DEPARTMENT OF THE NAVY
NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
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MAIL STOP, #82
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IN REPLY REFER TO

5090
Code 1823\ME

11 MAR 1999

Mr. Mark Lewis
Connecticut Department of Environmental Protection
Bureau of Water Management
Permitting, Enforcement & Remediation Division
79 Elm Street
Hartford, CT 06106-5127

Subj: RESPONSES TO CTDEP COMMENTS OF FEBRUARY 19, 1999 REGARDING THE DRAFT EXISTING DATA SUMMARY REPORT FOR THE BASEWIDE GROUNDWATER OPERABLE UNIT REMEDIAL INVESTIGATION DATED DECEMBER 1998 FOR THE NAVAL SUBMARINE BASE NEW LONDON, GROTON, CT

Dear Mr. Lewis:

Thank you for reviewing the Draft Existing Data Summary Report for the Basewide Groundwater Operable Unit dated December 1998 for the Naval Submarine Base New London.

The Navy's responses to your comments are attached. If you have any other questions or comments please do not hesitate to contact me at (610) 595-0567 ext. 162.

Sincerely,

Mark Evans
By direction of the
Commanding Officer

Copy to:
Ms. Kymberlee Keckler, USEPA Region I
Mr. Dick Conant, NSB-NLON
Mr. Corey Rich, Tetra Tech NUS - Pittsburgh

RESPONSES TO CTDEP's FEBRUARY 19, 1999 LETTER OF COMMENTS REGARDING THE DECEMBER 1998 EXISTING DATA SUMMARY REPORT FOR THE BASEWIDE GROUNDWATER OPERABLE UNIT REMEDIAL INVESTIGATION NAVAL SUBMARINE BASE – NEW LONDON, GROTON, CONNECTICUT

March 10, 1999

GENERAL COMMENTS (Cover Letter)

General Comment No. 1, Page 1, 2nd ¶

The Lower Base and the DRMO are not included in this report. The DRMO is subject to a separate ground water monitoring plan. The Lower Base Remedial Investigation included some ground water sampling. When the Basewide Groundwater Operable Unit Remedial Investigation is performed, these two sites must be included. Significant sources of ground water contamination exist on the Lower Base. In addition, since the Lower Base forms the down gradient boundary for most of the base, the majority of ground water on the base must flow through the Lower base before discharging to the Thames. An understanding of ground water flow and contaminant fate and transport within the Lower Base is critical to an overall understanding of ground water on the entire base.

Response to General Comment No. 1

The groundwater operable unit at the Lower Subase was investigated during three previous investigations (i.e., the Phase I RI, Phase II RI, and the Lower Subase RI). A feasibility study is currently being prepared for all of the sites included in the Lower Subase RI and the groundwater operable unit is being evaluated in the feasibility study. Based on the recommendations of the Lower Subase RI report, it is likely that one component of the remedial strategy for each of the Lower Subase sites will be groundwater monitoring. Therefore, the Navy believes that the groundwater at the Lower Subase is sufficiently characterized to move forward in the CERCLA process and does not agree that the Lower Subase should be included in the Basewide Groundwater OU RI.

An interim ROD was signed for the DRMO in March of 1998. The selected interim remedy for the soil and groundwater at the DRMO was institutional controls and monitoring. The CTDEP concurred with the selected remedy for the DRMO. The Navy has implemented a Groundwater Monitoring Program at the DRMO. Groundwater samples are collected at the site on a quarterly basis and the analytical results of the monitoring program are provided to the CTDEP in quarterly summary reports. A summary report for the first year of the program that evaluates the analytical results will be prepared and submitted to the CTDEP for review and comment in the spring/summer of 1999. Therefore, the Navy also believes that the groundwater at this site is being sufficiently characterized under the current Groundwater Monitoring Program and does not agree that the DRMO should be included in the Basewide Groundwater OU RI.

