



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203-0001

August 27, 1996

Mark Evans, Remedial Project Manager
U.S. Department of the Navy
Naval Facilities Engineering Command
Northern Division
10 Industrial Highway
Code 1823, Mail Stop 82
Lester, PA 19113-2090

Re: Review of the Draft Site Management Plan for the Naval Submarine Base - New London,
Groton, Connecticut

Dear Mr. Evans:

Thank you for the opportunity to review the *Draft Site Management Plan for Naval Submarine Base - New London, Groton, Connecticut ("SMP")* dated June 1996. EPA focussed its review on the derivation of risk ranking factors for determining site cleanup schedules, consistency with other site-related documents, and technical defensibility. Overall, the SMP requires substantial revision. The relative risk evaluation is deficient in several key parameters. In particular, the SMP lacks consistency, clear definitions of terms, a statement of assumptions, and adherence to a conceptual framework. A review of Appendix B revealed many inconsistencies and inexplicable data assignments. The Navy needs to provide an additional explanation of the data evaluation process, or review the evaluation sheets and make appropriate revisions. EPA's detailed comments are provided in Attachment A.

It is not clear how the "top ten contaminants" listed for each media evaluated at each site in Appendix B were determined. In many cases, the cumulative ratio listed for these top ten contaminants is near zero, although the total ratio is much greater (*see* Site 2, Soil; Site 8, Groundwater; Site 22, Surface Water Eco Marine; and others). At some sites, the top ten contaminants listed do not include contaminants that appear to be of great interest (*e.g.*, PCE in groundwater at Site 8, vinyl chloride in groundwater at Site 3).

The SMP should identify the standards used for the contaminant hazard factor calculations. In numerous instances, the groundwater standard is not consistent with state or federal MCLs. The selection of the "Standards" listed for each contaminant in Appendix B is not clear. For example, the MCL for TCE is 5 ppb, yet the standard listed for TCE in groundwater at Site 6 is 910 ppb. Other contaminants have no standard (phenanthrene in soil, Site 2), resulting in an inexplicable ratio of zero. EPA recommends that the groundwater standards be verified and the contaminant hazard factors be recalculated as appropriate.

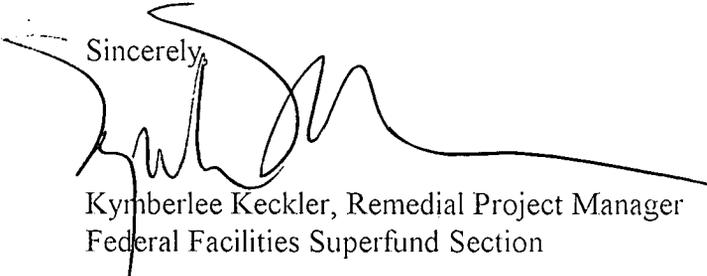


The time frames presented in the schedule seem excessive.

The SMP should be revised so that the most recent data contained in the Phase II Remedial Investigation is considered in the ranking. The SMP should also consider whether removal actions have occurred (*e.g.*, DRMO and Spent Acid).

I look forward to working with you on the revised SMP. Please do not hesitate to contact me at (617) 573-5777 to arrange a meeting.

Sincerely,



Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Mark Lewis, CTDEP, Hartford, CT
Andy Stackpole, NSBNL, Groton, CT
Joan Miles, USEPA, Boston, MA
Patti Lynne Tyler, USEPA, Boston, MA
Dale Weiss, TRC, Lowell, MA
Rayomand Bhumgara, Gannett Fleming, Braintree, MA
Matthew Cochran, Brown & Root, Pittsburgh, PA

