

**RESPONSE TO COMMENTS FROM THE
BUREAU OF WATER MANAGEMENT
PERMITTING, ENFORCEMENT, AND REMEDIATION DIVISION
FEDERAL REMEDIATION PROGRAM
ON THE DRAFT FEASIBILITY STUDY FOR
SOIL AND GROUND WATER AT THE LOWER SUBBASE
NAVAL SUBMARINE BASE NEW LONDON, GROTON, CONNECTICUT**

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DATE: 29 November 1999

The Department has received and reviewed the Draft *Feasibility Study for Soil and Ground Water at the Lower Subbase, Naval Submarine Base New London, Groton, Connecticut*. The document was prepared on behalf of the Navy by EA Engineering, Science, and Technology of Newburgh, New York. The report was dated July 1999 and the Department received this document on 26 July 1999.

GENERAL COMMENTS

1. **Comment**—The State is disappointed that the Feasibility Study (FS) does not adequately consider the requirements of the Remediation Standard Regulations (RSRs), particularly the requirements regarding pollutant mobility. The study does not list all of the contaminants present at concentrations greater than the RSR criteria in every zone. The Pollutant Mobility Criteria apply to all soils above the seasonal high water table. Total petroleum hydrocarbon (TPH), lead, and other contaminants are present in numerous locations at concentrations greater than the Pollutant Mobility Criteria. However, the Navy does not propose alternatives for Zones 2 and 6 that would address the Pollutant Mobility Criteria.

Response—Comment noted. Significant revisions to this document have occurred taking into account both general and specific comments from CTDEP and EPA. Sections of the FS relating to ARAR-compliance, the risk analysis, and the diversity and scope of remedial alternatives have been significantly modified, including considerable changes to the evaluations of potential technologies and process options in Chapter 3 in order to more comprehensively evaluate the potential remedial technologies.

2. **Comment**—The FS eliminates from consideration in any zone several technologies that might be useful for addressing some of the contaminants on the Lower Base. In addition, the Feasibility Study does not appear to consistently evaluate specific technologies in each of the seven zones. Technologies are retained in some zones and eliminated in other zones, for no apparent reason, or for inappropriate reasons.

For example, the Navy eliminates capping from further consideration in any of the zones. This decision is based on concerns over the large amount of buildings and pavement in the Lower Base, and on statements that capping would not comply with applicable or relevant and appropriate requirements (ARARs). However, the report discusses only an "engineered cap," and does not consider other, less elaborate caps. An asphalt pavement cap could be used to render soil inaccessible and comply with the Direct Exposure Criteria. A cap that

meets the RSR definition of “engineered control” could be used in selected areas to comply with both the direct exposure and pollutant mobility requirements.

Monitored natural attenuation is inappropriately eliminated from consideration in Zones 2, 3, 5, 6, and 7 despite the fact that organic contaminants are present in each of these zones. Selective excavation is eliminated from consideration in Zones 2 and 6 despite the fact that selective excavation might be useful in addressing some or all of the contaminants in these zones. Some technologies are eliminated because they cannot address all types of contaminants in a given zone. This decision should be reconsidered given the diversity of contaminants present in the Lower Base. It is unlikely that any single technology, other than an engineered control, will address all contaminants present at a given site. It is more likely that several different technologies will be required to deal with all the contaminants at a given site.

Response—Comment noted. Chapter 3 has been significantly revised to be more comprehensive in the screening of the treatment technologies. The subsequent chapters related to the seven zones have been revised to incorporate a wider range of technologies into remedial alternatives that more completely address the COCs at the respective zones.

3. **Comment**—The report uses the current industrial and future residential land use scenarios as an overall framework for discussion. This approach is confusing because these scenarios were only meant for use in risk assessment. The reader is left with the mistaken impression that the RSRs may be applied differently depending upon which of the two scenarios is being considered. This confusion is compounded by the fact that the Regulations include Residential and Direct Exposure Criteria, as well as Pollutant Mobility Criteria. These requirements are different from, and have nothing to do with, risk assessment scenarios. The RSRs apply regardless of which risk assessment scenario is being discussed.

Response—Comment noted. The two scenarios are for use with risk assessment as well as for review and comparison to the RSRs. The RSRs have two criteria for different land uses, and it is prudent to evaluate cleanup standards from both positions. The facility at this time will remain as an industrial land use, therefore requiring review of the industrial exposure criteria. However, it is prudent for the Navy to examine the potential of cleanup to the more stringent residential criteria. The discussions within the text have been significantly modified to better explain the evaluation of industrial and residential land use scenarios as they pertain to comparing COCs against the RSRs, and to explain the use of these scenarios in back calculating risk-based PRGs.