General Comment No. 2, Page 2, 1st ¶

The report compares soil and ground water analytical data to a wide variety of criteria, including the pollutant mobility criteria for soil, and the ground water and surface water protection criteria for ground water. However, the analytical data are not compared to the State's volatilization criteria. Section 22a-133k-3(c) of the Remediation Standard Regulations provides that the volatilization criteria apply to "all groundwater polluted with a volatile organic substance within 15 feet of the ground surface or a building". The Regulations provide an exemption from the volatilization criteria if no building exists over the ground water polluted with volatile organic compounds, provided certain conditions are met. It is likely that this exemption would apply at certain sites on the base. However, for the purposes of selecting contaminants of concern, analytical data for ground water at each site should be compared to the volatilization criteria.

Response to General Comment No. 2

The Navy agrees that volatilization criteria are applicable to the groundwater at many of the sites that will be investigated during the upcoming Basewide Groundwater OU RI. However, the volatilization criteria are less conservative than the COPC Screening Levels (i.e., Region III RBCs) that are included in the screening level assessment of the aqueous media in the Existing Data Summary Report. Therefore, the volatilization criteria were not included in the screening level assessment because they would not change the results of the assessment.

Text, discussing the applicability of the volatilization criteria and the reasons for not including them, will be added to Section 1.0 of the Existing Data Summary Report. The Navy will address volatilization criteria in the Basewide Groundwater OU RI report.

General Comment No. 3, Page 2, 2nd ¶

Additional remediation may be required under Section 22a-133k(2)i if multiple polluting substances are present. The goal of addtional remediation is to reduce the cumulative risk posed by multiple polluting substances to $1E^{-5}$ for carcinogens, and to a cumulative hazard index of 1 for non-carcinogenic substances.

Response to General Comment No. 3

Comment noted. This information will be considered during preparation of the Basewide Groundwater OU RI and subsequent feasibility study.

SPECIFIC COMMENTS

Specific Comment No. 1, Page 1-2, Section 1.2.1 Base Description

Both the Lower Base and the Defense Reutilization and Marketing Office are excluded from discussion in this document. The Lower Base is currently the site of a separate Remedial Investigation, while the DRMO is subject to the requirements of a ground water monitoring plan.

The Lower Base in particular is an important source of ground water contamination which must be considered when the Basewide Groundwater Remedial Investigation is performed.

Response to Specific Comment No. 1

Please refer to the response provided for General Comment No. 1.

Specific Comment No. 2, Page 1-7, Section 1.3.2 Water Classifications and Water Quality

The fifth sentence should be rewritten to clarify that remediation standards for GB areas are generally less stringent than for GA areas.

Response to Specific Comment No. 2

The fifth sentence in the first paragraph of Section 1.3.2 will be rewritten as follows:

> "Remediation standards for GB classified areas are generally less stringent than for GA classified areas."

Specific Comment No. 3, Page 1-10, Section 1.3.4.2 Bedrock Structure and Surface

The first sentence of the first full paragraph should be modified to say that ".... the *elevation of the* bedrock surface continues to decrease along slopes similar to the hills...."

Response to Specific Comment No. 3

The first sentence of the first full paragraph of Section 1.3.4.2 will be modified as follows:

> "In the two nearly east-west trending valleys between the bedrock highs, the elevation of the bedrock surface continues to decrease along slopes similar to the hills, and the topographic surface flattens."

Specific Comment No. 4, Page 1-16, Section 1.4.1 Analytical Database, ¶2

The text states that analytical data is not included for sites from which all contaminated soil has been removed. Please list the sites where data has been so excluded. What standards were used for determining that all contaminated soil has been removed from these sites? Even if a source has been removed, there may still be a ground water plume that must be monitored.