ATTACHMENT A

<u>Page</u>	<u>Comment</u>
p. 1-6, §1.2	It would be helpful to explain that there is no SMP site designated "Site 12."
p. 2-4, §2.1.6, Site 5	<p>The statement in this section that no field samples have been collected to characterize the site contradicts the Site 5 worksheet in Appendix B. The Site 5 soil worksheet presents soil sampling data and rates the Contaminant Hazard Factor as moderate. The Migration Pathway Factor and Receptor Factor are both rated as potential, with a soil category rating of medium designated on the worksheet. Moreover, the Site 5 worksheet contradicts Table 4-1 which designates the site as having a low rank. Please ensure consistency between sections of the management plan, tables, and the worksheets for each site.</p> <p>The rationale for not providing a summary of findings table for Site 5 is obscure. It is stated on page 2-4 that the summary table is not provided because no field samples have been collected. Tables are provided, however, for Sites 16, 18, 19, 24 and 25 that also do not have sampling data. EPA recommends that a summary table be provided for each of the sites, including Site 5.</p>
p. 2-12, §2.1.17	Please indicate whether the demolition debris "slated for offsite nonhazardous landfilling and the remaining concrete floor slabs" has been removed from the site.
pp. 2-17 to 2-50	Please revise the recommended remedial alternatives in Table 2-1 to be consistent with the August 7 and 8, 1996 discussions among the Navy, EPA, and CTDEP.
Tables 2-1 thru 2-24	<p>EPA recommends that the following terms, which appear in the tables, be quantitatively defined and used consistently in the tables: "minor concentrations," "relatively low concentrations," "minor contaminant concentrations," "minimal soil contamination," and "elevated concentrations."</p> <p>Please explain the "objective" within the summary of findings tables. Are the objectives those of the prior Remedial Investigation Reports, or were they developed for the SMP? The row entitled "recommended remedial alternative" should cite the title and date of the study where the recommendations were made. These distinctions are important since the</p>

relative ranking concept provides relative risk information for determining the sequence that sites will be addressed and does not address the decision as to whether further action is necessary. Without the “objective” and “recommended remedial alternative” being clarified, the tables could potentially be misunderstood as a summary of findings from part of the relative risk evaluation. These summary of finding tables are not related to the relative risk evaluation.

- p. 2-21, Table 2-4 It would be helpful for the findings to be presented in a fashion specific to Site 3-A, Area A Downstream Water Courses, and Site 3-B Over Bank Disposal Area. These areas are discussed separately in the text and historically have been evaluated separately.
- Tables 2-15, 2-17, 2-18, 2-23, & 2-25 The summary in several instances states “No sample results available” as the objective. The analytical parameters row would be a better location to state this. Please specify an objective on the summary sheets.
- pp. 4-1 & 4-2, §4.0 The description of the relative risk ranking procedure presented in Section 4.0 appears to restate the fact sheet provided in Appendix A. Section 4.0 should provide detailed information specific to the Naval Submarine Base, New London, Groton, Connecticut. Such information should identify the “risk-based concentration standard” used for each media. Currently, the standards are not identified within this section nor are they identified on the worksheets. For example: specify whether MCLs were used as the groundwater standard for every site, specify whether Ambient Water Quality Criteria were used as the surface water standard for every site, specify whether Effects Range Levels (ER-Ls) were used as the sediment standard for every site, and specify whether a regional risk-based screening table was used for the soil standard. A full citation should be provided for each media standard.

This relative ranking does not summarize or identify assumptions. The designation of each rating has inherent assumptions that need to be explicitly defined. Additionally, it does not appear that the assumptions are consistent among sites. For example, when describing an MPF rating of “evident,” one could state the following:

For purposes of this ranking, EPA assumed that:

- contamination in the media is moving away from the source when source-related contaminants are detected in quantifiable levels within samples collected from more than three sampling locations.

- contamination is present at, is moving toward, or has moved to a point of exposure when contamination has been detected in quantifiable levels in an aquifer used as a potable water source, contamination has been detected in quantifiable levels within a body of surface water that could be used for human recreational activities, human potable water intakes, or by ecological resources.

Discuss the designation of media-specific ratings further in Section 4.0. Designation of site ranking also needs to be discussed further in Section 4.0, including examples of different combinations of media-specific ratings.

p. 4-1, §4.1

The description of the relative risk ranking procedure for evaluation of CHF, MPF, and RF for groundwater, surface water, sediment, and surface soils presented in this section is not consistent with the approach used in Appendix B. Worksheets have not been prepared for each media at every site. The relative risk procedure presented in this section should discuss how the site ranking is derived when sampling data for one or two media are not available.

p. 4-3, Table 4-1

Review of this table in light of the Relative Risk Site Evaluation Rankings presented in Appendix B indicate some apparent discrepancies.

Please reevaluate the high relative risk ranking results for the DRMO since interim activities have been completed. The goal of the 1994 interim action was to reduce site risks from soil exposure. Appendix B evaluation assigns a “potential” category to both the soil migration pathway (MPF) and the receptor factor (RF). Since the site has been excavated and capped, the Navy should consider revising the MPF and RF should be “confined” and “limited,” respectively.