SPECIFIC COMMENTS

Specific comments and responses are provided below:

| Comment No. | Page/Section | Comment/Response |
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| 1 | Page 1-1, Chapter 1, Introduction | Please delete the last sentence in the second paragraph. This report is not required by the Remediation Standard Regulations and does not by itself satisfy the requirements of those Regulations <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 2 | Page 1-1, Section 1.1, Purpose | The last sentence states the Navy, EPA, and the State will select the remedy. Please revise to state that the Navy selects the remedy, and seek EPA's and the State's concurrence. <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 3 | Page 1-6, Section 1.2.4, Zone 3 | Please re-write the third sentence in the second paragraph to clarify the fact that batteries, rather than submarines, were serviced in Building 31. This building is located on dry land. <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 4 | Page 1-9, Section 1.2.6, Zone 5 | Please indicate in the text whether the Tanks in Building 175 were used to store fresh or waste battery acid. Please specify when the tanks and associated piping were removed. Please specify that the 1,000-gal tank discussed in the third paragraph was used to store fuel oil. <i>Response</i> —The information contained in Chapter 1 is a duplication of the information available in the RI. The RI will be reviewed to determine if additional information is available. If additional information is available, the section will be modified accordingly. |
| 5 | Page 1-11, Section 1.2.9, Fuel Oil Distribution System | Please clarify that the tank farm was located in the southern section of the Upper Base, near the baseball fields. <i>Response</i> —The information contained in Chapter 1 is a duplication of the information available in the RI. The RI will be reviewed to determine if additional information is available. If additional information is available, the section will be modified accordingly. |
| 6 | Page 1-12, Section 1.2.10, Steam, Condensate and Electrical Ducts | What happens to the unrecovered steam condensate that goes to the piers? Is this discharge covered in any of the Navy's state or NPDES water discharge permits? Please specify this information in the report. <i>Response</i> —The information contained in Chapter 1 is a duplication of the information available in the RI. The RI will be reviewed to determine if additional information is available. If additional information is available, the section will be modified accordingly. |
| 7 | Page 1-16, Section 1.3.3.2, Surface Water Quality and Designation | In the first sentence of the second paragraph, "U.S. Geologic Survey" should be "U.S. Geological Survey." <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 8 | Page 1-22, Section 1.3.8.2, Ground-Water Quality, CTDEP Ground-Water Classifications | In the second sentence, please delete "and the ground water is not used as a drinking water source," and replace it with "and where public water supply service is available." The State does not prohibit the use of ground water as a drinking water source in a GB area. The Water Quality Standards specify that public water service must be available throughout an area with a ground-water classification of GB. <i>Response</i> —Comment noted. The text will be modified appropriately. |

| Comment No. | Page/Section | Comment/Response |
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| 9 | Pages 1-26 to 1-31, Section 1.4, Nature and Extent of Constituents of Concern | <p>This section discusses the distribution of contaminants in soil and ground water in each of the seven zones. The report gives the general locations where contaminants were found in high concentrations, such as "southwest of building 174, just south of a catch basin." The report does not always list the specific wells or test borings where the corresponding samples were collected. In some cases, the wells and test borings that are discussed are not depicted on the corresponding figures (Figures 1-4 to 1-10 and Figures 2-1 to 2-11). Please revise the text to identify the specific wells or borings upon which conclusions are based. It may also be useful to outline upon the maps the boundaries of areas where soil or ground-water contamination was detected at concentrations in excess of applicable criteria.</p> <p><i>Response</i>—Comment noted. The text will be modified appropriately.</p> |
| 10 | Page 1-43, Section 1.7.2, Ecological Risk Assessment Summary - Zone 2 | <p>The last paragraph states that "only limited interpretation" of data from macroinvertebrate sampling "can be conducted due to temporal fluctuations." Please provide more information regarding the specific nature of the temporal fluctuations. Was the concentration of contaminants observed in macroinvertebrates fluctuating, or was some other parameter fluctuating? This comment applies also to the subsequent discussions regarding Zone 3 (Page 1-44), and Zone 5 (Page 1-46).</p> <p><i>Response</i>—The information contained in Chapter 1 is a duplication of the information available in the RI. The RI will be reviewed to determine if additional information is available. If additional information is available, the section will be modified accordingly.</p> |
| 11 | Page 1-48, Section 1.7.7, Ecological Risk Assessment Summary - Zone 7 | <p>The last paragraph states that sediment at Piers 15 and 17 was replaced with clean fill after dredging. This statement does not appear to be correct since the dredging was done to accommodate the Seawolf submarines. It is unlikely that the Navy would dredge sediment from the berthing areas and replace it with clean fill. Please clarify.</p> <p><i>Response</i>—The information contained in Chapter 1 is a duplication of the information available in the RI. The RI will be reviewed to determine if additional information is available. If additional information is available, the section will be modified accordingly.</p> |
| 12 | Figure 1-7, Zone 4 Boundaries | <p>Well WE-1 is discussed on Page 1-29 but is not shown on this figure. Please correct.</p> <p><i>Response</i>—Comment noted. The text will be modified appropriately.</p> |
| 13 | Figure 1-10, Zone 7 Boundaries | <p>Please show on this figure the location of the transformers at Building 157 Vault 31.</p> <p><i>Response</i>—The information contained in this figure is a duplication of the information available in the RI. The RI will be reviewed to determine if additional information is available. If additional information is available, the figure will be modified accordingly.</p> |
| 14 | Table 1-1, Background Concentrations of Thames River Surface Water | <p>This table provides non-site-specific, literature-based background values for inorganic substances in surface water. While this information is useful, if the Navy intends to apply background concentrations for making decisions regarding remediation of the ground-water plume, then the Navy must develop site-specific background concentrations in the ground-water plume.</p> <p><i>Response</i>—Comment noted. The Navy will evaluate the value of this information.</p> |
| 15 | Page 2-1, Section 2.2, Applicable or Relevant and Appropriate Requirements | <p>In the last sentence, please add that a selected action must also comply with more stringent state regulations.</p> <p><i>Response</i>—Comment noted. The text currently indicates that the selected action will comply with federal and state regulations. The text will remain unchanged.</p> |