Response to Specific Comment No. 4

The last sentence of the second paragraph of Section 1.4.1 will be revised as follows:

> "For example, analytical data for soil samples that were collected from sites that have been remediated or will be remediated in the near future to acceptable levels (i.e., below USEPA

and CTDEP accepted PRGs) are not included in this report since the remediated soils no longer pose a threat to the groundwater. Using this approach, soil and sediment analytical data from the Area A Downstream and Rubble Fill at Bunker A-86 sites and soil analytical data from the Spent Acid Storage and Disposal site were excluded from the EDSR. Existing groundwater data for these three sites are included in the EDSR and provide an indication of whether additional remedial actions are required for the groundwater."

Specific Comment No. 5, Page 1-18, Section 1.4.2 Screening Level Assessment

In the first full paragraph, the report states the State "has not developed RSRs for all chemicals positively detected at NSB-NLON". The acronym "RSRs" more properly refers to the State's Remediation Standard Regulations in their entirety. The sentence should be rewritten to say that the State "has not developed cleanup criteria under the RSRs for all chemicals positively detected...". The term "RSRs" is used in this way to refer to the cleanup criteria in numerous places throughout the report. Please correct this here and throughout the report.

It is the Navy's responsibility to develop and propose criteria for substances in the release, where no criteria are specified for those substances in the regulations.

Response to Specific Comment No. 5

Agreed. The referenced sentence will be revised as follows:

> "The state of Connecticut has not developed cleanup criteria under the RSRs for all of the chemicals that were positively detected at the NSB-NLON sites included in this EDSR."

References to RSRs will be revised as requested throughout the EDSR.

The Navy has developed and proposed criteria for chemicals positively detected at the NSB-NLON sites included in this EDSR for which the state has not developed cleanup criteria. These criteria are provided in Tables 1-2 and 1-3. The criteria are also summarized in Appendix B of the EDSR along with a cover letter requesting that the state review and approve the alternative criteria.

Specific Comment No. 6, Page 1-21, Section 1.4.2.3 Groundwater- Connecticut RSR's for the Protection of Groundwater

The heading of this section should refer to the "Groundwater Protection Criteria" rather than the "RSRs for the Protection of Groundwater".

Analytical data should also be compared to the volatilization criteria listed in the Remediation Standard Regulations.

The heading of the following section should be changed to "Surface Water Protection Criteria", rather than "RSRs for the Protection of Surface Water". The various remediation criteria discussed here and elsewhere throughout the report should be referred to as "criteria" rather than RSRs.

Response to Specific Comment No. 6

The heading of the subsection will be changed as requested.

Please refer to the response provided for General Comment No. 2.

The heading of the subsection will be changed as requested. References to RSRs will be modified throughout the EDSR as requested.

Specific Comment No. 7, Page 1-22, Section 1.4.3 Preparation of Tag Maps

This section describes the procedures used in selecting the contaminants of potential concern (COPCs) depicted on tag maps for soil and ground water. In order to be included in the maps, a COPC had to be detected at 25% of all sites, and it also had to be detected in 30% of all samples in a region in which it was selected as a COPC. This procedure is useful for limiting the number of contaminants which must be depicted in the tag maps. However, this technique cannot be used for selecting which contaminants will be addressed. The Navy must address all contaminants which are detected at concentrations greater than the analytical detection limit, regardless of how frequently those contaminants are detected. Once the Navy has determined which substances are present as part of the release, the navy must identify which criteria must be achieved by remedial actions.

Response to Specific Comment No. 7

The procedure used for developing the tag maps included in the EDSR was useful for limiting the number of contaminants depicted on the tag maps and for determining if there were any COPCs that were pervasive at NSB-NLON. The method showed that in general there were no pervasive COPCs at NSB-NLON.

The Navy will address all contaminants of concern identified during the EDSR in the upcoming Basewide Groundwater OU RI. The appropriate ARARs will be included and evaluated in the RI and subsequent feasibility study.

