



DEPARTMENT OF THE NAVY

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

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NSB NEW LONDON  
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IN REPLY REFER TO

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Code 1823/ME

AUG 04 1997

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 CONNECTICUT DEPARTMENT OF ENVIRONMENTAL  
PROTECTION COMMENTS ON THE DRAFT FEASIBILITY STUDY FOR THE  
DEFENSE REUTILIZATION AND MARKETING OFFICE (DRMO) SITE AT  
THE NAVAL SUBMARINE BASE NEW LONDON, GROTON, CT

Dear Mr. Lewis:

Please find enclosed the Navy's responses to your comments of May 28, 1997 on the Draft Feasibility Study (FS) for the DRMO Site at the Naval Submarine Base New London. I hope that any concerns you may have had on this FS are satisfied by these responses.

Please call me at (610) 595-0567 ext. 162 if you have any questions or wish to discuss further.

Sincerely,

MARK EVANS  
Remedial Project Manager  
By direction of the  
Commanding Officer

Copy to:  
Ms. Kymberlee Keckler, USEPA Region I  
Mr. Andrew Stackpole, SUBASE NLON  
Mr. Steve Ruffing, B&R Pittsburgh

**RESPONSES TO  
CTDEP's MAY 28, 1997 LETTER OF COMMENTS  
REGARDING THE  
FEBRUARY 1997 DRAFT FS REPORT  
FOR THE DRMO  
NAVAL SUBMARINE BASE NEW LONDON  
GROTON, CONNECTICUT**

CTO No. 267

August 1, 1997

**GENERAL COMMENTS**

**1. Pollutant Mobility Criteria**

Comment: The report identifies a number of pollutants which are present in the soil at concentrations in excess of the Pollutant Mobility Criteria. However, the report states that since these substances are not present at unacceptable concentrations in ground water, and the ground water is not used for drinking, these exceedances are not of concern. Instead, soil concentrations which would be protective of surface water are derived. This is unacceptable because soil concentrations which are protective of surface water would not be necessarily also protective of ground water.

The GB Pollutant Mobility Criteria apply to soil at this site regardless of the fact that the ground water is not used for drinking, and that soil contaminants present in soil at levels exceeding the Pollutant Mobility Criteria have not been found at unacceptable concentrations in site ground water. The State considers soil contamination at concentrations in excess of the Pollutant Mobility Criteria to be a potential source of pollution of the waters of the State, regardless of whether the contaminants are presently detected in ground water.

Response: Since this site is below the seasonal high water table and based upon discussions between the Navy and the USEPA and CTDEP, the Navy now understands that the GB Pollutant Mobility Criteria would not be applicable at this site.

**2. The State's Preferred Alternative**

Comment: The State would prefer that a permanent remedy, such as excavation of contaminated soil above the water table, be implemented at the site. The Commissioner is directed in CGS 22a-133k to give preference to permanent remedies in establishing standards for cleanup of hazardous waste site. The Remediation Standard Regulations do so by requiring approval for use of engineering controls. When the Time Critical Removal Action was proposed in 1994, the State did not agree that installing an engineered control (RCRA Cap) at this site was an appropriate time critical removal action. Even though the Navy went ahead and installed the RCRA cap, the use of an engineered control can only be approved for this site if the Navy can demonstrate in accordance with RCRA 22a-133k-2(f)(2)(A)(iv) that (aa) the cost of remediating the polluted soil at such release area is significantly greater than the cost of installing and maintaining an engineered control for such soil and conducting ground water monitoring, and (bb) that the significantly greater cost outweighs the risk to the environment and human health if the engineered control fails to prevent the mobilization of a substance in the soil or human exposure to such substance. Implementation of either Alternative 3-Hot Spot Excavation, Offsite Disposal, Institutional Controls, and Monitoring, or Alternative 4-Excavation, On-Site Treatment, and Offsite Disposal of Contaminated Soil is preferred by the State. Compliance with the Remediation Standard Regulations, including the Direct Exposure and Pollutant Mobility Criteria is necessary regardless of which alternative is eventually

selected. Section 22a-133k-2(f)(2)(B) describes the information required to accompany the request for use of an engineered control.

