use of filtered metals results versus non-filtered metals results in risk assessment calculations was discussed but not resolved. It was agreed that both filtered and total metals would be analyzed for in surface water samples. However which data set would be utilized in the risk assessments could not be agreed upon. Previous Region I policy recommended use of total metals but may be modified to comply with national guidelines which recommend use of filtered metals. EPA agreed to review the new guidance documents and commit to one data set.
- Definition of "comparable" data, was discussed for the purpose of deciding if/how to integrate historical sediment data for Allen Harbor into the ERA (EPA Comment No. 82).

The Navy neither defined their criteria for assessing comparability among old and new data, in the written response nor during the meeting. Also unresolved is if/how the historical data will be used in the ERA if they are found to not be comparable to new data. This issue was identified previously in EPA's comments on the TRC ERA Report, which failed to incorporate into the risk calculations for fish-eating species such as the Mink and Least Tern, older data that show much higher harbor sediment PCB levels than those found in the more recent samples.

#### GROUND WATER/SAMPLING ANALYSIS ISSUES

5. The usefulness of physical observances in determination of the presence of DNAPL at the Allen Harbor landfill and the limitations of the bedrock investigation was discussed at length. Resolution of the issues entailed agreement that, as a staged approach, the current program would suffice overall, although the need for further investigation of the bedrock and potential for DNAPL may arise if data from Stages 1 and 2 appears inconclusive. It was further agreed for most of the wells proposed during Stage 2 would be installed regardless of the results from Stage 1. Only one Stage 2 well (a proposed deep well east of MW-7D) was noted by the Navy as being potentially unnecessary based on results of Stage 1. All other wells were currently intended to be installed during Stage 2. At the end of the Stage 2 investigation, the RPMS will meet to discuss the results and the next part of the investigation.
6. Installation of a well in the area of MW-7D at Allen Harbor landfill was proposed due to the potential that the high positive results may be due to well construction and failure to limit downward migration of contaminants through the borehole. Although the well location was agreed upon, it was also noted that should the results of MW-7D be considered an artifact of well construction after review of the data from the newly installed well, removal of MW-7D would be required to prevent further migration.
7. Collection of a sample for reference from the brackish wetland west of Sanford Road for determination of salinity, sodium, chloride, and total dissolved solids. This sample is intended to provide information comparable to the proposed sample collected from the Allen Harbor.
8. A detailed proposal for further investigation of Site 03 was provided. The basic approach involved collection of ground water samples using a hydroprobe at three depths (shallow intermediate,

and deep), a seismic refraction study, and installation of eight overburden wells. The following issues were discussed:

- It was agreed that the Battalion Street transect line (A-A') should be moved further north towards perimeter street, if possible since some seismic refraction in the area of Battalion Street was performed previously.
- The selection of locations for hydroprobe sample collection was basically agreed upon although the ability of the hydroprobe to collect samples at the planned depth of approximately 50 feet below grade at the interface of the overburden and the bedrock was questioned. If samples cannot be collected at the proposed three depths, it was agreed that a proposed approach for further investigation would be provided.
- The analysis procedures for ground water samples collected using the hydroprobe was requested. The Navy indicated that as soon as basic approval was gained, they would select a subcontractor for analysis and provide their SOP for analysis. This SOP must be reviewed to determine in particular which target volatile compounds will be quantified and how the potential chlorinated and petroleum hydrocarbon volatiles would be distinguished. It was further recommended and agreed upon that approximately 10% of the samples collected with the hydroprobe would be analyzed by a standard method at an off-site laboratory.
- Only three of the eight proposed monitoring well locations were provided in the current proposal. Prior to installation of the remaining five monitoring wells, it was agreed that information on the hydroprobe samples and seismic refraction survey would be provided for review.