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| 16 | Page 2-4, Section 2.2.5.1, Chemical Specific Applicable or Relevant and Appropriate Requirements | Human Health Risk Calculations for Soil and Sediment are not a statute or regulation, and should not be listed as an ARAR. They should, however, be included on the list of To Be Considered Guidance. Please provide citations for each of the statutes and regulations cited. |
| <i>Response</i> —Comment noted. The text will be changed to include citations for each of the statutes and regulations cited. | | |
| 17 | Page 2-5, Section 2.2.5.1, Chemical Specific Applicable or Relevant and Appropriate Requirements—Federal Safe Drinking Water Act | The second paragraph discusses the State’s EPA endorsed Comprehensive Ground-Water Protection Program. It states that because ground water at the Subase is classified as GB, which is the equivalent of national Contingency Plan Class III, the aquifer has a low use and value. This conclusion directly contradicts the EPA Region draft 1996 Guidance on Ground-Water Use and Value Determinations, which is also cited in the text. The 1996 Guidance states on Page 2 that EPA “will no longer rely on” ground-water classifications “in setting goals for ground-water remediation and in making decisions on the level of cleanup necessary.” EPA has not requested, and the State has not prepared, a site-specific Ground-Water Use and Value Determination for the Subase. It would be inappropriate to draw any conclusion regarding the use and value of ground water at the Subase. The State agrees, however, that MCLs are not an ARAR at this site. |
| <i>Response</i> —Comment noted. The text will be modified so as not to draw conclusions regarding the use and value of the ground water at the site. | | |
| 18a | Page 2-6, Section 2.2.5.1, Chemical Specific Applicable or Relevant and Appropriate Requirements—CTDEP Remediation Standards for Soil and Ground Water | The first full paragraph paraphrases Section 22a-133k-2(e)(1)(A) of the Remediation Standard Regulations, but does not discuss Section (e)(1)(B). Please discuss Section (e)(1)(B), which states that compliance with a Direct Exposure Criteria is achieved when the results of all laboratory analyses of samples from the release area are less than or equal to the applicable direct exposure criterion. |
| <i>Response</i> —Comment noted. The text will be modified to include a discussion about Section (e)(1)(B). | | |
| 18b | | The third sentence in the second full paragraph is confusing. It should be rewritten to more clearly state that for inorganic and PCBs, compliance with the Pollutant Mobility Criteria is based on the results of leachate analysis by TCLP or SPLP. This section discusses the circumstances under which compliance with the Pollutant Mobility Criteria may (but is not required to) be evaluated. This is accomplished by comparing the results of TCLP or SPLP analysis to the Ground-Water Protection Criteria multiplied by 10, or by an alternative dilution or dilution and attenuation factor. The specific circumstances are discussed in Section 22a-133k-2(c)(2) of the Regulations. |
| <i>Response</i> —Comment noted. The text will be modified to more clearly state compliance with the Pollutant Mobility Criteria for inorganics and PCBs. | | |
| 18c | | The third full paragraph should more completely describe the requirements of Section 22a-122k-2(e)(2) of the Regulations regarding methods for determining compliance with the Pollutant Mobility Criteria. The text only discusses Subsection A. It does not state this section applies only if the release area has not been remediated by means of excavation and removal of polluted soil. The text should use the full term “95 percent upper confidence level of the arithmetic mean.” The text should also discuss Subsection B, which applies when the site has not been remediated by excavation, and when less than 20 soil samples have been collected. It should also discuss Subsection C, which applies when the site has been remediated by excavation. |