The Appendix B evaluation of the groundwater pathway indicates a RF of “identified” although the Navy has repeatedly noted that there are no individuals drinking water from this area. Accordingly, the RF should be reduced to “limited.”

This table indicates that separate risk ranking evaluations were performed for Area A Landfill and Wetland, yet only one set of evaluation forms is included in Appendix B.

This table also indicates that separate risk ranking evaluations were performed for the Area A Downstream Water Courses and the OBDA, yet only one set of evaluation forms is included in Appendix B.

Appendix B indicates rankings of “medium” for Sites 17, 18, 19, and 20, yet Table 4-1 indicates rankings of “low,” “low,” “low,” and “high,” respectively.

The Weapons Center is ranked as “high.” It is therefore unclear why the Navy proposes no further action.

The SMP should not provide a relative ranking for Site 5, Hazardous Waste Storage Facility, at Bunker A-85. Instead, it should be designated as “not evaluated” because future activity will be conducted under the Resource Conservation and Recovery Act.

EPA recommends that all of the sites grouped as “Lower Subbase” (*see page 2-15*) be referred to as such on Table 4-1. Of the nine sites grouped, only four have “Lower Subbase--” in their title.

Appendix B

Relative Risk Evaluation Worksheets - General: EPA recommends that all of the contaminant maximum concentration data used to calculate CHF ratios be presented with the worksheet. Without all of the contaminant data it is difficult to justify the total ratio. For example, Sites 8 and 9 both have groundwater data for which all but one (0.100) of the CHF ratios are below 0.1, yet their total ratios are 33.136 and 47.797, respectively.

The determination of MPF for surface water is not consistent. For example, both Sites 6 and 8 provide “Site is adjacent to Thames River” as the rationale for MPF selection. However, Site 6 is given an MPF of confined (low) and Site 8 is given an MPF of evident (high).

There are numerous typographical errors on the worksheets. For example, the worksheet for Site 2 has two typographical errors in the brief description of pathways “out” instead of “our” and “organizes” instead of “organics.” The worksheet for Site 3 contains among other typographical errors, “volatile orgies” instead of “volatile organics” and “faced” instead of “fenced.”

It is unclear why the groundwater, sediment and surface water pathways were not evaluated for Site 2.

It is unclear why the MPF for soil at Site 2 is “potential” while the RF is “identified.” If there is an identified receptor, there should be a confirmed MPF.

The data for Site 4 are missing from the report.

The highest benzene concentration noted in groundwater for Site 8 in the RI is 11 ppb (page 13-123), yet the evaluation spreadsheet list a value of only 2 ppb.

The rationale for contaminant selection in groundwater for Site 20 lists PAHs, yet only cyanide is listed in the "top ten" list.

Appendix B

Worksheet Site 3: The calculation of groundwater CHF has numerous errors. These include:

Inappropriate use of significant figures when rounding the ratio number. For example, 0.017, 0.019, and 0.022 are rounded to "0.020."

Erroneous addition. The top 10 contaminants displayed are to be those with highest detected concentrations. When adding the ratios presented, a total ratio of "0.22" is the correct addition. A ratio of "250.422" is presented on the worksheet, and therefore a significant rating is assigned. If there are higher concentrations detected in samples, the ten highest should be presented on the worksheet to justify the ratio.

The information in the site summary section of the worksheet is not consistent with the CHF. The summary says low levels while the CHF is rated significant. The summary must be consistent with the CHF data, including the Phase II RI data.

Page 9-15 of the Phase II RI provides monitoring well data with elevated contaminant levels, but contaminants detected at elevated levels are not listed on the worksheet. For example, vinyl chloride was detected at 130 µg/L, but is not listed on the groundwater worksheet.

It is unclear why the sediment pathway was not evaluated for Site 3, since pesticides in sediment are the primary concern at this site.

It is unclear how the Navy determined that the MPF for groundwater at Site 3 is a "potential" while the RF is "identified." If there is an identified receptor, it would seem that there should be a confirmed MPF.

Appendix B

Worksheet Site 6: The relative ranking does not appear to consider that remediation that has occurred in the northern portion of the site as described in Section 2. The soil receptor factor would be limited since the site has been paved and the contaminated soils in the northern portion were excavated or capped. Given the remediation, it seems that an MPF of

confined would be more appropriate than potential. Each media rating should be reevaluated to consider current conditions.