9. A discussion of general topics from the response document followed the presentation of the proposal for Site 03.

- The difference between field duplicates (also called replicates or collocated samples) versus split samples was discussed. A split sample is derived by collection of two soil samples from the same homogenized base sample whereas a field duplicate is collected from the same location without a common homogenization. In split samples, the precision is a factor of only analytical variability and homogenization. In field duplicates, precision is a factor of analytical variability, homogenization, and sample collection. Both comments, 63 & 73, deal with the definition of duplicate samples. EPA definition is duplicate samples are two sample collected independently from the same source. NCBC response definition is "field duplicates depends upon the matrix being collected". This

statement means that the definition will change based on the matrix. To avoid confusion, Navy will need to define for each matrix the definition of field duplicate samples. The definition needs to include what the duplicate samples are measuring (e.g. sampling procedure, homogenization procedure for composite samples, etc.).

- Detection limits for the various matrices were discussed. It was agreed that all analytical results to be utilized in the risk assessments would attain a detection limit comparable to the applicable ambient water quality criteria (AWQC). It was also agreed that while the tables comparing detection limits necessary for performance of a risk assessment and those quantitation limits proposed are useful, the table describing tissue quantitation limits needed further detail. This table should include some reference values on how these provisional Minimum Dietary TRV Concentrations were determined. If these provisional TRV concentrations appear realistic, the stated quantitation limits would be acceptable. A minor problem was also noted as the surface water reference concentration included for 1,2-dichloroethylene did not match the chronic AWQC values.

10. EPA discussed the lack of SOPs in the Work Plan, such that until the Navy submits the Revised Work Plan, EPA will have to wait to see the new plan and the attached SOPs that the Navy has promised. The SOPs will be better compared to the standard methods used at EPA. Most of the Navy responses indicate that the Navy understands that they must meet specific Ecorisk requirements for this work. EPA will reserve further comments until the SOPs are available.

## ATTACHMENT B

This attachment B notes a few minor issues noted during the review were not discussed due to time limitations.

1. Appendix B proposes OVA headspace screening of subsurface soils during the boring program and installation of wells at Allen Harbor landfill. During the meeting, the Navy referred to photoionization detector (PID) headspace screening. Navy also indicated that previous field screening during installation of MW-7D had not provided a realistic indication of the level of positive results that were detected upon analysis of the ground water. PID and OVA detectors do not respond to the same compounds and vary greatly in their relative response to certain contaminants. Navy should clarify whether PID or OVA screening is planned and confirm that the technique chosen is appropriate for contaminants previously detected. This is particularly important since, according to the Navy, previous screening results at MW-7D apparently did not correlate well with laboratory analyses during installation of previous wells.

2. Proposed laboratory analysis methodologies. Navy proposes two approaches which are relatively unique in Superfund risk assessments: recovery correction of results and extrapolation of total PCBs through analysis of select PCB congeners. While these method variants have a technically justifiable basis, neither is commonly performed in Superfund work nor utilized in risk assessments. Although previous results were produced using these same analysis techniques, a major issue involves how these results will be integrated into the risk assessments. A risk assessment using these results could be significantly different than if results obtained from standard analyses were used. In general, recovery corrected values will tend to provide greater apparent concentrations and would make any risk assessment based on these values more protective. In general, however, extrapolation of total PCBs from the subset of congeners listed may underestimate total PCB concentrations relative to total PCB determination through either Aroclor analysis (comparable to SW-846 Method 8080), chlorination level analysis (comparable to EPA Method 680), or complete congener analysis (comparable to this methodology except with a more extensive subset of congeners).

3. The Navy needs to provide SOPs for all proposed site characterization methods (i.e. hydroprobe, seismic refraction, etc.)

4. Split spoon samples should be collected at all stratigraphic changes/interfaces, regardless of depth or sample density.

5. The proposed investigation should use soil screening instruments or combinations of instruments targeted towards the

contaminants of concern. PID lamp wavelengths should be specified in work plan.

6. An Eco-risk data gap was identified regarding salinity gradients for wetlands bordering the marine interface at NCBC, during the February 3, 1995 meeting. These gradients are to be established over several tidal cycles. These efforts should be coordinated with the ground water investigations concerning salinity and tidal influences to ground water in a manner that facilitates data compatibility and joint interpretation for the surface water/ground water interface.

