



DEPARTMENT OF THE NAVY

NORTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
10 INDUSTRIAL HIGHWAY  
MAIL STOP. #82  
LESTER, PA 19113-2090

IN REPLY REFER TO

5090  
Ser 2320/1823/DEC

DEC 01 1994

Mr. Paul Kulpa  
State of Rhode Island and Providence Plantations  
Department of Environmental Management  
Division of Site Remediation  
291 Promenade Street  
Providence, RI 02908-5767

Re: NAVY'S RESPONSES TO RIDEM COMMENTS ON THE DRAFT FINAL PHASE  
II REMEDIAL INVESTIGATION REPORT FOR SITE 09 - OLD FIRE  
FIGHTING TRAINING AREA, VOLUMES I AND II AT NETC NEWPORT

Dear Mr. Kulpa:

In response to your letter dated September 14, 1994, attached is the Navy's responses to RIDEM's comments on the Draft Final Phase II RI Report for the Old Fire Fighting Training Area. The Navy is requesting the attached responses be reviewed and evaluated for acceptance by December 30, 1994.

After reviewing Section 7.2 of the Federal Facilities Agreement (FFA), it is not clear what the next step of the process is since RIDEM nor EPA issued a Letter of Concurrence or invoked Formal Dispute Resolution as it pertains to the subject document. The Navy, therefore, is submitting written responses to comments on the draft final Phase II RI report for resolution under the informal dispute process. Upon review of the attached responses, if RIDEM finds the responses acceptable the Navy requests a letter of concurrence on the portions of the document not relating to the ecological risk assessment. If RIDEM contemplates that further discussions are warranted to satisfactorily resolve the remaining issues, the Navy is requesting these discussions be conducted by a conference call or meeting at your earliest convenience. Upon final acceptance of the Navy's responses, the portions of the document not relating to the ecological risk assessment will be amended and submitted 30 days there after.

In addition, I would also like to address the issue that was stated in RIDEM's letter dated October 6, 1994 and discussed during the Remedial Project Manager's meeting on November 7, 1994. This issue pertains to finalization of the Phase II Remedial Investigation Report and how it relates to the ongoing sediment and biota investigations. Finalization of the Phase II RI report, as it pertained to the approved Phase II RI work plan

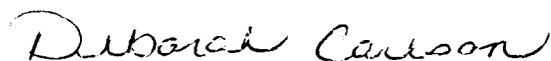
requirements, was scheduled for completion October 1994. Based on RIDEM'S letter dated September 14, 1994 and the requirement for the Phase II ecological risk assessment, completion of the Phase II RI report by October 1994 was not feasible. A review of the alternatives available to complete the Phase II RI included:

- (1) Finalization of the Phase II RI Report including the Phase I ecological risk assessment in January 1995 per the FFA schedule and the Phase II RI work plan requirements. The Phase II Ecological Risk Assessment would then be submitted as a modification to the Final Phase II RI Report pursuant to Section 7.9 (a) and (b) of the FFA. The Feasibility Study phase of the project would be initiated upon completion of the Final Phase II RI Report and Phase I Ecological Risk Assessment.
- (2) Finalization of the Phase II RI Report would be postponed until the results of the Phase II Ecological Risk Assessment are presented and approved. The Feasibility Study phase of the project would be initiated upon completion of the Final Phase II RI Report and Phase II Ecological Risk Assessment.

As agreed upon by all parties during the Remedial Project Manager's meeting on November 7, 1994, finalization and approval of the Phase II RI report will not take place until completion of the Phase II ecological risk assessment as proposed under Alternative 2. Enclosure (1) is submitted to finalize the plan of action and milestone schedule and to illustrate how all the components are to be integrated.

If there are any questions regarding the attached responses or proposed schedules, please contact me at (610) 595-0567 ext 147.