Response: The State's preference for a permanent remedy has been duly noted. However, the Navy believes that the continued use of an engineered control, such as the existing cap, should be approved because:

- (a) The total estimated cost (net present worth) of such an engineered control is significantly lower than that of either partial or complete removal of contaminated soil (\$510,000 compared to \$2.8 to 11 millions),
- (b) The existing cap when properly maintained will prevent unacceptable human health risk under a continued industrial land use scenario, and
- (c) Site characterization has shown that soil contamination at the DRMO did not impact either the groundwater underneath the site or the Thames River water in an unacceptable manner and long-term monitoring will insure that this will continue to be the case.

See response to Comment No. 1 regarding compliance to the GB Pollutant Mobility Criteria.

### **3. ARARs**

Comment: The State agrees that the ARARs cited in the Feasibility Study, except as noted in Specific Comments 6, 7, and 13 are correctly identified. However, some additional laws and regulations are also Applicable or Relevant and Appropriate. A complete list of State ARARs is attached.

Response: As agreed with U.S. EPA, the discussion regarding compliance with ARARs and TBCs will be significantly expanded and tables will be provided in Section 5 which will clearly describe how each alternative complies with each ARAR or TBC. The first draft of these tables which was submitted on April 28, 1997 will be amended on the basis of the list of ARARs attached to CTDEP's letter of May 28, 1997.

## **SPECIFIC COMMENTS**

### **4. Page 1-10, Section 1.2.8.1: Groundwater Quality**

Comment: A map depicting the location of the public water supply wells referenced in the text would be useful.

Response: Such a map will be provided.

### **5. Page 1-10, Section 1.2.8.2: CTDEP Groundwater Classifications**

Comment: Please revise the text to note that the Navy's application to reclassify the ground water to GB has been approved. This comment also applies to Section 2.1.3 on page 2-4, to the last paragraph on page 2-11, and to the third paragraph of Section 2.1.4.2 on page 2-16.

Response: The text of the FS will be amended throughout to reflect that, effective March 5, 1997 the groundwater beneath the DRMO (and most of NSB-NLON as well) has been reclassified as GB.

### **6. Pages 2-5 to 2-7, Table 2-1: Assessment of Chemical Specific ARARs**

Comment: It would be more convenient for the reader if all Chemical Specific, Location Specific, and Action Specific ARARs were presented in one place, rather than being scattered throughout this section.

Please correct the citation for the State's Pesticide Control Regulations on page 2-7. The proper citation for these regulations is RCSA 22a-50-1 to 8, 22a-66-1 to 4, and 22a-66a-1 to 2. These regulations were incorrectly cited by me in some ARARs tables which I have sent to the Navy in the past. The Navy may wish to make these changes in any master tables of ARARs which may have been used to generate the ARARs tables in this report. I agree, however, that these regulations are not an ARAR.

The full citation for the State's Water Pollution Control Regulation is RCSA 22a-174-1 through 29. Please make this correction on page 2-7. Section 22a-174-3 and 22a-174-29 in particular provide specific numerical limits on a wide variety of pollutants, although numerical limits are also contained in other subsections of section 22a-174.

The discussion regarding the State's Water Pollution Control Standards requires revision. Water Pollution Control Statutes which should be cited include CGS 22a-430, which prohibits discharging to the waters of the State without a permit and CGS 22a-430b, which allows the Commissioner to issue general permits for many types of discharges. Both of these would be more properly cited as Action Specific ARARs. The Remediation Standard Regulations were adopted pursuant to the requirements of CGS 22a-133k. They provide more specific guidance regarding the general policies and goals of the State's Water Quality Standards. The Water Quality Standards were adopted pursuant to CGS 22a-426.

