



17 April 1995  
EA Project No. 296.0032.3410

Northern Division  
Naval Facilities Engineering Command, (Code 1823/RK)  
10 Industrial Highway, Mail Code 82  
Lester, PA 19113-2090

Attn: Mr. Robert Krivinskas  
Remedial Project Manager

RE: Contract No. N62472-92-D-1296, CTO No. 0032  
Response to Comments  
Draft Detailed Analysis of Alternatives - IR Program Sites 06 and 11  
Naval Construction Battalion Center, Davisville, RI

Dear Mr. Krivinskas:

Enclosed, please find three (3) copies of the response to RIDEM and EPA comments for Site 06 (both dated 13 June 1994) and Site 11 (dated 27 and 30 June, respectively) of the draft Detailed Analysis of Alternatives.

As per RIDEM and EPA approvals, ground water at these sites is considered to be a new operable unit and will be addressed under a separate cover. EA's changes to the original comments made by the TRC Environmental Corporation reflect this change accordingly.

Please contact me if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Nicholas Lanney".

Nicholas Lanney, P.E.  
CTO Manager

NAL/mcc  
Enclosures (3)

cc: C. Williams - EPA, Region 1 (3 copies)  
R. Gottlieb - RIDEM (3 copies)  
L. Fayan - CSO (2 copies)  
Project File - 1 copy  
~~Sharon File - 1 copy~~  
D. Rule - Code 0223 (w/o copy)  
R. Boucher - Code 1832 (w/o copy)

TABLE 2-3, continued

SITE 11 - FIRE FIGHTING TRAINING AREA  
 Comparison of Background, Surface and Subsurface Soil Samples  
 Range of Inorganics Detected

ELEMENT	SURFACE SOIL RANGE	SUBSURFACE SOIL RANGE	OBSERVED BACKGROUND SURFACE SOIL CONCENTRATION RANGE
Aluminum	1,450-10,200	2,300-10,600	1,710 - 8,560
Antimony	ND-7.9	ND	ND
Arsenic	ND-2.4	ND-3.8	0.59 - 8.1
Barium	5.5-34.2	6.3-32.9	5.6 - 15.5
Beryllium	0.23-0.84	0.34-0.82	ND - 0.66
Cadmium	ND-0.41	ND-0.12	ND - 0.46
Calcium	140-1,030	265-6,750	62.7 - 628
Chromium	ND-15	ND-9.6	ND - 9.6
Cobalt	ND-7.5	ND-6.9	ND - 4.6
Copper	ND-14.4	ND-15.8	3.9 - 15
Iron	2,590-17,100	5,180-16,000	3,810 - 12,000
Lead	1.8-39.3	2.9-12.4	3.4 - 53.8
Magnesium	133-2,080	392-2,640	325 - 1,220
Manganese	27.8-189	51.6-275	21.8 -150
Mercury	ND-0.11	ND-0.12	ND - 0.03
Nickel	ND-12.3	ND-11.3	ND - 5
Potassium	ND-1,510	ND-1,230	145 - 728
Selenium	ND-0.72	ND	ND - 0.77
Silver	ND-0.06	ND-0.08	ND - 0.08
Sodium	ND-165	ND-114	ND - 119
Thallium	ND	ND-0.96	ND
Vanadium	ND-14	2.8-15.1	3.3 - 24.6
Zinc	15.7-81.6	14.5-54	10.3 - 172
Cyanide	ND-0.54	ND	ND

NOTES:

ND Indicates that the element was not detected in the soil sample.

Subsurface soil range includes test pit results

Background surface soil samples which exhibited 1,1,1-trichloroethane or PCBs have not been included within background range.

**RESPONSES TO RIDEM COMMENTS FOR  
DRAFT DETAILED ANALYSIS OF ALTERNATIVES REPORT  
SITE 11 - FIRE FIGHTING TRAINING AREA  
NAVAL CONSTRUCTION BATTALION CENTER  
DAVISVILLE, RI**

**GENERAL**

These are responses to RIDEM's comments to the document entitled "Draft Detailed Analysis of Alternatives Report Sites 10 & 11". RIDEMs comments are contained in their letter dated 27 June 1994.

Comments pertaining to Site 11 are only addressed in this document. Since a removal action is scheduled for Site 10, comments pertaining to this site will be addressed later under a separate cover.

As suggested by EPA, ground water at these sites is designated as a new operable unit. Therefore, comments pertaining to ground water at these sites will be addressed later under a separate cover. However, general information pertaining to ground water including depth, flow direction, and levels of contamination will be included in the DAA reports. Comments pertaining to this general information are addressed in this document.

**1. General Comment**

Please insert a list of acronyms to make the document more readable for public review.

*Response: The document will be revised as requested.*

**EXECUTIVE SUMMARY**

**2. Page ES-3, Background:  
Paragraph 1, Sentence 4.**

Please explain why risks were not evaluated for a residential future use scenario. If the Army should ever excess this land a residential use scenario could be possible.

*Response: Comments pertaining to Site 10 will be addressed later under a separate cover since a removal action is scheduled at this site.*

**Last sentence:**

The site is a firing range; it is highly unlikely that lead is not a "site-related" contaminant. The "site" is all navy property at the time of listing on the NPL.

*Response: Comments pertaining to Site 10 will be addressed later under a separate cover since a removal action is scheduled at this site.*

**3. Pages ES-5 and ES-7, Feasibility Study Summary - Alternative 2: Last Sentence, Alternative 3: Paragraph 4, Sentence 1.**

Deed restrictions preventing the use of ground water should be implemented at this time rather than at the time the Army excesses the property. If the water is not acceptable for the public to drink in the future the Army should be prevented from inadvertently drinking it in the present.

*Response: Comments pertaining to site 10 will be addressed later under a separate cover as a removal action is scheduled at this site.*

**4. Table ES-9 and Table ES-18, Notes Below Tables**

Alternatives GW-3A, GW-3B, GW-3C, etc. have not been defined within the text of the Executive Summary. Either this reference should not be provided in this table or a reference should be provided indicating where a description of these alternatives can be found. If possible, a description of these alternatives should be provided in this Table.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

**5. Page ES-11, Last Sentence:**

"Therefore, no remedial action objectives were developed for catch basin sediments at Site 11".

Storm water discharges from Site 11 may be subject to the RIPDES Storm Water Discharge Requirements. Discharges from other sites, as well as the base as a whole may also be subject to these same requirements. The Division recommends that the Navy contact the Division of Water Resources concerning discharge requirements.

*Response: The Navy has taken this comment under consideration.*

**VOLUME I**

**6. Page 1-10, Section 1.4.2, Regional Hydrogeology: Paragraph 2, Last Sentence.**

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Please note that the water quality standards cited for manganese and iron are secondary standards related to aesthetics and are therefore not health based.

*Response: The text will be revised to indicate that manganese and iron "usually do not exceed secondary drinking water standards related to aesthetics."*

**7. Page 3-3, Paragraph 2, Last Sentence:**

"Well 10-MW5D is located upgradient of the northernmost disposal area."

Based upon Figures 2-5 and 2-6 the contours appear to be too close to establish this well as an upgradient well. Please explain how this established, cite the margin of error, and discuss how seasonal water table fluctuations could effect this site.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

**8. Page 4-15, Section 4.4.5, Alternative GW-3, Fourth Paragraph:**

Again, the report states that lead is not site related; given that the site is a firing range lead cannot be dismissed as non-site related. Additionally, the report states that well 10-MW5D is upgradient; this is apparently based on a one inch difference in elevation over several hundred horizontal feet. The Department requires the results of the lead studies being conducted for the berms surrounding the site which the Navy is currently undertaking.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

**VOLUME III**

**23. Page 2-3, Section 2.3.2, Site Hydrogeology:  
Paragraph 3, Sentence 3.**

*Since this is a public document please explain what constitutes a low, medium or moderate, and high downward vertical transport rate.*

*Response: The discussion of the vertical hydraulic gradients was presented in such a way as to put the calculated gradient numbers into perspective qualitatively so that the public could understand what the values mean in terms of general movement of*

*water in the ground. Further definition of specific values of what low, medium, or moderate, and high downward vertical transport rates mean would not greatly enhance the public's knowledge of what is occurring at the site and would defeat the purpose of the more qualitative discussion.*

**24. Page 2-4, Section 2.3.2, Site Hydrogeology:  
Paragraph 1, Sentence 3.**

Please explain the basis for assuming an effective porosity of 20%.