Sincerely,



D. E. CARLSON  
Remedial Project Manager  
By direction of the Commanding Officer

Copy to:  
EPA Region, Andy Miniuks  
NETC Newport, Brad Wheeler, Code 40E  
TRC-EC, Bob Smith

**NAVY RESPONSES TO RIDEM COMMENTS ON  
NAVY COMMENT RESPONSES ON THE  
DRAFT FINAL REMEDIAL INVESTIGATION REPORT  
OLD FIRE FIGHTING TRAINING AREA  
NAVAL EDUCATION TRAINING CENTER  
NEWPORT, RHODE ISLAND**

14. Section 1.3.2, Site History: Page 1-12, 2nd Paragraph.

"Underground piping carried the water/oil mixtures to the buildings and from the buildings to the oil/water separator."

During a number of Project Manager and TRC meetings the State has indicated that information from engineering drawings, such as the underground piping network, holding tanks, specifics of the oil/water separator, etc. for the site should be included in the Phase II RI. This information and appropriate plans must be included in the report in order to adequately address potential sources of contamination at the site, such as, the oil sludge found in the clay pipes during the excavation of test pit 1.

The Navy has indicated that they are unaware of any other documentation on the prior layout or operation of the former Fire Fighter Training area. The State feels that useful information may be obtained from the archives at the NETC Engineering Command building. This information is needed in order to ascertain whether potential problems still exist at the site.

*Response: Searches of the NETC Public Works Engineering Department archives have been conducted for this project. The 1943 planned construction drawing of the facility referenced in Section 1.3.2 is the only documentation discovered in the archives on the prior Fire Fighting Training Area.*

15. Section 1.3.2.1 Aerial Photographs and Maps: Page 1-12, 3rd Paragraph.

This section of the report discusses structures visible on aerial photographs for the site. The report should note whether stained soil is visible on these photographs.

The Navy has indicated that stained soils were not visible in the aerial photographs. The State requests that said photographs be made available for regulatory review.

*Response: Copies of many of the historical aerial photographs reviewed are available at the State of Rhode Island State Planning offices in Providence, Rhode Island. Copies of photos obtained from that office are also available for review at the NETC. Other historical aerial photos are available for review at the Naval War College Archives at the Naval Education and Training Center in Newport, Rhode Island. The*

*text of the report will be revised to reference the above-noted availability of the aerial photographs reviewed.*

19. Section 2.2.1, Seismic Refraction Results: Page 2-3, 4th Paragraph.

Based on the seismic refraction results, the depth to bedrock beneath the site varies between approximately 6 and 27 feet below ground surface. "

The report should include a bedrock profile figure based upon the seismic survey results. This will allow a comparison between the monitoring wells results and the seismic survey results.

The Navy has indicated that the results of the borings represents true depth to bedrock. The State is aware of the limitations of seismic refraction studies. However, the State reiterates its request for these figures as it provides information to confirm the depth to bedrock.

*Response: As stated in response to the original comment, bedrock profiles based on the seismic survey results for Site 09 are provided on Figure 5 of Appendix C-1 of the RI report. Furthermore, Table 2 of the seismic report provides a comparison of the seismic and boring log data sets. Thus, no further changes will be made to the report in response to this comment.*

20. Section 2.2.1, Seismic Refraction Results: Page 2-3, 4th Paragraph.

"Based on the seismic profile, there appears to be a shallow basin present in the bedrock surface at the center of seismic line number 1 and along seismic line number 2. "

The report should note whether any bedrock monitoring wells were placed in this shallow basin to investigate potential pooling of NAPL's.

The Navy stated they would provide discussion of monitoring wells down gradient of the "shallow basin" in the revised report. This discussion was not found. Please provide this information.

*Response: The following discussion presented in the Navy's original response to this comment will be added to Section 2.6.1 of the final RI report. As shown on Figure 2-8, several wells are located in or downgradient of this "shallow basin" area, including wells MW-3S, MW-11S, MW-11R, MW-2S, and MW-2D. In addition, boring B-13 was completed in the downgradient portion of this area. As is shown on Figure 2-9 of the report, signs of potential petroleum-related contamination were observed at all of these locations; however, no NAPLs were observed in the deep well (MW-2D) or bedrock well (MW-11R) located downgradient of this area.*

21. Section 2.2.2, Electromagnetic Conductivity Survey: Page 2-5, EM-31 Survey Results.

Please note what material the storm sewer line is made of.