Appendix B

Worksheet Site 11: The site description does not provide adequate summary information. Also, the number of prior and existing tanks is not consistent with the Phase II RI site summary provided in Volume II, Section 14.1.2. EPA recommends that the Phase II RI summary replace the current worksheet summary with the information regarding the tanks' concrete structure merged into the Phase II RI summary.

The groundwater CHF table does not display the "top 10" contaminants. The list is confusing and can be easily misinterpreted as the top 10 Chemicals of Concern ("COCs"). According to the Phase II RI, the following are groundwater COCs: Benzene, aluminum, antimony, arsenic, beryllium, boron, cadmium, iron, lead, manganese, selenium, vanadium, and petroleum hydrocarbons. Of these thirteen, only one chemical (aluminum) is included on the worksheet table. Include the ten COCs that exceed MCLs the greatest on the table.

Appendix B

Worksheet Site 6 - Soil: The contaminant hazard factor for soil should be revised to reflect data presented in Table 11-7 in the Phase II RI. Surface soil data for several chemicals differ between the worksheet and the Phase II RI data. For example, phenanthrene was detected up to 96.9 mg/kg in the RI (which excludes the excavated soils), but is listed on the worksheet as 0.84 mg/kg. Methylene chloride was detected up to 0.42 mg/kg in the RI, but is listed on the worksheet as 0.002 mg/kg. The worksheet should be revised to reflect surface soil RI data.

Appendix B

Worksheet Site 7: The rationale for selection of the receptor factor, as presented on the worksheet, fits the "identified" definition better than the "potential" since torpedo shop personnel have been identified as receptors at the site.

Appendix B

Worksheet Site 11 - Soil: Total Petroleum Hydrocarbons (TPH) were detected in soil up to 51,600 mg/kg. According to the Phase II RI, petroleum hydrocarbons are considered to be the primary soil contaminants. The CHF calculated on the worksheet did not include petroleum hydrocarbon data. If using the Connecticut Department of Environmental Protection residential direct exposure standard of 500 mg/kg, the TPH ratio would be 103.2, thereby making the CHF rating significant. If the industrial exposure standard of 2,500 mg/kg is used, the TPH ratio would be 20.64. The CHF rating, based on lead and TPH,

would be moderate using the industrial exposure standard. The minimal rating currently on the worksheet needs to be revised.

The exposure assessment within the human health risk assessment portion of the Phase II RI report identifies full time adult employees or military personnel as having the potential to directly contact surface soil. This seems to contradict the RF rating of “potential” on the worksheet since the workers have access to the contaminated soil. This can be considered to be an “identified rating.” EPA recommends that either an “identified” rating be given or the rationale for selecting “potential” be strengthened.

Appendix B

Worksheet Site 14: The header for the site background information sheet is erroneously printed twice, with the second sheet being blank except for the header.

As discussed, a rating should be performed for each media. This is especially the case for Site 14 to justify the statement on the site background information that “preliminary results of the groundwater in the area of the site indicated no problem with the groundwater pathway.” The statement also appears to contradict the filtered groundwater sample data for Site 14 in the Phase II RI. Arsenic was detected in the groundwater above risk-based screening levels. Complete a worksheet for groundwater using the Phase II RI data and revise the site background discussion.

Appendix B

Worksheet Site 15: Explain the rationale for a rating of confined (low) to be given for both the groundwater and the soil categories. The soil worksheet only states that “elevated levels of lead have been observed.” The groundwater worksheet provides no rationale for the “confined” selection. Lead was detected at elevated levels in groundwater and, therefore, it seems more appropriate to have a medium or high rating. EPA recommends that the rationale be explained and consistently applied.

Appendix B

Worksheet Site 15 - Groundwater: The groundwater standard of 18.3 used on the worksheet is erroneous. The CTDEP MCL for cadmium presented in the Phase II RI Report is 5 µg/L and the federal MCL is also 5 µg/L. The cadmium ratio should be recalculated with the correct standard. The standards presented for lead and manganese also do not correspond to CTDEP or federal MCLs. They too should be revised and the CHF recalculated.

Heptachlor, bis(2-ethylhexyl)phthalate, and antimony were detected in the groundwater at concentrations exceeding CTDEP MCLs. These contaminants should be included in the CHF groundwater rating.