*Response: An effective porosity value of 20% was assumed based on the silty sands at the site. This value was obtained from a document prepared by the Electric Power Research Institute (EPRI, 1985). A reference to this document will be included in the DAA report.*

**25. Page 2-15, Section 2.7, Summary of Contaminant Fate and Transport:  
Paragraph 3, Sentence 3.**

Site 13 should be changed to Site 11.

*Response: The text will be revised as requested.*

**26. Page 3-12, Section 3.5, Remedial Alternative Development:  
Paragraph 2.**

Since this is a public document some discussion, beyond what is contained in Table 3-6, should be provided to explain why certain alternatives have been screened from further consideration.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

**27. Page 4-3, Section 4.2.1, Alternative 1 - No Action Alternative description:  
Paragraph 1.**

Please explain why antimony is not mentioned in this section since this was found in high levels in the ground water.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

28. **Page 4-4, Section 4.2.2, Alternative 1 - No Action Alternative Evaluation, Overall protection of Human Health and the Environment:  
Paragraph 1.**

Please explain why lead is not mentioned in this section.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

29. **Page 4-11, Section 4.2.7, Alternative 3A - Ground Water Extraction via Interceptor Trench and Extraction Wells Option Description:  
Paragraph 1, Sentence 1.**

If the extraction rate is 4.5 gpm, please explain why the system will be designed to treat 10 gpm.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

30. **Page 4-12, Section 4.2.9, Alternative 3B - Precipitation Inorganic Treatment Option Description:  
Paragraph 2, Sentence 1.**

It should not be assumed that the chemical precipitation treatment system will contain a filtration unit. If this is what is needed to make this alternative viable then it must be included as part of the alternative.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

31. **Page 4-15, Section 4.2.11, Alternative 3C - Electrochemical Inorganic Treatment Option Description:  
Paragraph 1, Sentence 3.**

Please state whether this system can remove manganese since it removes a number of other inorganics.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

**32. *Figure 4-2, Site 11 - Fire Fighting Training Area Chemical Precipitation Schematic:***

*Unless it can be demonstrated that the water discharge from the filter press does not contain high levels of metals this effluent should be directed back to the equalization tank rather than to pH adjustment with subsequent discharge to the environment.*

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

**RESPONSES TO EPA COMMENTS FOR  
DRAFT DETAILED ANALYSIS OF ALTERNATIVES REPORT  
SITE 11 - FIRE FIGHTING TRAINING AREA  
NAVAL CONSTRUCTION BATTALION CENTER  
DAVISVILLE, RI**

**GENERAL**

These are responses to EPA's comments to the document entitled "Draft Detailed Analysis of Alternatives Report Sites 10 & 11". EPA comments are contained in their letter dated 30 June 1994.

Comments pertaining to Site 11 are only addressed in this document. Since a removal action is scheduled for Site 10, comments pertaining to this site will be addressed later under a separate cover.

As suggested by EPA, ground water at these sites is designated as a new operable unit. Therefore, comments pertaining to ground water at these sites will be addressed later under a separate cover. However, general information pertaining to ground water including depth, flow direction, and levels of contamination will be included in the DAA reports. Comments pertaining to this general information are addressed in this document.

**GENERAL COMMENTS**

1. This Detailed Analysis of Alternatives Report for Sites 10 and 11 was written prior to completion of the response to comments on the draft Remedial Investigation (RI). Therefore, conclusions based on the draft RI are preliminary and changes will be required once the report has been completed and approved. Issues potentially having the greatest impact on the detailed analysis of alternatives and subsequent recommendation of a preferred remedy are the following:

- Risks associated with the inhalation of volatile emissions by a worker in a trench (see "Response to USEPA and RIDEM Comments on the Draft Remedial Investigation Report," March, 1994, pg. 3).
- Changes to the ecological risk assessment (this may not significantly affect Sites 10 and 11).

The Navy should thoroughly review the comments on the draft RI together with the comments on this document and incorporate any changes required as a result of both sets of comments.

*Response: The risks associated with inhalation of volatile emissions by a worker in a trench are included in the discussion of the risks associated with the future construction worker scenario and are presented in Table 2-4 of the Draft DAA. These risks do not contribute significantly to the overall pathway risk estimate.*

*The Ecological Risk Assessment discussion presented in Section 2.9 requires no revision based on the Draft Final Ecological Risk Assessment.*

*The revised background concentrations will be incorporated into Table 2-3, as attached. Note that Table 2-3 summarizes only Phase II data with respect to background levels. The revisions to background concentrations were previously incorporated in the SVOC and pesticide/PCB portions of Table 2-3; therefore, Sections 2.6.2 and 2.6.3 of the text are not affected. However, in accordance with the revisions to the inorganic portion of Table 2-3, the following text changes have been made:*

*Page 2-13, second paragraph, 1st two sentences will read as follows:*

*"Fifteen inorganics were detected in Site 11 surface soils at concentrations which exceeded NCBC background ranges: aluminum, antimony, barium, beryllium, calcium, chromium, cobalt, iron, magnesium, manganese, mercury, nickel, potassium, sodium, and cyanide."*

*The inorganic discussion for subsurface soils requires no revisions.*

*Page 2-14, first two sentences will read as follows:*

*"Inorganic analytes in Phase I and Phase II surface soil samples which were detected above site background levels in one or more samples include aluminum, antimony, barium, beryllium, calcium, chromium, cobalt, iron, magnesium, manganese, mercury, nickel, potassium, sodium, and cyanide. The inorganic analytes which were detected in one or more Phase I or Phase II subsurface soil samples at levels exceeding site background include aluminum, barium, beryllium, cadmium, chromium, cobalt, copper, iron, magnesium, manganese, mercury, nickel, potassium, and vanadium."*

2. Section 2.0 does not summarize the RI data in a way that makes it easy for the reader to quickly understand what the concerns are regarding the site. This could be corrected by presenting summary figures indicating the extent of contamination in excess of cleanup levels, and the range of analytical results for each sampling point.

*Response: Since preliminary remediation goals are not discussed until Section 3.0, Section 2.0 is not an appropriate place to present contaminant levels in excess of cleanup levels. Such a presentation is made in Section 3, however, including figures which*

*show the locations of samples which exhibited contaminants above preliminary remediation goals and, in the case of ground-water sampling where multiple rounds of sampling were conducted, the concentrations of these contaminants in each sampling round.*

3. The methodology used to determine background concentrations of inorganics and PAHs is not presented. A thorough discussion of background concentrations should be included in Section 2.0.

*Response: A reference to Section 9 of the Draft Final Remedial Investigation Report - Volume I, will be included within the discussion of the background surface soil sample results.*

*Add into text, Section 2.5.3, last paragraph, second sentence: "Eighteen background surface soil samples we collected (section 9, Background Surface Soil Investigation, of the Draft Final Remedial Investigation Report - Volume I (TRC, 1994)), Across NCBC Davisville...."*

4. The discussion of the cleanup levels in the various media would be strengthened by adding a table that presented the Contaminants of Concern (COCs) used in the Risk Assessment and the reason why they were included or eliminated as COCs in the FS. Tables presenting the cleanup levels for each media should also be added.