The Navy stated they believe the sewer line is a 12-inch steel-reinforced concrete pipe. This information should be included in the revised report.

***Response:** As stated on page 2-5 of the draft final RI report, this storm sewer line is a 24-inch steel-reinforced concrete pipe. This fact will also be added to Section 2.7 of the final RI report.*

25. Section 2.3.1, Soil Gas Methodology: Page 2-8, 2nd Paragraph.

"These compounds were chosen to evaluate the presence of fuel product, or petroleum-based solvents."

BTEX analysis has limited utility in the investigation of heavy oil contamination. The oil sludge observed in the clay pipes and the staining observed in the vicinity of the mounds appeared to be associated with heavy oils. Therefore, the report should note the limitations of the soil gas survey and comment on the potential heavy oil contamination at the site.

The Navy stated they would provide a discussion of the limitations of a soil gas survey and the soil gas analyses conducted for this site in Section 2.3.1 of the revised RI report. The revised RI report does not contain this information, please provide.

***Response:** In response to this original comment, a discussion of the limitations of the soil gas survey was presented with the soil gas results on page 2-10 in the last paragraph of Section 2.3.2 of the draft final report. The following sentence will also be added to the Section 2.3.1 of the final report. "Note that although the above-listed chlorinated and aromatic VOCs are typically of greatest concern in assessing petroleum releases, if the fuel or petroleum products released at the site did not contain these VOCs or the VOCs have since volatilized or degraded to nondetectable levels, the VOCs or other less volatile petroleum products (e.g., fuel oils) may not have been detected under this soil gas survey."*

26. Section 2.3.1, Soil Gas Results: Page 2-9, 2nd Paragraph.

This section of the report discusses the results of the soil gas survey.

The survey was conducted during a period of heavy precipitation. The report should note whether the precipitation had any affect on the survey, for example were saturated conditions encountered during the survey.

The Navy stated they would add the precipitation data to the revised RI report. This data was not found, please provide.

*Response: The precipitation data is presented in the text of the soil gas survey results discussion on page 2-10 of the draft final RI report. As stated in the report, the 0.16 inches of rainfall that occurred on the second day of the survey did not likely have any affect on the survey findings. Thus, the final report will not be revised any further in response to this comment.*

31. Section 2.6.1, Overview of Investigation: Page 2-19, 1st Paragraph.

This section of the report indicates that a test was conducted for NAPL. The report should indicate whether the test was done for both LNAPL and DNAPL. In addition, the Phase II RI is a public document. Therefore, the report should note that NAPL are materials which are found either on the bottom or floating on the top of the water column.

The Navy should add LNAPL and DNAPL to the list of acronyms provided in the document.

*Response: The acronyms LNAPL and DNAPL are defined at their only occurrence on page 2-22 of the report. However, the definitions of these two acronyms will also be added to the acronym list at the beginning of the report.*

47. Section 4.2.2, Semivolatile Organic Compounds (SVOCs): Page 4-19, 3rd Paragraph.

"The groundwater from all but one of these wells, MW-11R, had a noticeable petroleum-like odor."

The report should indicate why petroleum type odors were detected in the monitoring wells, yet low levels of SVOCs and VOCs were detected. These wells should be analyzed for TPH, as this would provide useful information for an ecological risk assessment.

The Navy has indicated that although petroleum contamination is present in subsurface soils and groundwater at the site, the samples were not run for TPH as this analysis was not stipulated in the Phase II RI Work Plan and the SVOC and VOC results indicate petroleum contamination is present. The State agrees that the test results gathered to date indicate that petroleum contamination is present at the site.

The State reserves the right to request TPH analysis of site samples in order to determine if remediation is required at the site.