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| | | <i>Response</i> —Comment noted. The text will be modified to include additional discussion of Section 22a-122k-2(e)(2) and the appropriate sections listed in the comment. |
| 18d | | The last sentence of the last paragraph should more completely discuss the requirements for determining compliance with the Surface Water Protection Criteria, as specified in Section 22a-133k-3(f)(2) of the Regulations. In addition to regulatory option (A) discussed in the text, compliance with the Surface Water Protection Criteria may also be achieved when the concentration of the substance in the portion of the plume immediately upgradient of the point at which the ground-water discharges to the receiving surface waterbody is equal to or less than the applicable surface-water protection criterion, provided that the areal extent of the plume is not increasing over time and that, except for seasonal variations, the concentration of the substance in the plume is not increasing, except as a result of natural attenuation, at any point over time (Option B). |
| | | <i>Response</i> —Comment noted. The text will be modified to include additional discussion for compliance with Surface Water Protection Criteria. |
| 18e | | This paragraph incorrectly states that the volatilization criteria apply to ground water which discharges to a surface waterbody. Section 22a-133k-3(c)(1) specifies that the volatilization criteria apply to ground water polluted with a volatile organic substance within 15 feet of the ground surface or a building. The volatilization criteria do not necessarily apply to all ground water which discharges to surface water. Please correct the text. |
| | | <i>Response</i> —Comment noted. The text will be modified by including additional discussion about the volatilization criteria and when it applies to ground-water discharge to surface water. |
| 19 | Page 2-7, Section 2.2.5.1, Chemical Specific Applicable or Relevant and Appropriate Requirements—CTDEP Remediation Standards for Soil and Ground Water | The first paragraph discusses options for determining compliance with the volatilization criteria, as specified in Section 22a-133k-3(f)(3) of the Regulations. The text discusses only one of the two options (Option A) available for determining compliance. Option B should be discussed also. In the last sentence, please specify that the 95 percent UCL is the 95 percent UCL of the arithmetic mean. |
| | | <i>Response</i> —Comment noted. The text will be modified by including a discussion of Option B. |
| 20a | Page 2-9, Section 2.2.5.3, Action Specific Applicable or Relevant and Appropriate Requirements | The Connecticut Hazardous Waste Management Regulations (RCSA Section 22a-449(c)100 to 110) should be listed as relevant and appropriate. These regulations would be applicable to any investigation-derived waste. The Water Discharge Permitting Regulations (RCSA Section 22a-430-1 to 8, should be listed as applicable. The Air Pollution Control Regulations (RCSA Section 22a-174-1 to 29), the Regulations for the Well Drilling Industry (RCSA Section 25-128-33 to 64) and the Registration and Permitting Requirements for Wells and Well Drillers (CGS Section 25-126 to 25-131 should be listed as Applicable. The Guidelines for Soil Erosion and Sediment Control, which were adopted as required by CGS Section 22a-328, should be listed as Applicable. In the fourth bullet point, the "Connecticut Pollutant Discharge Elimination System is more properly referred to as the Connecticut Water Discharge Permitting Program. The applicable statutes and regulations include RCSA Section 22a-430-1 to 8 (discussed above) and CGS Section 22a-430 (discussed in the text). The reference to Section 22a-436 of the General Statutes, should be deleted because that section is not an applicable requirement. |

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| | | <i>Response</i> —Comment noted. The Connecticut regulations noted in the comment will be added to appropriate sections of the text. |
| 20b | | The last bullet should refer to the Connecticut Water Quality Standards. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 21a | Page 2-11, Section 2.2.5.3, Action Specific Applicable or Relevant and Appropriate Requirements—Connecticut Pollutant Discharge Elimination System | Please change the title of this section to “Connecticut Water Discharge Permitting Program.” As described in the previous comment, CGS Section 22a-430 and RCSA Section 22a-430-1 to 8 are the applicable requirements for this program. The program includes NPDES permits, which regulate discharges to surface water, and State discharge permits, which regulate discharges to a municipal sewer system. |
| | | <i>Response</i> —Comment noted. The text will be changed as requested. However, it should be noted that no discharges to surface water are expected during remedial actions. Discussion about NPDES permits will not be included in the text. |
| 21b | Connecticut Water Quality Standards | The last sentence states that a permit for re-injection of treated ground water would set concentration limits that are protective of Class GA ground water. Please note that the ground-water classification of the Subbase is GB. The GA classification applies only to a very small undeveloped area at the northern-most portion of the base. |
| | | <i>Response</i> —Comment noted. The text will be modified to include the Class GB ground-water classification. |
| 22 | Page 2-12, Section 2.2.5.3, Action Specific Applicable or Relevant and Appropriate Requirements—Connecticut Air Pollution Control Act | In the first sentence, please replace “Connecticut General Regulations” with “Connecticut General Statutes.” |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 23 | Page 2-14, Section 2.3.3.3, Connecticut Department of Environmental Protection Remediation Standards Constituents of Concern | The second paragraph states that the Surface Water Protection Criteria were developed by multiplying the Ambient Water Quality Criteria by a factor of 10. This statement should be revised to reflect the fact that the dilution factor applied in calculating the surface water criteria varied depending on the type of pollutant. The 10x dilution factor was not used for all pollutants. The text states that a site-specific dilution factor of 118 was calculated for the Surface Water Protection Criteria. This dilution factor does not appear to have been calculated in accordance with Section 22a-133k-3(b) (3) of the Remediation Standard Regulations which discusses alternative Surface Water Protection Criteria. |
| | | <i>Response</i> —Comment noted. The calculations have been checked, modified where appropriate, and the text formatted to explain how the calculations were derived. |
| 24 | Page 2-15, Section 2.4.1, Development of Preliminary Remedial Goals | The first paragraph states incorrectly that definitive cleanup criteria will be developed after selection of a remedial alternative in the signed Record of Decision. The text should be revised to state that cleanup criteria are listed in the Proposed Plan, and included in the Record of Decision. The clean up criteria are set when the Record of Decision is signed. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |

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| 25a | Page 2-17, Section 2.4.1, Development of Preliminary Remedial Goals—Direct Exposure Criteria | The second paragraph paraphrases Section 22a-133k-2(e)(1), which discusses two methods for determining compliance with the Direct Exposure Criteria. The text only discusses option A. It should also discuss option B. |
| | | <i>Response</i> —Comment noted. The text will be changed to include discussion about Option B. |
| 25b | | The third paragraph notes that the Direct Exposure Criteria do not apply to inaccessible soil. The text should also specify that this exception applies only if an environmental land use restriction (or the Navy equivalent) is in place. The environmental land use restriction must ensure that the soils will not be exposed as a result of excavation, demolition, or other activities, and that pavement which is necessary to render the soil inaccessible is maintained in good condition. |
| | | <i>Response</i> —Comment noted. The text will be changed to discuss the environmental land use restriction. |
| 25c | Pollutant Mobility Criteria | The first paragraph discusses methods for determining compliance with the Pollutant Mobility Criteria, as specified in Section 22a-133k-2(e)(2) of the Regulations. The text should specify that the methods discussed apply only if the soil has not been remediated by excavation and removal. The text should discuss option C, which applies if the soil has been remediated by excavation and removal. In this case, the results of all soil samples must be equal to or less than the Pollutant Mobility Criteria. |
| | | <i>Response</i> —Comment noted. The text will be changed to include a discussion about Option C. |
| 25d | | The second paragraph discusses a site-specific dilution factor, which was based on flow rates in the Thames River. This is not appropriate, as the Pollutant Mobility Criteria are designed to be protective of ground water, rather than surface water. The site-specific dilution factor calculated for the Pollutant Mobility Criteria is different from the site-specific dilution factor that would be calculated for the Surface Water Protection Criteria. Please propose an appropriately calculated site-specific or alternative dilution factor. The calculated factor should be based on ground-water flow rates and aquifer characteristics, rather than on flow rates or other properties of the Thames. In the last sentence of this paragraph, I believe the author meant to refer to Sections 22a-133k-2(d)(5)(D)(5 to 6), rather than to Section 22a-133k-2(c)(5)(D)(5 to 6). |
| | | <i>Response</i> —Comment noted. The calculations have been checked, modified where appropriate, and the text formatted to explain how the calculations were derived. |
| 26a | Page 2-18, Section 2.4.1, Development of Preliminary Remedial Goals—Ground-Water Remediation Standards | The third paragraph states that the Surface Water Protection Criteria were developed by multiplying the Ambient Water Quality Criteria by a factor of 10. This statement should be revised to reflect the fact that the dilution factor applied in calculating the surface water criteria varied depending on the type of pollutant. The 10x dilution factor was not used for all pollutants. |
| | | <i>Response</i> —Comment noted. The calculations have been checked, modified where appropriate, and the text formatted to explain how the calculations were derived. |

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| 26b | | The 118x dilution factor discussed here does not appear to have been calculated in accordance with the requirements of Section 22a-133k-3(b)(3). It is unlikely that this dilution factor would be the same as the alternative dilution factor calculated for determining compliance with the Pollutant Mobility Criteria. The 118x dilution factor is not appropriate for use in proposing an alternative Surface Water Protection Criteria. <i>Response</i> —Comment noted. The calculations have been checked, modified where appropriate, and the text formatted to explain how the calculations were derived. |
| 27a | Page 2-19, Section 2.4.2, Accommodations of Preliminary Remediation Goals and ARARs | The second paragraph should be revised to note that a selected remedy must comply with all ARARs unless a specific waiver is invoked. In addition, it is possible to design a cap that would comply with all ARARs, particularly the Remediation Standard Regulations requirements regarding the use of an engineered control to contain contaminated soil. <i>Response</i> —Comment noted. The text will be changed to further discuss compliance with all ARARs unless a waiver is invoked. |
| 27b | | The third paragraph should be revised or deleted. Total excavation would undoubtedly pose a greater risk to subsurface utilities than other alternatives. However, this does not mean that total excavation would also pose a greater danger to the environment than other alternatives. <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 28 | Page 2-19, Section 2.4.3, Comparison of Analytical Data to Preliminary Remediation Goals | Please note that the criteria in the Remediation Standard Regulations apply regardless of the current or future land use. <i>Response</i> —Comment noted. |
| 29 | Page 2-21, Section 2.4.3.1.3, Zone 3—Ground Water | The text states that the mean concentration of total lead, 134 $\mu\text{g/L}$, is less than the surface water protection criterion. The surface water protection criterion for lead is 13 $\mu\text{g/L}$. Please correct this statement. <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 30 | Page 2-22, Section 2.4.3.1.5, Zone 5—Shallow Soil | The report states that matrix interference resulted in dilution of three samples analyzed for PAHs. This caused high detection limits for these samples, which in turn caused an artificially high 95% UCL mean value for PAH. If the Navy wishes to assert that matrix interference effects prevented the laboratory from achieving detection limits lower than the Pollutant Mobility Criteria, then the Navy must present the information required under Section 22a-133k-2(e)(3) of the Regulations. <i>Response</i> —Comment noted. |
| 31 | Page 2-22, Section 2.4.3.1.6, Zone 6—Shallow Soil | The text states that although the TPH concentration slightly exceeded the industrial commercial direct exposure criterion, TPH was not chosen as a COC because no TPH exceeded twice the criterion. It is not appropriate to exclude a contaminant as a COC on this basis. <i>Response</i> —Comment noted. The text will be changed to better explain why TPH was not selected as a COC. |
| 32 | Page 2-26, Section 2.4.3.2.4, Zone 3 | Lead was detected in 95 out of 96 ground-water samples collected outside the remediation area for Building 31. Did the lead concentrations exceed the HHRA based PRGs? <i>Response</i> —Comment noted. The text will be modified accordingly to address this issue. |