*Response: A discussion of why cleanup levels were not calculated for each of the COCs identified in the Risk Assessment is presented in Section 3.1.2 Human Health Risk-Based Considerations. In accordance with USEPA guidance, for media which present a total pathway risk of greater than  $10^{-4}$ , Preliminary Remediation Goals (PRGs) have been calculated for those individual contaminants which contribute an individual cancer risk of greater than  $1 \times 10^{-6}$  to the overall cancer risk estimate or which result in a non-cancer hazard quotient greater than 1 under the reasonable maximum exposure scenario for future commercial/industrial use. The results of these calculations are presented in Table 3-3 of Volumes II and III, while a summary of the calculation process is presented in Appendix C of Volumes II and III. A comparison of preliminary remediation goals which were identified based on ARARs/TBCs for each media is presented in Tables 3-1 and 3-2 of Volumes II and III.*

*Ground water at these Sites is designated as a different operable unit, there are no COCs in soil.*

5. The description of the alternatives and the evaluation of the alternative against the NCP evaluation criteria is very cursory and should be enhanced. The description of the alternatives should include a more complete presentation of the Navy's remedial action. For example, a figure should be included showing the anticipated area where required deed

restrictions would be instituted, and the required time frame for remedial action implementation and completion.

*Response: As suggested, the description of the alternative will be enhanced where applicable. Where deed restrictions are described, they are intended to address the aerial extent of the site as defined within the RI/FS process. This will be clarified within the text. The time frames required to implement alternatives and meet remedial response objectives are generally discussed within the short-term effectiveness evaluation. These discussions will be re-evaluated to confirm that such time frames are discussed.*

6. The assessment of the alternatives against the NCP evaluation criteria should compare the level of future risks from the site with and without the implementation of remedial action.

*Response: A summary of future risks from the site without the implementation of remedial action (i.e., baseline risks) is presented in Section 2. Discussions and calculations of residual risk based on preliminary cleanup goals will be incorporated within the Draft Final report, as appropriate.*

7. Based on my review of Sites 6, 13, and 11, a better approach to developing ground water remedial objectives and alternatives for these sites would be to treat the ground water as one operable unit rather than several unconnected sites. As the FSs for these sites are currently written, determining the extent of contamination, and whether or not the contamination is at naturally occurring background concentrations is difficult. Sites with similar soil contamination could also be grouped together into a larger operable unit and would receive synergistic cost benefits. However, this approach is more important for ground water than for soils.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

8. Upgradient wells are referred to often in this and other reports. A graphic of the locations of all the wells referred to as Upgradient would be helpful to the public for clarity. This graphic should include the COCs detected and the range of analytical results in the sampling.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

9. A similar graphic for the soil background sample locations and analytical results should be included in the FS reports.

*Response: As noted in General Response #3, a reference to Section 9 of the Draft Final Remedial Investigation Report - Volume I will be included within the discussion of the background surface soil sample results.*

## **SPECIFIC COMMENTS**

### Executive Summary

1. Include a few sentences of the base wide COCs for the orientation of the reader.

*Response: Comments pertaining to site 10 will be addressed later under a separate cover since a removal action is scheduled at this site.*

2. Page ES-2, Third Paragraph - The last sentence may be of concern as it is written, were the cans disposed of properly or just left somewhere?

*Response: The text would read as follows:*

*"It is reported that an unspecified number of 6-ounce and 5 gallon cans of rifle bore oil were removed from the disposal area on one occasion and were taken to hazardous waste storage Building 48 for proper disposal."*

3. Page ES-3, Second Paragraph - The paragraph does not address the possibility of ground water to migrate from Site 10 to the proposed public water supply well location or the private potable wells.

*Response: Comments pertaining to site 10 will be addressed later under a separate cover since a removal action is scheduled at this site.*

4. Page ES-4, First Sentence - The relationship of the upgradient wells to the firing range should be noted on a figure.

*Response: Comments pertaining to site 10 will be addressed later under a separate cover since a removal action is scheduled at this site.*

5. Page ES-5, Last Sentence - Has this Deed restriction requirement been put into the transfer documents?

*Response: Comments pertaining to site 10 will be addressed later under a separate cover since a removal action is scheduled at this site.*

6. Page ES-10, First Full Paragraph - Provide a brief statement as to why the Navy feels Antimony does not appear to be attributable to site contamination.

*Response: The text states that the presence of antimony in well 11-MW06D does not appear to be attributable to soil contamination at the site. The sentence will be revised to state: "Based on the presence of antimony in only two surface soil samples and its absence in subsurface soil samples collected during the Phase II RI, the presence of antimony in well 11-MW06D does not appear to be attributable to soil contamination at the site."*

## VOLUME I

1. Page 1-5, First Sentence - Please explain how a civilian presence will be maintained at or near NCBC. Is there a plan to remove the people there now?

*Response: In the event that the current administration building (Building 404) is transferred to a different owner, the current caretaking staff will be relocated to another local facility but will continue to monitor and provide oversight for all identified hazardous waste sites. The text will not be revised.*

*Volume I, fifth paragraph, after the last sentence: "In the event that the current administration building (Building 404) is transferred to a different owner, the current caretaking staff will be relocated to another local facility, but will continue to monitor and provide oversight for all identified hazardous waste sites" will be added.*

2. Figure 1-4 and Figure 1-4a - the location of Site 10 should be placed on Figure 1-4 to indicate the site's distance from the production wells. In addition, when compared to Figure 1-1 in Volume II, the location of Site 10 varies slightly from its position in Figure 1-4a. In Figure 1-4a, the Site 10 location is slightly north of the Site 10 location in Figure 1-1 of Volume II, which is just above the ground water capture zone of the pumping wells. The location of site 10 should be accurately located relative to the ground water capture zone, and should be consistent among the various figures.

*Response: Comments pertaining to Site 10 will be addressed later under a separate cover since a removal action is scheduled at this site.*

3. Page 1-11, Second Paragraph - The default value of 2,000 feet is used as the wellhead protection area for non-community wells, yet the zone is not shown on Figure 1-4a. Please place the protection zone for this well on Figure 1-4a.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

### **VOLUME III - Site 11 Fire Fighting Training Area**

1. Page 2-13, Section 2.6.4, Second Paragraph - This paragraph describes the NCBC background range for inorganics but does not explain how these concentrations were determined. Background contamination needs more elaboration, including method of calculation, samples used, background concentrations, etc., or at a minimum, a reference where this information can be found.

*Response: A reference to Section 9, Background Surface Soil Investigation, of the Draft Final Remedial Investigation Report - Volume I (TRC, 1994) will be included in the text.*

*Section 2.6.4, fourth paragraph, add to first sentence as follows: "...outside of NCBC background concentration ranges, (Section 9, Background Surface Soil Investigation, of draft Final Remedial Investigation Report - Volume I (TRC, 1994))."*

2. Page 2-16 through 2-19 - A table listing the COCs should be provided.

*Response: A reference will be included in the Draft Final DAA to the Human Health Risk Assessment which includes a list of the COCs at the site for each media.*

3. Figure 2-1 - This figure should present the area that is considered Site 11 as well as the major site features, such as the devegetated spots.

*Response: Figure 2-1 will be revised to include an outline of the approximate boundary of Site 11, although no specific boundaries for the site have ever been established, and the figure will also be revised to indicate the general locations of devegetated areas.*

4. Table 2-4 - The note under the Non-Cancer Risk table should be changed to state that shading indicates an exceedance of the non-cancer risk.

*Response: The table will be corrected as requested.*

*Table 2-4, add footnote under table as follows: "shading indicates an exceedance of the non-cancer risk."*

5. Section 3.2 - This section should present cleanup levels for the COCs by media, and indicate the residual risk to human health and the environment if these levels were met.

*Response: Remedial action objectives are provided by media in this section. Cleanup levels as referenced consist of ARARs and PRGs, where available. Residual risks will be evaluated as part of the detailed analysis of alternatives, as indicated in the response to General Comment #6.*

6. Page 3-9, Section 3.2.2, First Full Paragraph - This Section indicates that the ground water in the region of Site 11 is classified by the RIDEM as GB. A discussion of ground water classification is needed in Section 2.0. The discussion should include the reason for the ground water classification, the extent of the GB classification, and include a map depicting the region classified as GB.