7. Ground water sampling should include collection of field data sufficient to accurately define redox conditions in ground water. The Navy should consider utilizing low-flow techniques in order to maximize usefulness of site-specific data towards pending base-wide ground water evaluation. Well materials should be compatible with the contaminants of concern.

8. Bedrock depths should be confirmed by rock coring at all "deep" (i.e. screened just above or straddling the bedrock/overburden contact) and "bedrock" monitoring well locations.

9. The Navy should provide a brief technical justification for not considering subsurface utilities as potential contaminant migration pathways at sites 02/03.

10. It may be appropriate to install a shallow piezometer in the area of the additional hydropunch location near the Calf Pasture Point bunkers in order to better understand the ground water flow patterns in this area.

11. Only one of the three known major releases at site 07 has been delineated (i.e. VOC plumes emanating from MW-GH2 area). One of these significant releases, approximately 7500 gallons of DANC, has been reported to have been disposed of "alongside of a bunker", which suggests an additional VOC source in addition to the MW-GH2 area. To address this issue, the majority of prior investigation techniques have ultimately been focused on the presumed association of contaminant releases with metallic objects such as drums and cans. On this basis, it is not well understood whether all potential source areas at site 07 have as yet been identified. For instance, most of the test pitting program was directed at magnetic anomalies believed to be caused by metallic materials. Since there is no firm basis for associating all contaminant source areas with metallic materials, the lack of contaminants in test pit soils does not necessarily rule out the presence of contaminants which may not be associated with metal. In fact, a poorly documented release scenario involving cardboard containers is also described in previous reports. A further complication concerns the occurrence of TCE

at the site which apparently coincides with the PCA contamination centered near MW-GH2. Previous reports have not ruled out the possibility of a separate source (i.e. independent of the DANC) for the TCE (DAA Report, TRC, September, 1994, pg.2-19, ¶ 3.)

12. Due to these numerous uncertainties, the upcoming site investigation, at Site 7, should be flexible enough to deal with unanticipated source areas if they are located during the course of the proposed field program.

13. Test pit TP-02, Site 7, detected a "buried pipe". Was it established whether or not this pipe was associated with some sort of floor drain network from the bunkers ?

14. Previous reports have suggested that, "...sufficient tidal information is not available to determine an estimate of net shallow and deep ground water flow directions and gradients due to tidal fluctuations. Additional tidal studies are needed to develop an accurate fate and transport evaluation of site ground water contaminants" (RI Report, TRC, July, 1994, Pg. 5-26, ¶ 1). The Navy needs to provide a greater level of detail concerning the specific field and analytical methods to be used to fill this data gap.

15. EA's field program, as currently outlined, does not indicate an "upgradient" well location for the bedrock aquifer at Site 7.

## ATTACHMENT C

This attachment C discusses comments on the responses to November 3, 1994 comment letter that were not discussed during the meeting:

Comment 1. We do not agree with the response. The workplan as it was submitted does not provide all the required SOPs and so therefore it is not comprehensive.

Comment 2. Same as above.

Comment 3. The Navy's response does not address any of the specifics. The SOPs requested will eventually be the proof that the Navy's laboratory knows what they are doing, we will reserve comment until the SOP's are reviewed. The one QAPjP must address both salt matrices and fresh water matrices.

Comment 5. As long as the Revised Work Plan states the DQOs for all the work to be performed and the SOPs are included, the this response is acceptable.

Comment 8. We will wait to see the procedures in the Revised Work Plan

Comment 9. The response is not acceptable . The comment asks the Navy to be more specific. The Navy should address this issue in the combined document, revised Phase III work plan.

Comment 10. Same comment as #9

Comment 12. Inclusion of Pathogens as indicators. The methods for sampling and analysis are cited and SOPs will be included in revised work plan. This is acceptable as long as the revised work plan includes locations of pathogen sampling.

Comment 16. The expected precision for water samples is 30%, but the expected precision for sediment samples is 50%. The remaining response is acceptable.

Comment 17. The response is acceptable. The issue of pore water analyses is a change from the original plan, p.44 of the text states that interstitial water will be analyzed for metals and organics, please explain.

Comment 22. The response is acceptable as long as the DQO level is defined in the final plan.