Response: The reason for which the chemical specific and location specific ARARs are presented at the beginning of Section 2.0 while the action specific ARARs are presented separately towards the end of that section is in accordance with the established format of an FS report where the chemical specific and location specific ARARs are first cited and used for the formulation of RAOs and PRGs (Section 2.1 and 2.2) following which action specific ARARs are identified as part of the development of general response actions (Section 2.3).

All of the ARARs citation corrections mentioned in this comment will be implemented.

As suggested, the Water Pollution Control Standards will be deleted as chemical specific ARARs (Table 2-1, page 2-7) and CGS 22a-430 and CGS 22a-430b will both be cited as action-specific ARARs (Table 2-8).

#### **7. Pages 2-8 to 2-9, Table 2-2: Assessment of Location-Specific ARARs and TBCs**

Comment: Please correct the citation for Connecticut's Coastal Management Act. The proper citation is CGS 22a-90 to 112. It should be noted that the entire portion of the base within the Town of Ledyard is within the area designated by the Town as within the Coastal Zone.

Response: The citation for the Connecticut Coastal Management Act will be corrected to CGS 22a-90 to 112 and it will be noted that the entire portion of NSB NLON located in the Town of Ledyard is within the area designated by that town as a Coastal Zone.

#### **8. Page 2-12, Section 2.1.4.1: Soil Contaminants of Concern**

Comment: The report lists substances which were detected in soil at concentrations in excess of the GB Pollutant Mobility Criteria. However, this concern is dismissed in the second paragraph since ground water at the DRMO is not used and these contaminants are not present at unacceptable concentrations in ground water. Instead soil concentrations which would be protective of surface water are derived. While it may be useful to calculate soil concentrations which would be protective of surface water, such values are not enforceable under the Remediation Standard Regulations. Compliance with the provisions of the Regulations regarding the Pollutant Mobility Criteria is required regardless of whether surface water is threatened.

It is not appropriate to dismiss contaminants which exceed GB Pollutant Mobility Criteria based on these

factors. Soils which contain contaminants in excess of the Pollutant Mobility Criteria constitute a potential source of pollution to the waters of the State. This is true regardless of whether the ground water is used for drinking or whether the contaminants have been detected in ground water. The Regulations provide a number of ways to calculate alternative Pollutant Mobility Criteria, or to apply alternative dilution or dilution and attenuation factors. In addition, the Regulations provide for the use of engineered controls, such as engineered caps, under certain circumstances. All of these alternatives are based on protecting ground water. A pollutant mobility criterion based on protection of surface water would not necessarily be protective of ground water resources.

Response: See response to Comment No. 1.

**9. Page 2-13, Section 2.1.4.1: Soil Contaminants of Concern**

Comment: The second paragraph states that the regulations allow for a maximum dilution factor of 100 when calculating an alternative Surface Water Protection Criteria. The regulations do not actually specify a maximum dilution factor. Given a receiving water body with a sufficiently large flow under 7Q10 conditions, dilution factors in excess of 100 might be allowable. The report also states that the actual dilution factor, "based on minimum freshwater flows from the Shetucket and Yantic Rivers", is 266. Is this calculation based on 7Q10 conditions, as specified in Section 22a-k-3(b)(3)(A) of the Regulations? The State does not object to the use of a dilution factor which is less than the actual factor, provided that the calculations are performed in accordance with the Regulations.

This comment also applies to the last paragraph on page 2-16.

Response: The fact that the State does not actually specify a maximum dilution factor of 100 has been duly noted. The actual dilution factor of 266 was calculated based upon average, minimum, and maximum flow conditions for the Shetucket River (2,000, 14, and 52,300 ft<sup>3</sup>/sec) and Yantic River (170, 3.5, and 13,400 ft<sup>3</sup>/sec) as reported in Section 7.2.2. (page 4) of the *Draft Ecological Risk Assessment, Thames River, Naval Submarine Base New London, Groton, Connecticut* (Menzie-Cura & Associates, December 1994). The source of this information is cited as being the U.S. Geological Survey (USGS, 1991). To date, It has not been possible to verify whether these reported flows correspond to 7Q10 conditions.