*Response: A discussion of the ground water quality classification for Site 11 is included in Section 2.3.2, Site Hydrogeology, while a more general discussion of ground water quality classification for NCBC Davisville is included in Section 1.4.2 (Regional Hydrogeology) of Volume I. This latter section includes the reasons for the GB classification at several of the NCBC Davisville sites.*

7. Page 3-10, Section 3.3, All - This section should provide more detail on the extent of ground water contamination, such as a map depicting the area contaminated in excess of cleanup levels.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

8. Table 3-2 - A footnote to the table should explain what is indicated by the shading.

*Response: A footnote will be added indicating that shading indicates a detected exceedance of an associated regulatory standard or guideline.*

*Table 3-2, add footnote under table as follows: "shading indicates an exceedance of an associated regulatory standard or guideline."*

9. Table 3-4 - The maximum modeled unsaturated concentrations appear high; in several cases percentage level contamination may indeed impact the ground water. For example, indeno(1,2,3-cd)pyrene indicates a maximum concentration of 9 percent would be acceptable.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

10. Page 4-4, Section 4.2.2, Third Paragraph - The description of long-term effectiveness and permanence indicates that the No Action alternative will be effective due to the anticipated future use. The future use is only anticipated and does not exclude residential use. This should be indicated. In addition, the evaluation of this alternative should note that this alternative is not permanent.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

11. Page 4-5, Section 4.2.2, Second Paragraph - The word significant should be removed from the second sentence in this paragraph because the No Action alternative does not offer any reductions in toxicity, mobility, or volume through treatment.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

12. Page 4-5, Section 4.2.3, First Paragraph - The description of the alternative should include both monitoring and deed restrictions.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

13. Page 4-5, Section 4.2.3, First Paragraph - The description of the alternative should include a figure showing the anticipated area over which the deed restrictions would apply, and the text should describe this area.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

14. Page 4-5, Section 4.2.3, Second Paragraph - The description of the monitoring should specify for which analytes, and at which wells, monitoring will be directed.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

15. Section 4.2.5 through 4.2.14 - Understanding the remedial action procedure is difficult from the organization of these sections. The alternative would be easier to understand if Alternative 3A was Metal Precipitation, and included all the information for that remedial action, and Alternative 3B was Electrochemical Treatment, and included all the information for that remedial action. The description of Alternative 3B can reference Alternative 3A when information is repeated. The evaluation of the alternatives against the NCP criteria could either be combined or reviewed individually.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

16. Sections 4.4.5 through 4.4.14 - The descriptions of the alternatives are very cursory and should be expanded. Information such as the volume of ground water to be treated, the contaminant concentration going to the treatment process, level of sludge generated, location of sludge disposal, frequency of ion exchange resin regeneration, particular regenerant used, and method of regenerant disposal should be included in these sections.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

17. Page 4-22, Section 4.4 - The use of the discount rate as the major factor that could effect the cost of implementing the remedial action is misleading. There are several other factors that could influence the cost of remediation, including the length of the remediation, flow rate, and contaminant concentration. These should be included in the sensitivity analysis.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

18. Appendix E - The FS uses an interest rate of 5 percent; however, EPA Region I guidance suggests the use of 7 percent. The use of a 5 percent interest rate should either be corrected or explained.

*Response: EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (page 6-12) recommends the use of the 5% discount rate in conducting present worth analyses. If there is other EPA guidance which indicates 7% should be used, please reference the source of that guidance.*

19. Appendix E - Method of escalation factor calculation should be included.

*Response: Escalation factors are determined on the basis of Engineering News Record's published annual construction cost indices. This will be noted within the first partial paragraph of page 4-3, which discusses the calculation of cost estimates.*

TABLE 2-3

Site 06 - Solvent Disposal Area  
 Comparison of Background Soils to Surface and Subsurface Soil Samples  
 Range of Semivolatile Organic Compounds Detected

Compound	Surface Soil	Subsurface Soil	Subsurface Soil
Phenol	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND
2-Chlorophenol	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND
2-Methylphenol	ND	ND	ND
2,2'-Oxybis(1-chloropropane)	ND	ND	ND
4-Methylphenol	ND	ND	ND
N-Nitroso-di-n-propylamine	ND	ND	ND
Hexachloroethane	ND	ND	ND
Nitrobenzene	ND	ND	ND
Isophorone	ND	ND	ND
2-Nitrophenol	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND
Naphthalene	ND	ND	ND
4-Chloroaniline	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND
4-Chloro-3-methylphenol	ND-290	ND	ND
2-Methylnaphthalene	ND	ND-8,100	ND
Hexachlorocyclopentadiene	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND
2-Nitroaniline	ND	ND	ND
Dimethyl phthalate	ND	ND	ND
Acenaphthylene	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND
3-Nitroaniline	ND	ND	ND
Acenaphthene	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND
4-Nitrophenol	ND	ND	ND
Dibenzofuran	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND
Diethyl phthalate	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND
Fluorene	ND	ND	ND
4-Nitroaniline	ND	ND	ND
4,6-Dinitro-2-methylphenol	ND	ND	ND
N-Nitrosodiphenylamine(1)	ND	ND	ND
4-Bromophenyl phenyl ether	ND	ND	ND
Hexachlorobenzene	ND	ND	ND
Pentachlorophenol	ND	ND	ND
Phenanthrene	ND-730	ND	ND
Anthracene	ND-200	ND	ND
Carbazole	ND	ND	ND
Di-n-butyl phthalate	ND	ND	ND - 41
Fluoranthene	ND-860	ND	ND - 250
Pyrene	ND-840	ND	ND - 260
Butyl benzyl phthalate	ND	ND	ND - 51
3,3'-Dichlorobenzidine	ND	ND	ND
Benzo(a)anthracene	ND-500	ND	ND
Chrysene	ND-600	ND	ND - 190
bis(2-Ethylhexyl)phthalate	ND-240	ND	ND
Di-n-octyl phthalate	ND	ND	ND
Benzo(b)fluoranthene	ND-640	ND	ND - 270
Benzo(k)fluoranthene	ND-570	ND	ND - 79
Benzo(a)pyrene	ND-440	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND
Benzo(g,h,i)perylene	ND	ND	ND

ND = Not Detected

**TABLE 2-3**

**Site 06 - Disposal Area Northwest  
Comparison of Background Soils to Surface and Subsurface Soil Samples  
Range of Inorganics Detected**

Element	Surface Soil Range (mg/kg)	Subsurface Soil Range (mg/kg)	Background Range (mg/kg)
Aluminum	2,910-10,600	4,010-6,080	1,710 - 8,560
Antimony	ND-3	ND	ND
Arsenic	0.52-3.1	0.8-1.3	0.59 - 8.1
Barium	11.3-127	10.6-16.5	5.6 - 15.5
Beryllium	0.29-0.69	0.38-0.46	ND - 0.66
Cadmium	ND-0.75	ND-0.37	ND - 0.46
Calcium	ND-2,250	215-1,790	62.7 - 628
Chromium	4.4-11.7	3.8-6.9	ND - 9.6
Cobalt	1.5-4.1	2.8-4.5	ND - 4.6
Copper	5.1-10.8	4.7-8.6	3.9 - 15
Iron	4,560-14,600	6,610-9,440	3,810 - 12,000
Lead	6.9-616	3.7-7.1	3.4 - 53.8
Magnesium	492-1,600	724-1,480	325 - 1,220
Manganese	60.2-250	58.8-135	21.8 -150
Mercury	ND	ND	ND - 0.03
Nickel	2-7.2	3-5.3	ND - 5
Potassium	261-688	287-802	145 - 728
Selenium	ND-0.63	ND	ND - 0.77
Silver	ND-0.59	ND	ND - 0.08
Sodium	ND	ND	ND - 119
Thallium	ND-0.28	ND-0.38	ND
Vanadium	4.7-14.1	5-9.5	3.3 - 24.6
Zinc	18.2-929	18.4-53.4	10.3 - 172
Cyanide	ND-0.25	ND	ND

ND - Not Detected

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**RESPONSES TO RIDEM COMMENTS FOR  
DRAFT DETAILED ANALYSIS OF ALTERNATIVES REPORT  
SITE 06-SOLVENT DISPOSAL AREA  
NAVAL CONSTRUCTION BATTALION CENTER  
DAVISVILLE, RI**

**GENERAL**

These are responses to RIDEM's comments to the document entitled "Draft Detailed Analysis of Alternatives report Sites 6 and 13". RIDEM's comments are contained in their letter dated 13 June 1994.