***Response:** The RI report will not be revised further in response to this comment. However, the Navy requests that the RIDEM provided a justification of why TPH analysis is warranted to determine the need for remediation at the site. At a minimum, the justification should include an explanation of the scientific basis for using TPH data along with or in lieu of compound specific VOC and SVOC data for determining human health or ecological risk-based clean-up goals. This explanation should include a detailed discussion of how TPH values are to be used in risk assessments to determine cancer and/or non-cancer human health risks or ecological risks. In addition, the Navy is requesting a clarification of the circumstances when the RIDEM requires TPH analysis and any associated analysis to be conducted on soil and/or ground water samples. Furthermore, the Navy is requesting direction on TPH clean-up or guidance levels established by the RIDEM and the scientific basis for any such levels.*

49. Section 4.3.4, Inorganics: Page 4-25, 2nd Paragraph.

As justification for stating that this water sample was impacted by harbor waters please provide a table which delineates the typical concentrations of the noted constituents in sea water.

The Navy stated that inorganics data for a surface water sample collected in Phase II from Narragansett Bay near one of the other NETC sites (Site 01) will be added to Table 4-15 for comparison. The State requests that this information be provided in the revised report.

***Response:** This information was more appropriately added to Table 4-18 of the draft final RI report. The information in this table will be referenced in the discussion in Section 4.2.4 of the final RI report.*

58. Figures 1-7 and 2-5.

Please locate SS-7.

The Navy stated they would place a footnote on these figure indicating that sample SS-7 is in the same location as sample SS-2. This has not been referenced on Figure 2-5.

***Response:** Figure 1-7 was revised in the draft final report with a footnote indicating that sample SS-7 is the same sample location as sample SS-2. A similar footnote will be added to the final report Figure 2-7 (Surface Soil Sample Location Map) which was the draft report Figure 2-5.*

## HUMAN HEALTH RISK ASSESSMENT

13. Section 4.3, Constituents for Which EPA Has Not Developed Toxicity Criteria: Page 4-8, Paragraph 2.

It is noted that EPA proposes an interim cleanup level for lead of 500 to 1,000 mg/kg. It should also be noted that the State of Rhode Island has a cleanup level for lead of 300 mg/kg. This reference and other such references throughout the document should reflect this.

Please note that the Rhode Island Department of Health has promulgated "Rules and Regulations for Lead Poisoning Prevention" [R 23-24. 6-PB], February 1992 (E) which were amended in March 1994 (E) that require abatement of lead in soils with a concentration of 150 mg/kg or greater. This information should be substituted for the RIDEM 300 mg/kg policy level in the document.

*Response:* As requested, the newly developed referenced information will be updated and appropriately referenced in the final HHRA report.

18. Section 5.3, Estimation of Exposure Doses/Scenario 3 (Future Shellfishing): Page 5-9, Paragraph 2.

"For this scenario, adult residents are assumed exposed to constituents in shellfish (mussels and clams) from near-shore and off-shore locations near Site 01 through ingestion."

This scenario has not considered ingestion of shell fish by children. Ingestion of shell fish is not limited to adults. In addition, children are more sensitive to contaminants in shell fish than adults. Therefore, this scenario must include exposure to children.

The Navy states that a separate exposure scenario for children is not warranted. The State reiterates its concern that children are more sensitive than adults to certain contaminants. Therefore, the increased sensitivity of children must be considered in the exposure assessment.

*Response:* In order to address this comment, the following approach is proposed. That is, the ratios of child to adult fish/shellfish ingestion, as obtained from the references listed below, will be averaged and applied to the clam and oyster ingestion rates used for adults in the HHRA:

*Rupp, E.M. 1980. Age dependent values of dietary intake for assessing human exposures to environmental pollutants. Health Physics, 39:151-163. August.*

*U.S. Environmental Protection Agency (EPA). 1989. Assessing Human Health Risks from Chemically Contaminated Fish and Shellfish: A Guidance Manual. EPA-503/8-89-002. September.*