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| 33 | Page 2-24, Section 2.4.3.2, Future Residential Land Use Scenario | Information regarding the Pollutant Mobility Criteria was presented in the previous section, which discusses the current industrial land use risk assessment scenario. This information is therefore not repeated in this section. However, information regarding the Direct Exposure Criteria is repeated in this section. This is confusing, and implies that the Direct Exposure Criteria were treated differently for the two risk assessment scenarios. The direct exposure, pollutant mobility, and ground-water criteria apply regardless of the risk assessment scenario being used. It is somewhat misleading to discuss compliance with the Remediation Standard Regulations under the Current Industrial Land Use scenario or the Future Residential land use scenario. It would be more appropriate to discuss compliance with the Remediation Standard Regulations in a separate section. |
| | | <i>Response</i> —Comment noted. The text will be modified to appropriately discuss compliance with the RSRs. |
| 34a | Page 2-29, Section 2.5, Areas of Attainment | The text states that environmental land use restrictions “will prohibit further residential land use of the area without further actions to actions to achieve compliance with residential PRG.” This sentence should be revised since environmental land use restrictions, by themselves, do not achieve compliance with the Remediation Standard Regulations. Environmental land use restrictions are used to assure that other measures, such as engineered controls remain effective. They may also be used to ensure that contaminated soil is not disturbed, or to ensure that contaminated ground water is not used as a source of drinking water. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 34b | | This section only discusses areas where PRGs are exceeded under the current industrial land use scenario. Areas where PRGs are exceeded under the future residential land use scenario should also be discussed here. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 35 | Page 2-30, Section 2.6, Remedial Action Objectives | This section presents remedial action objectives for the current industrial land use scenario, but does not present any remedial action objectives for the future residential land use scenario. Remedial action objectives should be presented for both land use scenarios. An additional remedial action objective for both scenarios should be: “Prevent human and environmental exposure to contaminants at concentrations which exceed applicable criteria in the remediation standard regulations. |
| | | <i>Response</i> —Comment noted. The text will be reviewed and, if appropriate, additional Remedial Action Objectives will be included. |
| 36a | Table 2-1, Summary of Chemical Specific ARARs | In the Status column, a particular requirement can only be an ARAR or a TBC. It cannot be both. |
| | | <i>Response</i> —Comment noted. The text will be changed so that a requirement is only an ARAR or TBC. |
| 36b | | The first citation under the Remediation Standard Regulations should be to Section 22a-133k-3 of the Regulations. The synopsis of the ground water related Remediation Standard Regulations must be revised. These regulations do not establish beneficial uses for water, nor do they establish an anti-degradation policy. These objectives are accomplished by the Water Quality Standards, which were adopted under Section 22a-426 of the General Statutes. The volatilization criteria do not establish criteria for volatilization from ground water. They apply to ground water, not to pollutants which volatilize from ground water. The volatilization criteria for soil vapor (Appendix F of the Regulations) do not apply unless a volatilization criterion for ground water (Appendix E of the Regulations) is exceeded. |
| | | <i>Response</i> —Comment noted. The text will be revised as requested in the comment. |

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| 36c | | The discussion regarding the soil related portions of the Remediation Standard Regulations must be revised. PRGs are developed only for soil above a depth of 2 ft in paved areas, and above 4 ft in unpaved areas. The Direct Exposure Criteria apply to all soils above a depth of 15 ft, and PRGs should be developed for all such soils. |
| | | <i>Response</i> —Comment noted. The text will be changed as requested in the comment. |
| 36d | | Citations should be provided for all listed laws and regulations, including the Connecticut Coastal Management Act, the Federal and State Endangered Species Acts, and the National Historic Preservation Acts. The Federal and State Endangered Species Acts are Applicable requirements. |
| | | <i>Response</i> —Comment noted. The text will be changed to include all citations. However, the Federal Endangered Species Act and the National Historic Preservation Act are not ARARs for the site and will be removed from the text. |
| 37a | Table 2-3, Summary of Action Specific ARARs—State Discharge Requirements | Please replace “Connecticut Pollutant Discharge Elimination System” with “Connecticut water Discharge Permitting Statutes.” These statutes prohibit discharges to the waters of the State without a permit. Please also add a section for “Connecticut Water Discharge Permitting Regulations,” which should be cited as RCSA Section 22a-430-1 to 8. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 37b | | Under the Remediation Standard Regulations, the row that begins with “To Be Considered” should be eliminated. This row discusses the applicability of drinking water standards at the Subase. |
| | | <i>Response</i> —Comment noted. The noted row will be deleted from the text. |
| 37c | | Please specify that the Water Quality Standards were adopted under CGS Section 22a-426. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 37d | | Please add the Connecticut Hazardous Waste Management Regulations (RCSA Section 22a-449(c)-100 to 110. |
| | | <i>Response</i> —Comment noted. The text will be changed to include the Connecticut Hazardous Waste Management Regulations. |
| 37e | | Please provide a citation for the State’s Air Pollution Control Regulations. |
| | | <i>Response</i> —Comment noted. The requested citation will be included in the text. |
| 37f | | Please include the Regulations for the Well Drilling Industry (RCSA Section 25-128-33 to 64) and the statutes regarding Registration and Permitting of Wells and Well Drillers (CGS Section 25-126 to 131) as Applicable Requirements. |
| | | <i>Response</i> —Comment noted. The text will be revised to include the Regulations for the Well Drilling Industry and the requested statute. |
| 37g | | Please list the State’s Guidelines for Soil Erosion and Sediment Control, which were adopted pursuant to CGS Section 22a-328, as Applicable requirements. |
| | | <i>Response</i> —Comment noted. The text will be revised to include the soil erosion and sediment control guidelines. |
| 38 | Table 2-6, Preliminary Remedial Goals for Soil | Please indicate in the table which criteria are from the appendices in the Remediation Standard Regulations and which were proposed by the Navy and approved by the Commissioner in accordance with the regulations. This comment applies also to Table 2-7 (Preliminary Remedial Goals for Ground Water). |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |

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| 39a | Table 2-8, Summary of Constituents of Concern Exceeding Preliminary Remedial Goals by Land Use, Matrix, and Zone at Lower Subase | <p>This table includes lists exceedances of the Pollutant Mobility Criteria and Surface Water Protection Criteria under the current industrial land use scenario, but not under the future residential land use scenario. The table does not indicate that the volatilization criteria were considered. All three criteria are applicable regardless of the land use scenario being considered. The various land use scenarios were considered for risk assessment purposes. It is appropriate to include as contaminants of concern pollutants that exceed acceptable concentrations calculated under one of these scenarios. However, it is misleading to say that a particular pollutant exceeded Remediation Standard Regulation criteria under a given risk assessment scenario. Please revise the table to ensure that it considers all criteria in the Remediation Standard Regulations, including the direct exposure, pollutant mobility, surface water protection, and volatilization criteria. The table should have a separate section, which lists for each zone and media the pollutants that exceed the criteria specified in the Regulations.</p> |
| <p><i>Response</i>—Comment noted. The text will be modified appropriately.</p> | | |
| 39b | | <p>The footnotes state that for some pollutants, the 95% UCL of the arithmetic mean exceeded the criteria. However, these pollutants were not retained as a COC because the maximum concentration was less than twice the criteria. This is not an appropriate method for selecting contaminants of concern. Any pollutant detected at a concentration exceeding risk assessment based or ARAR based criteria must be retained as a contaminant of concern.</p> |
| <p><i>Response</i>—Comment noted. The footnote will be modified appropriately.</p> | | |
| 40a | Table 2-9, Summary of Constituents of Concern Addressed by the Remedial Alternatives | <p>This table includes Pollutant Mobility Criteria, which were calculated by applying a site-specific dilution factor as specified in Subsection 22a-133k-2(c)(2)(E)(i) of the Regulations. This subsection E(ii) of the Regulations specifies the formula that must be used in calculating a site-specific dilution factor. This formula is based on Darcy's Law, and it considers the hydraulic conductivity, hydraulic gradient, and other aquifer characteristics. The 118x dilution factor used by the Navy was calculated by considering the water flow in the Thames River. In addition, the Navy did not provide the information or submit the notice required under the Regulations. This factor was not calculated in accordance with the regulations and should not be used in calculating site-specific Pollutant Mobility Criteria. The same dilution factor may not be applicable at each of the seven zones because the dilution calculation considers the length of the release area.</p> |
| <p><i>Response</i>—Comment noted. Seven specific dilution factors will be calculated for each zone, where appropriate. Notification, as required under the regulation for department approval from the Commissioner's office, was not made pending preliminary approval from CTDEP. As noted, CTDEP determined that the method used was not appropriate and requires revision. Official notification will be withheld until CTDEP is satisfied with the calculation and use of the site-specific dilution factors.</p> | | |
| 40b | | <p>The Regulations specify that for a GB area, the results of a mass analysis (for organics) may be compared to the GA Pollutant Mobility Criteria multiplied by the site-specific dilution factor. The results of a TCLP or SPLP analysis (for inorganic and PCBs) may be compared to the Ground-Water Protection Criteria multiplied by the site-specific dilution factor. The Pollutant Mobility Criteria presented for lead appears to have been calculated by multiplying the GB Pollutant Mobility Criteria, rather than the Ground-Water Protection Criteria, by the 118x dilution factor. This is not acceptable under the Regulations because in effect, it applies two dilution factors in calculating the Pollutant Mobility Criteria.</p> |
| <p><i>Response</i>—Comment noted. The calculations will be reviewed and modified appropriately.</p> | | |