**10. Page 2-21, Section 2.2.1.3: PRGs for the Protection of Surface Water**

Comment: This section provides further discussion on the derivation of soil cleanup levels which would be protective of surface water. It states that allowable soil concentrations were calculated "by taking the ratio of the maximum SWPC divided by the MCL or HBL and multiplying by the Federal Pollutant Mobility Criteria. As discussed above this approach is unacceptable because it does not address potential threats to ground water.

Response: See response to Comment No. 1.

**11. Page 2-23, Table 2-7**

Comment: The last column lists "Alternate Pollutant Mobility to be Protective of the Surface Water" as an ARAR. As discussed above in my comment regarding page 2-13, this is not appropriate. If alternate Pollutant Mobility Criteria are to be used, they must be calculated in accordance with the requirements of the Remediation Standard Regulations.

Response: The identification of the "Alternate Pollutant Mobility to be Protective of the Surface Water" as an ARAR will be deleted. See response to Comment No. 9. The alternate Pollutant Mobility Criteria were calculated in accordance with the requirements of the Remediation Standard Regulations.

**12. Page 2-26, Section 2.4: Estimated Volumes of Contaminated Media**

Comment: This section provides estimates of the volume of soil which would need to be excavated to comply with the preliminary remediation goals based on both the current industrial land use, and on future residential land use. No calculations based on the Pollutant Mobility Criteria are provided. For this reason, it is likely that the volume estimates are not representative of actual conditions.

Response: See response to Comment No. 1.

Also, upon further consideration, the Navy has come to the conclusion that excavation down to the depths indicated in the draft FS Report (i.e., down to a maximum of 10 feet as per Section 2.4) is not practical because of the technical difficulties associated with excavating significantly below groundwater table in a highly permeable stratum (sand and gravel) on the bank of a tidal river. These difficulties would not only include the need for shoring as noted in this comment but also and mainly the need to either depress the water table elevation by up to 7 feet or remove the groundwater accumulating in the excavation which would require the pumping (and treatment and discharge) of very large volumes of water, probably hundreds, if not thousands, of gallons per minute. Because human health risk due exposure of construction workers to highly-contaminated deeper subsurface soil is the scenario which necessitates the removal of this deep soil, the Navy believes that there is justification for limiting the depth of excavation to mean low tide in accordance to revised PRGs developed from an alternate human health risk assessment based upon an construction worker exposure scenario with depth of excavation limited to about 4 feet. The Navy believes that such a scenario is realistic in view of the unfeasible nature of a deeper excavation.

If the depth of excavation is limited to mean low tide elevation, experience has shown (such as for the removal action at Building 31 in the Lower Base) that no excavation shoring is required and no groundwater/wastewater pumping, treatment, and disposal.

**13. Page 2-27 to 2-30, Table 2-8: Assessment of Action-Specific ARARs and TBCs**

Comment: Please correct the citation to the State's Solid Waste Management Regulations on page 2-29. The correct citation is RCSA 22a-209-1 to 15. In addition, Section 22a-208a through 208c of the State's Solid Waste Management Statutes should be cited as Relevant and Appropriate. This statute requires a permit for construction, alteration or operation of a solid waste management facility, or to receive, dispose of, process or transport solid waste in a solid waste facility, volume reduction plant, solid waste disposal area, recycling facility, recycling center, transfer station or biomedical waste facility.

The Regulations for the Well Drilling Industry should be cited as Applicable, since they would apply to any monitoring wells or test borings installed or performed on the site. The statutes regarding registration and permitting of wells and well drillers (CGS 25-126 to 131) should also be cited as applicable. These statutes require that well drillers be registered and permits and fees are required for each water supply well drilled. Separate registrations apply to water supply and non-water supply wells. Permits are not required for non-water supply wells. However, the driller must file a completion report for both water supply and non-water supply wells.

CGS Section 22a-430 should also be cited on page 2-30. This statute prohibits discharge to the waters of the State without a permit.

A citation should also be provided for the State's Water Quality Standards. These standards were adopted pursuant to CGS 22a-426.