Specific Comment No. 8, Pages 1-54 to 1-57, Table 1-2 Risk- Based and Health- Based COPC Screening Levels- Solid Media

This table lists pollutant mobility criteria for a wide variety of substances. Some of the listed pollutant mobility criteria have been proposed by the Navy and submitted to the Department for approval under the Additional Polluting Substances provision of the remediation Standard Regulations (RCSA §22a-133k-2(c)(5)). The Department is currently evaluating the Navy's request, but has not yet approved the request. For this reason, some of the criteria listed in this table may be subject to revision. The proposed criteria should be identified as such on the table, or a separate table should be provided listing only the proposed criteria.

Response to Specific Comment No. 8

A footnote is provided in Table 1-2 that indicates the criteria that were calculated by the Navy. A table similar to Table 1-2 (i.e., Table B-1) is also provided in Appendix B of the EDSR and promulgated and proposed criteria are also noted on this table by footnotes.

The Navy will finalize the EDSR once final approval of the proposed criteria is received from the CTDEP.

Specific Comment No. 9, Pages 1-59 to 1-63, Table 1-4 Risk- Based and Health- Based COPC Screening Levels-Aqueous Media

This table lists ground water protection criteria and surface water protection criteria for a wide variety of substances. Some of the listed pollutant mobility criteria have been proposed by the Navy and submitted to the Department for approval under the Additional Polluting Substances provision of the remediation Standard Regulations (RCSA §22a-133k-2(c)(5)). The Department is currently evaluating the Navy's request, but has not yet approved the request. For this reason, some of the criteria listed in this table may be subject to revision.

This table should also list the volatilization criteria.

Response to Specific Comment No. 9

A footnote is provided in Table 1-4 that indicates the criteria that were calculated by the Navy. A table similar to Table 1-4 (i.e., Table B-2) is also provided in Appendix B of the EDSR and promulgated and proposed criteria are also noted on this table by footnotes.

The Navy will finalize the EDSR once final approval of the proposed criteria is received from the CTDEP.

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 10, Page 2-10, Section 2.1.5.3 Screening Level Assessment (CBU Drum Storage Area)

The third paragraph states that the procedure for preparation of the soil tag maps is described in section 1.4.4.1. This procedure is actually described in Section 1.4.3.1. This comment applies to the discussion regarding each of the sites in this report.

Response to Specific Comment No. 10

The section reference will be revised to Section 1.4.3.1 in all of the appropriate places in the EDSR.

Specific Comment No. 11, Page 2-12, Section 2.1.5.3 Screening Level Assessment (CBU Drum Storage Area)

Site specific groundwater data should also be compared to the volatilization criteria.

Response to Specific Comment No. 11

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 12, Page 2-34, Section 2.2.5.3 Screening Level Assessment (Area A Landfill)

Site specific groundwater data should also be compared to the volatilization criteria.

Response to Specific Comment No. 12

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 13, Page 2-53, Section 2.3.5.3 Screening Level Assessment (Area A Wetlands)

Site specific groundwater data should also be compared to the volatilization criteria.

Response to Specific Comment No. 13

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 14, Page 2-70, Section 2.4.5.3 Screening Level Assessment (Area A Downstream Watercourses and OBDA)

Site specific groundwater data should also be compared to the volatilization criteria.

Response to Specific Comment No.14

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 15, Page 2-82, Section 2.5.5.3 Screening Level Assessment (Rubble Fill Area at Bunker A-86)

Site specific groundwater data should also be compared to the volatilization criteria.

Response to Specific Comment No. 15

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 16, Page 2-100, Section 2.7.5.3 Screening Level Assessment (Torpedo Shops)

The text states that the pollutant mobility criteria were not applicable for Aroclor-1242 and several metals in soil. This statement is incorrect and should be revised. The pollutant mobility criteria apply to polluted soil, (soil containing substances which are part of a release). If pollutant mobility criteria are not listed for those substances in Appendix B to the Remediation Standard Regulations, then the Navy must propose criteria for those substances under the Additional Polluting Substances provision of the Regulations (RCSA §22a-133k-2(c)(5).