Comment 24. The response is acceptable. The definition stated in the response is correct although there is a difference in the terms. If data is to be corrected then this must be explained in the plan.

Comment 27. The response is correct. The detection limit should have no bearing on the blank action.

Comment 34. The recovery of inorganic preextraction spikes will vary depending on the matrix and the organic content of the matrix. The limits of 75-125% is narrow for some matrices. The Navy has chosen 50-150% because Battelle determined this to be an appropriate DQO. Is this DQO determined for all matrices ? If so, then the response is correct and is acceptable.

Comment 38. If no water samples are to be taken then only equipment blanks(water) would be subject to storage requirements. If water samples are going to be taken the text needs to be changed appropriately.

#### ATTACHMENT D

This attachment D notes a few minor issues that were not discussed during the meeting concerning the EPA comments dated December 13, 1994 on Phase II RI Work Plan dated October 1994:

1. Comment 52 of the EPA's December 13, 1994 comments was not responded to by the Navy.
2. The response to comment number 64 of the EPA's December 13, 1994 comments did not appear sufficient. Although the laboratory has not been selected and therefore the specific sample cleaning protocols may not be known, Navy should state some minimum sample container cleaning. Navy should then require that the laboratory provide containers up to this minimum specification. All sample containers should be cleaned to meet the specifications detailed in the Specification and Guidance for Obtaining Contamination Free Sample Containers, OSIER Directive 9240.0-5A.
3. The recommendation stated in comment number 75 of the EPA's December 13, 1994 comments for specifying a reference method for field methods was to eliminate the need for an SOP on the analysis of these parameters. If the Horiba U-10 meter is to be used to measure turbidity, it must operate in the visible portion of the light spectrum. Instruments operating in the infrared portion of the light spectrum are not approved by EPA. See EPA Method 180.1 for additional information on turbidity meters. The measurement of pH, dissolved oxygen, specific conductance, temperature and turbidity must be performed according to EPA methods not manufacturers directions.
4. Comment 78: EPA uses Teflon or stainless steel bailers to collect samples from well constructed of PVC and stainless steel.
5. Comment 80: Explain why Method 8015M is being used for TPH analysis when you stated in Comment 58 that EPA Region 1 TPH Method will be used.
6. Comment concerning revised Allen Harbor Landfill HHRA: when the Navy has developed a draft justification as to why the Navy does not plan to look at a groundwater ingestion pathway for residential use of ground water at Allen Harbor, please fax a draft copy for review.

## ATTACHMENT E

This attachment E highlights the discussions and/or resolution of issues discussed during a conference call with the Navy, Environmental Protection Agency (EPA), and Rhode Island Department of Environmental Management (RIDEM) on 2/24/95, regarding several issues on the Phase III RI Work Plans, ground water, and sampling and analysis at the NCBC site. In January 1995 the Navy submitted comprehensive written responses to EPA which were reviewed prior to the call. The primary topics discussed during the call pertain to:

- \* EPA's satisfaction with the amount and type of field investigations to be completed in this Phase

- \* Additional hydropunch locations to confirmation of a lack of a source area between the bunkers #339 & 69 and Dirt Drive at Calf Pasture Point, Site 7

- \* Additional hydropunch location to further delineate shallow plume near SASE Site 1

### Site 02/03

1. EPA requested more than one hydroprobe location for the general area to the northeast of the intersection of Battalion Boulevard and Leave Street.

Resolution: The Navy agreed to collect the additional data.

2. In response to RIDEM's concern that shallow refusal problems may interfere with hydroprobe data collection efforts, EPA suggested that where possible, hydroprobe locations be selected to coincide with seismic lines so that refusal depths can be cross-checked with acoustic bedrock depths. RIDEM suggested that the Navy should have a fall-back position in the event that the hydroprobe system is compromised by shallow refusal problems.

Resolution: EA's proposed sequencing of field activities will allow for the cross-checking of hydroprobe refusal depths with seismic data. In the event of significant problems, a meeting will be held between the Navy and regulatory agencies to discuss options.