Response: The citation for the State's Solid Waste Management Regulations on page 2-29 will be corrected to RCSA 22a-209-1 to 15. The State's Solid Waste Management Statutes, Section 22a-208a through 208c, will be cited as "Relevant and Appropriate".

The Regulations for the Well Drilling Industry and the statutes regarding registration and permitting of

wells and well drillers (CGS 25-126 to 131) will be cited as "Applicable".

See last paragraph of response to Comment No. 6. The Water Quality Standards (CGS Section 22a-430) will be listed as an action specific ARAR.

**14. Page 5-6, Section 5.2.2.1: Alternative 2-Detailed Description**

Comment: Institutional controls proposed include maintaining records of the location of the contamination in Navy real estate records and in the Base Master Plan. The State would also require that Environmental Land Use Restrictions in the form prescribed by the regulations be prescribed.

Response: The detailed description of Alternative 2 (and Alternative 3) will be amended to indicate that the institutional controls must include Environmental Land Use Restrictions in the form prescribed by the regulations.

**15. Page 5-18, Section 5.2.3.2: Alternative 3-Compliance with ARARs and TBCs**

Comment: The text states that this alternative would be capable of complying with relevant and appropriate standards for protection of surface water. It does not refer to a specific law or regulation. If this reference is to the Remediation Standard Regulations, it should be noted that the surface water protection are a portion of those regulations. As such, the Surface Water Protection Criteria would be Applicable rather than Relevant and Appropriate.

Response: See response to Comment No. 3. The discussion regarding compliance with ARARs and TBCs will be significantly expanded and tables will be provided in Section 5 which will clearly describe how each alternative complies with each ARAR or TBC.

**16. Page 5-18, Section 5.2.3.2: Alternative 3-Long Term Effectiveness and Permanence**

Comment: Only Aroclor 1260, Aroclor 1254 and cadmium are listed as contaminants which would be addressed by this alternative, although numerous other pollutants are defined in Section 2 as Contaminants of Concern. The text should discuss how these other contaminants, notably lead, would be addressed under this alternative.

Response: Alternative 3 is based upon a continued industrial land use scenario for the DRMO which would be insured through institutional controls such as land deed restrictions. Therefore, only soil with contaminant concentration above PRGs calculated for an industrial land use scenario need be excavated under this alternative. Under this scenario, the only COCs are Aroclor 1254, Aroclor 1260, antimony, cadmium, and chromium. Since antimony and chromium were not detected in surface or subsurface soil at concentration in excess of PRGs, only Aroclor 1254, Aroclor 1260, and cadmium need to be addressed by this alternative.

**17. Page 5-19, Section 5.2.3.2: Alternative 3-Short Term Effectiveness**

Comment: This alternative would involve discharge of treated water from the excavation to the Groton POTW. The Navy should be aware that the proposed discharge might be eligible for inclusion under the General Permit for Excavation Dewatering Wastewater. Under this option the Navy would be required to register the discharge with the Department, and comply with the effluent limitations and treatment standards. However, an individual discharge permit or substantive requirements document would not be required.

Response: See second and third paragraphs of response to Comment No. 12. With the new lower excavation depth now proposed by the Navy, no significant groundwater need to be pumped from the excavated areas and the only water to be treated would be that draining from the excavated material prior

to offsite transportation. Also, historically, the Town of Groton has been very reluctant to accept any industrial wastewater or groundwater from NSB-NLON for treatment at their plant. Therefore, the description and evaluation of Alternative 3 (and Alternative 4) will be amended to indicate that the water from the dewatering pad would be treated on site as required and discharged to the Thames River in the same way as that proposed for the treatment of the dewatering pad water for Alternatives 3 and 4 of the Area A Downstream FS. As agreed during the discussion of this document in a meeting held at NSB NLON on April 8, 1997, no permit or Temporary Authorization would actually be required for this discharge but the appropriate State agencies would be contacted during the remedial design to provide guidance for the development of discharge standards which would have to be met.