Comments pertaining to Site 06 are only addressed in this document. Since a removal action is scheduled for Site 13, comments pertaining to this site will be addressed later under a separate cover.

As suggested by EPA, ground water at these sites is designated as a new operable unit. Therefore, comments pertaining to ground water remediation at these sites will be addressed later under a separate cover. However, general information pertaining to ground water including flow direction, depth, and levels of contamination will be included in the DAA responses. Comments pertaining to this general information are addressed in this document.

**General Comment**

Please provide a list of abbreviations/acronyms at the beginning of the document. Readers of this document, particularly the public, would find it very helpful.

*Response: The document will be revised as requested.*

**SITE 06 COMMENTS**

**1. Executive Summary, Background  
Page ES-4, Paragraph 1.**

The manganese in the ground water may be due to the geologic formation of the area and not to site related conditions. Please provide an explanation for its existence. Also, please provide an explanation of the action or actions required when lead is in exceedance of 15 ppb in drinking water. Please explain how these actions apply or not apply to this site.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

2. **Executive Summary, Background**  
**Page ES-9, Paragraph 2.**

It is stated that manganese is not a site-related contaminate and its presence is noted in upgradient wells as all NCBC Davisville sites. Please state if an attempt has been made to locate the possible source of manganese.

RIDPES standards/RI ambient water quality criteria would apply to catch basins which discharge to surface water bodies.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

3. **Executive Summary, Alternative 3 - Containment and Monitoring:**  
**Page ES-12, Paragraph 2.**

"Implementation of this alternative could limit the potential for future commercial/industrial use of the site, based on restrictions which would be required to protect the integrity of the cap."

It should be clearly stated that commercial/industrial use of the site would not be allowed under alternative S-3B (single layer cap), but could occur, if appropriately designed, under alternative S-3A (vegetative cover).

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

4. **Section 2.3.2, Site Hydrogeology:**  
**Page 2-3, Paragraph 1.**

Figure 2-3 should be changed to Figure 2-5.

*Response: The text will be revised as requested.*

5. **Section 2.3.2, Site Hydrogeology:**  
**Page 2-3, Paragraph 3.**

Since this is a public document please explain how it was determined that the measured vertical gradients indicate that vertical transport would have little impact on contaminant migration at the site. It is suggested that the numbers be put in perspective

for the public, for example, what does  $-1.81 \times 10^{-3}$  mean in terms of movement of water in the ground.

*Response: The following text will be added to describe vertical gradients in a more understandable manner. The negative number indicates that the vertical ground water movement is downward.*

**6. Section 4.2.3, Alternative S-2-Limited Action Alternative Description  
Page 4-5, Paragraph 1.**

If a fence is to be placed around the site please explain why deed restrictions would only restrict the site from future residential use. This would imply that commercial/industrial uses could still take place which would then negate the need for the fence. It would seem that commercial/industrial site uses as well as other site uses injurious to humans should also be restricted.

*Response: As discussed in the response to EPA Specific Comment #22, the limited action alternative was developed to include a detailed evaluation of both fencing and deed restrictions but not necessarily requiring both to be implemented (hence the "and/or" wording). For example, implementation of deed restrictions without fencing will be protective of human health under the proposed future commercial/industrial site use. As noted in Section 5, deed restrictions without fencing is part of the recommended alternative for Site 06. Section 4.2.3 first paragraph, the first sentence would read as follows: "Alternative 5-2 was developed as a limited action in which fencing would be placed around the perimeter of the site and deed restrictions would be implemented".*

**7. Section 4.4.7, Alternative GW-3A - Ground Water Extraction via Trench Option:  
Page 4-17, Paragraph 1.**

If ground water is extracted at a rate of 2 GPM please explain why the treatment system would be oversized to treat at a rate of 10 GPM.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

**8. Section 4.4.9, Alternative GW-3B, Precipitation Inorganic Treatment Option  
Description:**

**Page 4-19,**

Given that lead has a limited solubility in water, please state what the removal efficiency for lead would be and whether it would meet removal criteria.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

**9. Section 4.4.13, Alternative GW-3D-Discharge to Surface Water Option**

**Description:**

**Page 4-23, Paragraph 1.**

*This "alternative" is an integral part of either the Precipitation or Ion Exchange and therefore should not be considered as an alternative especially since no other discharge alternatives were considered. The cost for the discharge of the treated water, however, should be factored into the cost analysis for the above two mentioned treatment alternatives. Similar concerns exist for "alternative GW-3A (Ground Water Extraction via Interceptor Trench Option).*

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

**10. Section 4.4.14, Discharge to Surface Water Option Evaluation:**

**Page 4-24, Implementability.**

*Please offer further explanation as to what is meant by "Maintenance of the system will be limited."*

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

**11. Table 3-9, Technologies Which Passed Screening Soil/Ground Water, Site 06.**

Table 3-9 indicates that discharge of treated water to a sanitary sewer/POTW passed screening while Table 3-6 indicates that it did not. Please clarify.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

**12. Figure 4-3, Site 06 Solvent disposal Area - Chemical Precipitation Schematic.**

Unless it can be shown that the lead and manganese concentrations from the aqueous phase of the filter press are acceptable the water should be returned to the equalization tank in this process rather than sent to the pH adjustment unit operation with subsequent discharge to the environment.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

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**RESPONSES TO EPA COMMENTS FOR  
DRAFT DETAILED ANALYSIS OF ALTERNATIVES REPORT  
SITE 06 - SOLVENT DISPOSAL AREA  
NAVAL CONSTRUCTION BATTALION CENTER  
DAVISVILLE, RI**

**GENERAL**

These are responses to EPA's comments to the document entitled "Draft Detailed Analysis of Alternatives report Sites 6 and 13". EPA comments are contained in their letter dated 13 June 1994.

Comments pertaining to Site 06 are only addressed in this document. Since a removal action is scheduled for Site 13, comments pertaining to this site will be addressed later under a separate cover.

As suggested by EPA, ground water at these sites is designated as a new operable unit. Therefore, comments pertaining to ground water remediation at these sites will be addressed later under a separate cover. However, general information pertaining to ground water including flow direction, depth, and levels of contamination will be included in the DAA responses. Comments pertaining to this general information are addressed in this document.

**General Comments**

1. The description of the past investigations and site contamination presented in Section 2.0 is difficult to follow and leaves the reader questioning the relevance of some of the subsections. The section should be reviewed and updated with an effort to present the contamination at Site 06 in the context of the overall NCBC site. For example, Section 2.6 states that lead was found upgradient of the site and it is, therefore, concluded that lead is present across the entire site at background concentrations. This discussion, as currently written, is unclear because the text does not explain what the relationship is between Site 06 and the upgradient detection of lead. This concern is also related to the lack of information provided on background at the site. For Site 13, the relationship between PCB and pesticide contamination at other sites and Site 13 is unclear.

In addition, Section 2.0 does not summarize the remedial investigation (RI) data in a way that makes it easy for the reader to quickly understand the concerns regarding the site. This could be corrected by presenting summary figures that indicate the extent of contamination in excess of the cleanup levels and the range of analytical results for each sampling point.

*Response: The FS presents a summary of data generated during the RI. In accordance with the RI and the Federal Facility Agreement, the investigation and evaluation of the*

*former NCBC facility was conducted on a site-by-site basis. Where information is available to evaluate site conditions on a facility-wide basis, such an evaluation was conducted (e.g., the comparison of soil contaminants to background levels based on the collection and analysis of facility-wide background soil samples).*

*Since preliminary remediation goals are not discussed until Section 3.0, Section 2.0 is not an appropriate place to present contaminant levels in excess of cleanup levels.*

2. The feasibility study (FS) screens out the use of soil removal as a general response early, due to the fact that the soil contamination is not a principal threat. I understand the use of containment for areas that are not a principal threat, but for these sites, the area of contamination is small, and removal might be less expensive and would be more effective in the long-term than deed restrictions. Therefore, the FS should be updated to include soil removal and off-site disposal (at a minimum) as a general response, and carry it through the screening and the detailed analysis.