Response to Specific Comment No. 16

After further review of the State of Connecticut's Remediation Standard Regulations and another resource, the Navy agrees that alternative pollutant mobility criteria should be proposed for inorganics and PCBs. The following relevant information was taken from the regulations and another resource:

- A substance other than total petroleum hydrocarbons in soil above the seasonal high water table in a GB area may be remediated to at least that concentration at which the results of a TCLP or SPLP analysis of such soil for such substance does not exceed the groundwater protection criteria for any such substance (a) multiplied by 10, (b) multiplied by a site-specific dilution factor, or (c) multiplied by an alternative dilution factor approved by the Commissioner.

- Information received during a review course presented by the Connecticut Department of Environmental Protection and the Environmental Professionals' Organization of Connecticut on January 24, 1997 indicates that concentrations of inorganics and PCBs detected in soil can be compared to groundwater protection criteria after the mass concentration is divided by 20.

The Navy will include alternative Connecticut pollutant mobility criteria for inorganics and PCBs in the soil screening tables for each site in the EDSR. The criteria will be calculated by multiplying the GA groundwater protection criteria by 20. A footnote will be added to each table that indicates the method used to calculate the alternative criteria. In addition, if TCLP or SPLP results for soil are available for a site and contaminant of concern, the results of the soil COPC screening with the alternative pollutant mobility criteria will be qualified appropriately. A footnote will be added to the table that indicates that the screening results have been qualified. The qualification will indicate whether TCLP/SPLP results verified or disproved the results of the screening.

The text provided in each section of the EDSR that discusses the soil screening level assessment results will be revised as necessary to address the new results.

Specific Comment No. 17, Page 2-103, Section 2.7.5.3 Screening Level Assessment (Torpedo Shops)

Site specific groundwater data should also be compared to the volatilization criteria.

Response to Specific Comment No. 17

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 18, Page 2-113, Section 2.8.5.3 Screening Level Assessment (OBDANE)

Site specific groundwater data should also be compared to the volatilization criteria.

Response to Specific Comment No. 18

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 19, Page 2-125, Section 2.9.5.3 Screening Level Assessment (Area A Weapons Center)

Site specific data should also be compared to the volatilization criteria.

Response to Specific Comment No. 19

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 20, Page 4-17, Section 4.1.5.3 Screening Level Assessment (Goss Cove Landfill)

Site specific groundwater data should also be compared to the volatilization criteria.

Response to Specific Comment No. 20

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 21, Page 4-34, Section 4.3.5.3 Screening Level Assessment (Spent Acid Storage and Disposal Area)

Site specific groundwater data should also be compared to the volatilization criteria.

Response to Specific Comment No. 21

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 22, Page 4-56, Section 4.5.5.3 Screening Level Assessment (Tank Farm)

Site specific groundwater data should also be compared to the volatilization criteria.

Response to Specific Comment No. 22

Please refer to the response provided for General Comment No. 2.

Specific Comment No. 23, Page 5-3 Section 5.2 Northern Region of NSB-NLON

The report recommends that cap maintenance be completed and access restrictions be imposed at the Area A Landfill. The State strongly supports this recommendation.

Response to Specific Comment No. 23

Comment noted.

Specific Comment No. 24, Page R-3, References

The reference to Connecticut Geological and Natural History Survey, 1974 should be listed in its entirety.

Response to Specific Comment No. 24

Agreed. The reference will be amended as follows:

> "Connecticut Geological and Natural History Survey, 1974. Map of Drainage Basins within Connecticut."

Specific Comment No. 25, Page R-6, References

The reference for US Environmental Protection Agency, 1998 should specify the month, since the Region III RBC tables are issued semi- annually.

Response to Specific Comment No. 25

The April 1, 1998 Region III RBC tables were used in the report. The reference will be updated.