### Site 07

1. Despite considerable effort, the potential for chlorinated VOC contamination, particularly in ground water can not be ruled out at this point in the area south and east of Magazine Bunker #339. Although soil gas and soil sampling in this general area has sporadically identified VOCs, ground water data from MW-8S has

not. Nonetheless, shallow ground water mapping to date (e.g. 4-26-94) suggests the potential for radial flow from the general area of the bunkers. As such, MW-8S may be located upgradient to contaminants which, if present, may have migrated downgradient to the south and east of MW-8S.

Resolution: During conference call of 2-24-95, the Navy agreed to conduct hydroprobe sampling at a minimum of one location downgradient of MW-8S. This will serve to confirm that contaminants have not migrated beyond the limits of the current monitoring well network to the east.

2. The northern limit of the shallow ground water plume in the interpreted DNAPL source area/entrance location (i.e. near MW-GH2 and MW-GH7) is not adequately constrained to the north and west. The microwell survey done previously suffers in that, with the exception of those few microwells where confirmatory laboratory analysis was done, GC screening did not look for specifically for PCA, the principal contaminant of interest. As a result, the extent of the shallow groundwater plume may be somewhat greater than previously indicated.

Resolution: The Navy agreed to adding an additional hydroprobe sampling location in the area between MW-GH7 and MW-7S. In addition, the current program calls for numerous hydroprobe, shallow, and deep monitoring wells to be located in the areas west and north of the "source area". At all site 07 location, the proposed hydroprobe analyte list will include PCA.

3. Current information suggests that the upper surface of the silt unit at site 07 may be playing a significant role in contaminant distribution, both by virtue of its presence and potential absence in certain areas. In this respect, EPA requests that a detailed map of this interface be produced for joint review prior to finalizing permanent monitoring well locations and screened intervals. EPA pointed out that in some instances (i.e. MW-3S), the screened intervals of existing wells do not intercept this feature. EPA is also concerned that hydroprobe data may not enable establishing the position of this surface accurately.

Resolution: The Navy agreed that the hydroprobe survey may not pinpoint the top-of-silt surface, but they expect to obtain a good approximation via a multi-tiered sampling approach with respect to depth coupled with the contaminant screening data. Additionally, the map will be made more accurate after monitoring wells are installed, which will collect split spoon samples to confirm the position of the silt layer.

4. The top of bedrock surface was identified by all parties as a potentially significant horizon with respect to DNAPL contaminant distribution. EPA asked that the Navy's seismic survey

specifically address the "trough" tentatively identified near MW-5D, and other similar features, as well as the general tilt of the stratigraphic section to the southeast. EPA suggested that seismic reflection should be considered as well as the currently proposed refraction method. This technique may enable greater subsurface resolution in general, and in particular, resolution of the silt surface as well as weathered bedrock horizons.

Resolution: Navy has proposed a seismic program which is flexible enough to address the high-priority data needs. Initial/subsequent data will be made available for regulatory review prior to finalizing deep/bedrock well locations. The Navy's preliminary indications suggest that reflection is cost-prohibitive, but they will keep the option open.

5. EPA is concerned that no shallow ground water data exists from the southern portion of the site, despite chlorinated VOC contamination at depth. Potential for shallow contamination exists due to complex tidally-influenced ground water flow patterns and heterogeneous nature of shallow aquifer materials (i.e. dredge fill).

Resolution: The Navy's current program will address these issues.

6. EPA pointed out that relatively significant vertical ground water gradients have been identified on the site. In this light it is appropriate that the current investigation incorporate the vertical dimension into analysis of ground water flow and contaminant transport.

Resolution: The Navy's current program will at a minimum establish vertical gradients at discharge points (i.e. adjacent to Allen Harbor/ Narragansett Bay) as well near the source area(s) (i.e. MW-5S/D).

7. All new deep and bedrock wells will require confirmation of bedrock surface via rock coring. Existing wells MW-9D through MW-13D were not cored. Where possible, proposed seismic lines should be placed such as to confirm the top-of-bedrock depths suggested by the "refusal" data for these wells.

Resolution: The Navy's current work plan will address this issue.