*U.S. Environmental Protection Agency (EPA). 1990. Exposure Factors Handbook. EPA/600/8-89/043. March.*

*The ratios of child to adult fish/shellfish ingestion estimated from these documents are 26% (Rupp, 1980), 33% (EPA, 1989), and 38% (EPA, 1990), with an average ratio of 32%. Applying this average ratio to the ingestion rates used for adults in the HHRA results in the following estimated child ingestion rates:*

$$\text{Clam}_{\text{RIDEM (n.d.)}}: 1200 \text{ mg/d} \times 0.32 = 396 \text{ mg/d}$$

$$\text{Clam}_{\text{EPA (1990)}}: 442 \text{ mg/d} \times 0.32 = 141 \text{ mg/d}$$

$$\text{Oyster}_{\text{EPA (1990)}}^{\text{A}}: 291 \text{ mg/d} \times 0.32 = 93 \text{ mg/d}$$

<sup>A</sup> *Oyster value used in the absence of a mussel-specific value*

*The potential exposures and risks to children ingesting shellfish will be quantified using these estimated rates. Other assumptions related to the evaluation of child shellfish ingestion are likely to include an exposure duration of six years and a body weight of 15 kilograms. Also note that exposures of children to lead in shellfish will be evaluated using EPA's lead model assuming the shellfish ingestion rates listed above and the uptake factors for dietary exposures as provided by EPA (i.e., the ratio(s) of blood lead concentrations to lead concentrations in the diet). The text and tables will be revised accordingly.*

20. Section 5.3, Estimation of Exposure Doses/Scenario 3 (Future Shellfishing): Page 5-9, Paragraph 2.

"The shellfish ingestion rates (1200 mg/d for mussels and 1200 mg/d for clams) are based on an estimate of seafood serving sizes (150,000 mg/meal) and Rhode Island survey data on the number of hard-shell clam (ie quahogs) meals eaten per year (2.9 meals/yr) provided by RIDEM (Narragansett Bay Project. "

The quoted ingestion rates do not consider subsistent individuals. The report must also consider subsistent individuals and utilize the appropriate ingestion rate (36.5 meals/year).

The Navy states that a separate exposure scenario for subsistent individuals is not warranted. The State requests that the report note that the shell fish consumption rate in the report is for average individuals and that the subsistence individual has a higher consumption rate (36.5 meals/year).

Response: *The following highlighted changes will be made to the text in the last paragraph of p. ES-18:*

*With regard to ingestion rates, the rate used for mussels and clams (1,200 mg/d) is based on an estimate of seafood serving sizes (150,000 mg/meal) and Rhode Island survey information on the average number of hard-shell clam (i.e., quahog) meals per year (2.9 meals/year) (RIDEM, Narragansett Bay Project, n.d.). Note that the maximum hard shell clam consumption rate is reported by RIDEM (n.d.) to be 36.5 meals/year. RIDEM assumes the "maximum consumer" reflects 0.1% or less of the population and represents a worst case scenario (e.g., subsistence fisherman). The average ingestion rate of 1,200 mg/day used in the HHRA is roughly three times higher than the clam ingestion rate (442 mg/day) presented in EPA's (1990a) Exposure Factors Handbook.*

*In addition, the text beginning with the second sentence on p. 5-10 will be revised as follows:*

*"... and Rhode Island Survey data on the average number of hard-shell clam (i.e., quahog) meals eaten per year (i.e., 2.9 meals/year) ... . Note that the number of meals per year for the "maximum" (e.g., subsistence) consumer is reported by RIDEM (n.d.) to be 36.5 meals/year. As an alternative approach to the RIDEM value for recreational fishing, .... ."*

*Finally, the following sentence will be added to the end of p. 7-14 (i.e., to Section 7.3.4 at the end of the discussion for "● Scenario 2 (Current/Future Shellfishing)":*

*Note that the number of hard-shell clam meals per year for the average and "maximum" (e.g., subsistence) consumers are reportedly 2.9 and 36.5 meals/year, respectively (RIDEM, n.d.).*