*Response: At Site 06, no action and institutional control are the only general response actions identified for the site because existing soil quality does not pose a significant concern under the planned future commercial/industrial site use. Neither containment nor excavation/disposal are identified as general response actions at Site 06. Considering the proposed implementation of institutional controls at Site 05, where soils pose similar contaminant and risk levels, the use of a similar approach at Site 06 appears appropriate. At Site 06, one surface soil sample exhibited lead at a level exceeding residential guidance levels. The human health cancer risks based on exposures to surface soils under a future commercial/industrial site use scenario (which did not include a quantitative evaluation of risks due to lead) range from  $3 \times 10^{-6}$  (mean) to  $5 \times 10^{-6}$  (RME). If EPA and RIDEM consider these risks posed by other soil contaminants to be protective of human health under all site use scenarios (including residential), a soil removal/disposal option which considers removal of the lead-contaminated soil will be considered.*

3. The description of the alternatives, and the evaluation of the alternatives against the National Contingency Plan (NCP) evaluation criteria is very cursory and should be enhanced. The description of the alternatives should present a more complete picture of the Navy's remedial action. For example, where deed restrictions would be required, a figure showing the anticipated area where these restrictions would be instituted should be included; also, a discussion is lacking as to how long the remedial action will take to implement and complete.

*Response: Where deed restrictions are described, they are intended to address the areal extent of the site as defined within the RI/FS process. This will be clarified within the text. The time frames required to implement alternatives and meet remedial response objectives are generally discussed within the short-term effectiveness evaluation. These discussions will be re-evaluated to confirm that such time frames are discussed.*

*Section 4.2.3, add onto the end of this section the following sentence: "The extent of deed restriction and fencing will cover the areal extent of the site as shown on figure 2-1."*

4. The evaluation of the alternatives against the NCP criteria needs to present the baseline risks from the site, and how the implementation of the remedial action would reduce them, and what the residual risk would be.

*Response: Baseline risks are presented in Section 2 of the report. Discussions and calculations of residual risk based on preliminary cleanup goals will be incorporated within the Draft Final report, as appropriate.*

5. This Detailed Analysis of Alternatives Report has been written prior to completion of the response to comments on the draft RI. Therefore, any conclusions that have been based on the draft RI are preliminary, and it should be kept in mind that changes to this report may be required once the draft RI has been completed and approved. The points of primary concern that could have the greatest impact on the detailed analysis of alternatives and subsequent recommendation of a preferred remedy are:

- Risks associated with the inhalation of volatile emissions by a worker in a trench (see Response to US EPA and RIDEM Comments on the Draft Remedial Investigation Report, March, 1994, Section 2, pg. 3)
- Background concentrations require complete reassessment
- Changes to the Ecological Risk Assessment (this may not significantly affect Site 06)

Other issues addressed in the RI comments, although not specifically noted here, may also impact the detailed analysis of alternatives.

The Navy should thoroughly review the comments on the draft RI, together with these comments in the Detailed Analysis of Alternatives Report, and incorporate any changes required as a result of both sets of comments.

*Response: The risks associated with inhalation of volatile emissions by a worker in a trench are included in the discussion of the risks associated with the future construction worker scenario and are presented in Table 2-4 of the Draft DAA. (Although the Draft Final RI had not been submitted at the time the Draft DAA was submitted, the risk calculations had been completed and were included in the Draft DAA). These risks do not contribute significantly to the overall pathways risk estimate.*

*The revised background concentrations (which were include in the Sites 02 and 07 DAA Report) will be incorporated into the report and any associated text will be revised accordingly (see response to specific comment #6 below).*

*The majority of the Ecological Risk Assessment discussion presented in Section 2.9 remains accurate. However, in accordance with the conclusions of the Draft Final Ecological Risk Assessment (Section 7.2.4), the last paragraph of Section 2.9 will be revised to read as follows:*

*"Several of the lines of evidence summarized in the preceding paragraphs indicate some potential for risk in the Hall Creek Watershed. Other lines of evidence such as the functional analysis of the Hall Creek wetland provide information that may modify the potential for risk. The fundamental analysis indicated that the wetland pollutant reduction functions (i.e., sediment stabilization, sediment/toxicant retention, nutrient removal/transformation), production export, and aquatic and wildlife diversity/abundance functions of the wetland are the more important for the region. In addition, the benthic and wildlife observations in Hall Creek Watershed indicate a diverse and functioning ecosystem. Therefore, although the ecological risk assessment indicates some potential for risk in these areas due to COCs, other lines of evidence indicate that there is some uncertainty in this analysis."*

*Other comments on the Draft RI will be reviewed prior to preparing the Draft Final DAA and revisions to the RI will be reflected within the Draft Final DAA, as appropriate.*

### Specific Comments for Site 06

1. Page 2-4, Section 2.4: First Full Paragraph - The section needs to provide a more detailed description of the RIDEM classification of the ground water. The discussion should include why the ground water is classified as GB; explain the extent of the GB classification; and show a map depicting the region that is classified as GB. It is also unclear why the ground water classification was presented in this Ecological Setting section. This section also needs to describe the connection between the site and the Hall Creek Watershed.

*Response: A discussion of the ground-water quality classification is included in Section 1.4.2 Regional Hydrogeology of Volume I. The section entitled "Ecological Setting" will be eliminated and the information contained therein will be incorporated into Sections 2.3.2 (Site Hydrogeology) and 2.3.3 (Site Hydrology).*

2. Page 2-5, Section 2.5.2: Second Paragraph - TCL, TAL, and TCLP need to be spelled out.

*Response: The text will be revised as requested.*

*The text shall read as follows:*

*TCL - Target Compound List*  
*TAL - Target Analyte List*  
*TCLP - Toxicity Characteristic Leachate Process*

3. Page 2-6, Section 2.5.3: Fourth Paragraph - The discussion of background is very limited. This discussion needs to either be expanded to describe why the locations are considered background and where the background locations are, or a reference needs to be provided regarding where this information can be found.

*Response: A reference will be provided which directs the reader to the appropriate section of the Draft Final RI for more information on the background soil investigation.*

*Section 2.5.3, last paragraph, second sentence will read: "Eighteen background surface soil samples were collected (section 9, background Surface Soil Investigation, of the Draft Final Remedial Investigation Report - Volume I (TRC, 1994)), across NCBC Davisville...."*

4. Page 2-7, Section 2.6: All - This section is very difficult to follow because the figures do not show all the data for a given medium. The figures should be updated to show areas of

contamination and to present data for all sampling locations (a range of analytical results would be an improvement).

*Response: There are no figures associated with Section 2.6 and no figures are referenced within this section of text. The discussion as presented is a summary of information presented in the RI. A reference to the RI evaluation will be added to the text. Graphical presentation of all sampling results for all sampling locations is unnecessary and would be very difficult to present in a neat and easy-to-read manner. The information pertinent to conducting an FS, the contaminant levels and sample locations for contaminants detected above preliminary remediation goals, is presented in Section 3 and its associated figures.*

5. Page 2-13, Section 2.7: Third Paragraph - The text states that xylene is likely to persist longer than the other volatile contaminants of concern (COCs), but does not explain why. The text should be expanded to discuss why xylene would be more persistent.

*Response: The fate and transport discussion will be revised to reflect associated revisions incorporated within the Draft Final RI fate and transport discussions. Total xylenes were detected in subsurface soils only. Because they are less soluble than other VOCs with a lower tendency to partition from organic media into ground water, they would tend to be more persistent in the subsurface. This will be clarified within the associated discussion.*

6. Page 2-15, Section 2.7: First Paragraph - The COCs presented in this section do not agree with the COCs presented on page 2-10. This discrepancy should be corrected or explained.

*Response: A revised Table 2-3, incorporating the revised soil background ranges, is attached. Note that, as referenced in the text of Section 2.6, Table 2-3 summarizes only Phase II data with respect to background levels. In accordance with the revised soil background ranges, the following text changes have been made:*

*Page 2-9, first paragraph will read as follows:*

*"The SVOCs detected in the surface soil samples collected during the Phase II RI were compared to the background samples collected throughout the NCBC facility (see Table 2-3). The SVOCs detected in the surface soils were detected at levels which exceed NCBC background ranges."*

*Page 2-9, fourth paragraph will read as follows:*

*"The 2-methylnaphthalene detected during the Phase II RI exceeded the NCBC background range, as shown in Table 2-3."*

*Page 2-10, seventh paragraph will read as follows:*

*"Sixteen inorganics were detected in Phase II surface soils at concentrations which exceeded NCBC background ranges: aluminum, antimony, barium, beryllium, cadmium, calcium, chromium, iron, lead, magnesium, manganese, nickel, silver, thallium, zinc, and cyanide."*

*Page 2-10, last sentence and page 2-11, first sentence will read as follows:*

*"Six inorganic analytes, barium, calcium, magnesium, nickel, potassium, and thallium, were detected at concentrations above the NCBC background ranges. Four of six analytes, calcium, magnesium, nickel, and potassium, were detected in Phase II RI sample 06-MW05-03."*

*Page 2-14, first two sentences will read as follows:*

*"Inorganic analytes in Phase I and Phase II surface soil samples which were detected above site background levels in one or more samples include aluminum, antimony, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, silver, sodium, thallium, zinc, and cyanide. The inorganic analytes which were detected in one or more Phase I or Phase II subsurface soil samples at levels exceeding site background include beryllium, calcium, cobalt, magnesium, manganese, nickel, potassium, sodium, and thallium."*

7. Page 2-17, Section 2.9: All - The sampling for PCB and pesticide contamination are mentioned for the first time in this section. This leaves the reader questioning what the source of the contamination is and where it is located. If Site 06 is the source of the PCB or pesticide contamination, it should be described in Section 2.7. If Site 06 is not the source, the relevance of this section is questionable.

*Response: The potential ecological risk discussed in Section 2.9 is based on surface water and sediment sampling conducted in Hall Creek, which will be described in more detail in the introductory information of this section. The relative sections of the Draft Final RI which provide more information on the surface water and sediment sampling will also be referenced. As discussed in Section 3.1.3, it is considered unlikely that Site 06 is the source of the PCB or pesticide contamination since neither PCBs nor pesticides have been detected in soils or ground water at Site 06. A reference to the unlikely relationship between contaminants at Site 06 and risks within the Hall Creek Watershed will be added to Section 2.9.*

8. Table 2-4 - Definitions of "-" and "NA" should be included.

*Response: The table will be revised as requested.*

*The bottom of the table should have the following footnote: " NA - Not Applicable "*

9. Figure 2-1 - The text mentions landmarks that are not shown on figure, such as the parking lot. Figure would also be clearer if the extent of Site 06 was shown with a box.

*Response: The figure as provided is consistent with figures previously provided within the RI. The approximate extent of Site 06 will be indicated with a box. Existing site base maps will be searched; if the extent of the parking lot located to the west of the site can be delineated, it will be added to the site base map.*

10. Page 3-1, Section 3.1.1: Last Paragraph - The text indicates that TSCA and the PCB Spill Cleanup Policy is an applicable or relevant and appropriate requirement (ARAR). Based on the fact that PCBs were not found at the site, it is unclear as to why TSCA and the PCB Spill Cleanup Policy is an ARAR.

*Response: The discussion will be revised to indicate that TSCA and the PCB Spill Cleanup Policy are potential ARARs for soil contaminants but that, based on the absence of PCB contamination at Site 06, they are not ARARs for the site.*

*Section 3.1.1, Soil Contamination, second paragraph should read as follows: "As presented in table 3-1, TSCA and PCB spill cleanup policy are potential ARARs for soil contaminants, but that based on the absence of PCB contamination at site 06, they are not ARARs for the site. The State of Rhode Island Department of Emergency Management (RIDEM) define solid waste as....".*

11. Page 3-9, Section 3.3: All - This section excludes the removal/disposal of the contaminated soil from the site. The exclusion of this general response does not seem justified, considering how small an area seems to be contaminated. The fact that the soil is not a principal threat should not eliminate the ability to remove the contamination, since the soil volume is so small. This section needs to be revised to include a calculation of the volume of contaminated soil, and to include, at a minimum, removal and off-site disposal as a general response.

In addition, the section should provide more detail on the extent of ground water contamination, such as a map depicting the area contaminated in excess of cleanup levels.

*Response: See response to General Comment #2 with respect to soil contamination.*

*Ground water at Sites 6, 13 and 11 is designated as a separate operable unit and comments pertaining to ground water will be addressed under a separate cover.*

12. Table 3-2 - The table should note what the shading indicates.

*Response: A footnote will be added indicating that shading indicates a detected exceedance of an associated regulatory standard or guideline..*

*Footnote at the bottom of table 3-2 will read as follows: "Shading indicates a detected exceedance of an associated standard or guideline."*

13. Table 3-4 - The maximum modeled unsaturated concentrations appear to be too high because, in several cases, they show that percentage level concentrations in the unsaturated zone would not result in ground water dissolved concentrations above acceptable criteria. For example, the value for 2-Methylnaphthalene indicates that a maximum concentration of 35 percent would be acceptable, however, it is hard to believe 35 percent of this compound in the soil would not elevate ground water concentrations above the acceptable criteria.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

14. Table 3-5 - The last line of the comment for Fencing should read, "...future access after base closure."

*Response: This text along with other references to the facility will be revised to reflect that NCBC Davisville has officially been closed.*

*The last line in table 3-5 shall read as follows: "...future access after base closure."*

*General Response - Comments 15 - 17: A note will be added to Tables 3-5 through 3-8 referring the reader to Appendix D for more detail on the technology and process option screening process.*

15. Table 3-6, First Page - The reason for screening out well points is unclear.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

16. Table 3-6, Second Page - The reason for screening out membrane microfiltration is unclear.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

17. Table 3-8 - The reason for selecting surface water discharge over ground water reinjection is unclear.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

18. Page 4-4, Section 4.2.2: First Paragraph - The last sentence should read, "...will not meet state chemical-specific TBCs for lead, but falls within the federal TBC lead range."

Response: The text will be revised as requested.

Section 4.2.2, first paragraph, last sentence shall read as follows: "...will not meet chemical specific TBCs for lead, but falls with in the federal TBC lead range."

19. Page 4-4, Section 4.2.2: Third Paragraph - The description of long-term effectiveness and permanence indicates that the No Action alternative will be effective, due to the anticipated future commercial/industrial land use. This future use scenario, however, is only anticipated and does not exclude residential use. This should be indicated. In addition, the evaluation of this alternative should note that this alternative is not permanent.

Response: The text will be revised as requested.

Section 4.2.2, third paragraph, at the end will read as follows: "This future use scenario, however, is only anticipated and does not exclude residential use. The alternative is not permanent and may be discontinued upon a risk based scenario made by the associated regulatory agencies and the Navy."

20. Page 4-4, Section 4.2.2: Fourth Paragraph - The word *significant* should be removed from the second sentence in this paragraph because the No Action alternative does not offer any reductions in toxicity, mobility, or volume through treatment.

*Response: The text will be revised as requested.*

*Section 4.2.2 should read as follows: "... the alternative offers no reduction in toxicity, mobility, or volume of contamination through treatment."*

21. Page 4-5, Section 4.2.2: Third Paragraph - The cost paragraph indicates that 5-year reviews may not be required; however, there is no description as to how this determination will be made.

*Response: The words "if necessary" will be deleted. The only scenario under which the 5-year review would not be required is if the EPA, RIDEM, and Navy made a risk management decision that, based on the apparent limited extent of soils exceeding the residential guidance level for lead, no site use restrictions would be required.*

*Section 4.2.2, third paragraph should read as follows: "The cost with the no-action alternative would be nominal associated with conducting 5-years reviews. The only scenario under which the 5-year review would not be required is if the EPA, RIDEM, and Navy made a risk management decision that, based on the apparent limited extent of the soils exceeding residential guidance level for lead, no site restrictions would be required."*

22. Page 4-5, Section 4.2.3: First Paragraph - The description of the alternative needs to be changed to include both fencing and deed restrictions.

*Response: The Limited Action alternative was developed to include a detailed evaluation of both fencing and deed restrictions but not necessarily requiring both to be implemented (hence the "and/or" wording). For example, implementation of deed restrictions without fencing will be protective of human health under the proposed future commercial/industrial site use. As noted in Section 5, deed restrictions without fencing is part of the recommended alternative for Site 06.*

*Section 4.2.3, first paragraph, the first sentence would read as follows: "Alternative S-2 was developed as a limited action in which fencing would be placed around the perimeter of the site and deed restrictions would be implemented."*

23. Page 4-5, Section 4.2.4: First Paragraph - The text indicates that fencing would restrict future land use. It is not clear how fencing limits the land use. This needs to be explained.

*Response: Section 4.2.4, first paragraph. The text "However, the fencing would limit future use of the Site under the commercial/industrial use scenario", will be deleted.*

24. Page 4-6, Section 4.2.4: Second Paragraph - The evaluation of the alternative against the TBC does not agree with the evaluation performed for No Action. The discrepancy should be corrected.

*Response: This alternative meets the TBC for lead by preventing the future development of the residential exposure pathway upon which the TBC is based.*

25. Page 4-6, Section 4.2.4: Third Paragraph - The evaluation of the alternative for long-term effectiveness indicates that a risk management evaluation would be performed to determine if 5-year reviews would be required. The risk management evaluation should be described in the description of the alternative.

*Response: Since this alternative involves site use restrictions which do not allow for unlimited future site use, the text will be revised to indicated that a 5-year review will be required. As described in the response to comment #21, the only scenario under which the 5-year review would not be required is if the EPA, RIDEM, and Navy made a risk management decision that, based on the apparent limited extent of soils exceeding the residential guidance level for lead, no site use restrictions would be required*

*Section 4.2.4, third paragraph, last sentence should read as follows: "The only scenario under which a 5-year review would not be required is if the EPA, RIDEM, and the Navy made a risk management decision that, based on the apparent limited extent of the soils exceeding residential guidance level for lead, no site restrictions would be required."*

26. Page 4-6, Section 4.2.4: Sixth Paragraph - The evaluation of this alternative for implementability should note the difficulty in obtaining and enforcing deed restrictions.

*Response: Based on the closure of NCBC, future use of Site 06 would most likely involve a transfer of property. As noted the deed restrictions would be incorporated into the property transfer process. Potential difficulties in enforcing deed restrictions will be mentioned within the text but, based on the industrial nature of the area in which Site 06 is located and the Reuse Plan's identification of the area for*

*economic/industrial development, there does not appear to be a high probability for potential future residential development of the property.*

27. Page 4-7, Section 4.3.1: Second Paragraph - The description of the alternative needs to be changed to include both fencing and deed restrictions.

*Response: See response to comment #22*

*Section 4.3.1, second paragraph, the first sentence shall read as follows: "... site use by limiting potential exposures to the site soils through fencing and deed restrictions."*

28. Page 4-10, Section 4.4.1: First Paragraph - Change PPG to PRG in the third sentence.

*Response: The text will be revised as requested.*

*Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

29. Page 4-10, Section 4.4.2: First Paragraph - The discussion of the protection of human health is confusing because the alternative does not limit the use of the ground water and, therefore, there is the potential to use the ground water as a drinking water source. This is not clear in the discussion as it is currently written.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

30. Page 4-11, Section 4.4.2: Third Paragraph - The discussion of the alternative's long-term effectiveness and permanence is misleading because there would be no limitation on the use of the ground water as a drinking water source. The text should be changed to note that the alternative would not be effective in limiting access.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

31. Page 4-11, Section 4.4.2: Fourth Paragraph - The word significant should be removed from the second sentence in this paragraph because the No Action alternative does not offer any reductions in toxicity, mobility, or volume through treatment.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

32. Page 4-11, Section 4.4.3: First Paragraph - The description of the alternative needs to be changed to include both fencing and deed restrictions.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

33. Page 4-12, Section 4.4.3: First Paragraph - The description of the alternative should include a figure that shows the anticipated area over which the deed restrictions would apply, and the text should describe this area.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

34. Page 4-12, Section 4.4.3: Second Paragraph - The description of the monitoring needs to be enhanced to describe the Analytes to be monitored for, and the wells that will be monitored.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

35. Page 4-12, Section 4.4.4: First Paragraph - The relationship of the Hall Creek Watershed to the site is unclear.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

36. Sections 4.4.5 through 4.4.14 - The organization of these sections makes it difficult for the reader to understand what the remedial action would entail. The alternative would be easier to understand if Alternative 3A was Metal Precipitation, and included all the information for that remedial action, and Alternative 3B was Ion Exchange, and included all the information for that remedial action. Where information is repeated between Alternatives 3A and 3B, the description of Alternative 3B can reference Alternative 3A.

The evaluation of the alternatives against the NCP criteria could be done either together or individually.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

37. Sections 4.4.5 through 4.4.14 - The descriptions of the alternatives are very cursory and need to be expanded. Information, such as the following, needs to be included in these sections:

- Volume of ground water to be treated
- Contaminant concentration going to the treatment process
- Sludge volume
- Disposal location
- Regeneration frequency of ion exchange resins
- Type of regenerant
- Regenerant disposal method

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

38. Page 4-28, Section 4.6 - The use of the discount rate as the major factor that could affect the cost of implementing the remedial action is misleading. There are several other factors that could influence the cost of remediation, including the length of the remediation, the flow rate, the contaminant concentration, etc. These should be included in the sensitivity analysis.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

39. Figure 4-1 - The interceptor trenches appear to be upgradient of some of the contamination. The location of the trenches needs to be reviewed.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

40. Appendix C, Pg. C-2, Equation (2) - Please explain the adjustment factor of 0.63. Where was it obtained? Typically,  $K_d$  is calculated using  $K_{oc}$ . Why was this not done here? Equations have been developed relating  $K_d$  and  $K_{oc}$ , so it is not incorrect, but some

reference and an explanation should be provided. (Note: this comment also pertains to Site 13.)

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

41. Appendix D - Screening should be uniformly performed on process option, not remedial technologies. In addition, the screening results of all process option should be shown.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

42. Appendix E - The costs, in a number of instances, are not presented with sufficient backup to allow the reader to determine how they were derived. For example, the ground water sampling cost of \$300 per sampling event does not tell the reader how many samplers will be used, if there is upfront preparation, and how long the sampling event will take.

*Response: The intent of the cost estimates is to provide a cost estimate with an accuracy of +50 to -30 percent. Therefore, cost estimates are developed based on published cost data, vendor quotes, and previous project experience. Cost-specific references are coded within the cost tables and a reference list is provided which indicates the source of the cost data. The \$300 per sample cost is based on TRC's experience in conducting sampling efforts and, to someone familiar with environmental assessment costs, the total annual cost of \$2,100 to mobilize and collect 7 ground-water samples (which can be determined based on the information provided) would not be perceived as being unrealistic.*

43. Appendix E - The FS uses an interest rate of 5 percent; however, EPA guidance suggests the use of 7 percent. An explanation of why 5 percent was chosen should be provided.

*Response: EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final (page 6-12) recommends the use of the 5% discount rate in conducting present with analyses. If there is new EPA guidance which indicates 7% should be used, please reference the source of that guidance.*

44. Appendix E - A description of how the escalation factors were calculated should be given.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*

45. Appendix E - Citations for some of the references presented in the tables are not given.

*Response: Cost references will be reviewed to ensure that all references are listed in the attached reference table.*

46. Appendix E - The use of the EPA document on treatment technologies for metal/cyanide-containing wastes does not seem appropriate without a description of how this document was used. The concern is that the document was prepared for waste streams from manufacturing operations and not dilute ground water streams. The use of this document should be reconsidered, and the costs need to be developed from another source, or an explanation needs to be given as to how the costs were used.

*Response: Ground water at Sites 6, 13, and 11 has been designated as a separate basewide operable unit. This comment will be addressed as part of the RI/FS for the ground-water operable unit.*