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| 40c | | Please replace the numbers in the "ARAR PRG-PMC" column with either the Pollutant Mobility Criteria specified in Appendix B of the Regulations or proposed by the Navy and approved by the Commissioner. Alternatively, the Navy may calculate site-specific dilution factors as specified in Section 22a-133k-2(c)(2)(E)(ii) of the Regulations. Please compare the properly calculated Pollutant Mobility Criteria to the sampling data for each of the seven zones. It is likely that additional contaminants of concern will be identified when this is done. |
| | | <i>Response</i> —Comment noted. The Navy intends to pursue site-specific dilution factors. |
| 40d | | Please specify in the Upper Confidence Limit Concentration column that this is the 95% UCL of the arithmetic mean. Please specify in the "ARAR PRG" column that this column lists the Pollutant Mobility Criteria. This table should list all of the Remediation Standard Regulation criteria, for both soil and ground water. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 41 | Page 3-1, Section 3.1, Identification and Screening of Technologies | The term "COC" is often used generically in placed of "contaminants." The term "COC" has a very specific meaning within the context of CERCLA. It should only be used when discussing the specific contaminants of concern at this site. When discussing contaminants in a generic sense, as in this section, the term "contaminants" should be used instead. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 42 | Page 3-2, Section 3.1, Identification and Screening of Technology Types and Process Options—Implementability | The report does not properly consider the "potential for obtaining regulatory approval" in the case of the "No Action" alternative. In several cases, the report states that the "No Action" alternative would not achieve remedial objectives and therefore would be unlikely to obtain regulatory approval. The "potential for obtaining regulatory approval" is meant to evaluate whether permits or other regulatory requirements can be met for a particular option. It is not meant to evaluate whether regulatory agencies are likely to accept or reject a particular remedial option. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 43 | Page 3-2, Section 3.1.1.1, Monitoring | Please revise the text to state that another purpose of monitoring is to verify the effectiveness of the selected remedial option. Please also state that monitoring may involve collection of ground water or surface water level data. Under Section 22a-133k-3(g)(3) of the Regulations, continued monitoring will be required in any zone where contamination will remain. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 44a | Page 3-3, Section 3.1.1.2, Site Use Restrictions | Although the acronym "ELUR" may have been defined in a previous chapter, it would be helpful to define it again here. Please note that the term "environmental land use restriction" means a land use restriction as described in Section 22a-133q-1 of the Regulations. An environmental land use restriction has four parts: (1) a declaration of environmental land use restriction approved either by the Commissioner or by a Licensed Environmental Professional, (2) a class A-2 survey, (3) a certificate of title demonstrating that the required subordination agreement has been recorded, and (4) a copy of the decision document. This is different from the term "ELUR" as used by the Navy in this report. The Navy appears to use the term more generically, to describe land use controls of any sort. It would be more appropriate to avoid the use of the term "ELUR," except when describing an environmental land use restriction as defined in the Regulations. Environmental land use restrictions run with the land and remain in effect unless released by the Commissioner. |

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| | | <i>Response</i> —Comment noted. The use of “ELUR” will be modified appropriately. In generic cases, the term “institutional controls” will replace “ELUR.” For consistency throughout the document, all acronyms are defined only at their first usage. |
| 44b | | The Navy states that “ELUR are readily” implementable, and notes that a deed restriction could be implemented if property use changes in the future. As long as the property remains under the control of the Navy, it is unlikely that the Navy could record an environmental land use restriction. Other types of institutional controls, such as signs, and amendments to the base master plan, would be used instead. We have discussed informally on several recent occasions what measures can be used on the base in lieu of formal environmental land use restrictions. I would like to meet with the Navy as well as EPA to discuss more specifically how institutional controls can be implemented at the Lower Base site, as well as at other sites on the base. If the base is closed, then the State would require that formal environmental land restrictions be recorded where necessary. |
| | | <i>Response</i> —Comment noted. |
| 45 | Page 3-3, Section 3.1.1.3, Point-of-Entry/ Point of Use Treatment, and Page 3-4, Section 3.1.1.4, Alternative Water Supply | These sections should be deleted since ground water is not used as a source of drinking water on the lower base. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 46 | Page 3-5, Section 3.1.2.1, Capping | There are other types of barriers in addition to an “engineered cap.” The type of barrier selected would depend on the nature of the contaminants, and upon the requirement driving the use of the cap. A soil or asphalt cap might be sufficient to render soil inaccessible and comply with the Remediation Standard Regulation requirements regarding Direct Exposure Criteria. A more elaborate, multi-layer cap might be necessary to comply with the requirements for use of an engineered control, or with the requirements of RCRA subtitle C. It is inappropriate to dismiss the use of capping on the basis that asphalt or soil caps “would not comply with the ARAR.” It is also inappropriate to make this conclusion based on the fact that much of the base is paved or covered by buildings. The presence of asphalt or cement does not present an insurmountable engineering challenge that would prevent the installation of a cap in certain parts of the base. |
| | | <i>Response</i> —Comment noted. Chapter 3 has been modified significantly to ensure that potentially relevant technologies are properly considered for use at the Lower Subbase sites to address each zone, media, and COC. |
| 47 | Pages 3-5 to 3-6, Section 3.1.2.3, Physical Barriers | Please delete the first sentence of the second bullet point. The installation of vertical barriers might be feasible in limited areas, such as at the edge of the Thames. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 48a | Page 3-7, Section 3.1.2.4, Hydraulic Controls- Extraction Wells | The first bullet point states that extraction wells could be designed to work in conjunction with the eastward flow of ground water. Please add a discussion of the fact that during half of every tidal cycle, the direction of ground-water flow is reversed in the portion of the site immediately adjacent to the river. |
| | | <i>Response</i> —Comment noted. Revisions have been made to the analyses of applicable remedial technologies for each zone, media, and COC, where appropriate. The text will be modified appropriately. |

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| 48b | | In the second bullet point, it is unclear why the installation of extraction wells would have to be "coordinated with CTDEP." Is the Navy referring to the State's Water Diversion Regulations? It is not clear why the report concludes, in the last paragraph, that ground-water extraction is not warranted in Zones 1 to 3 and 5 to 7. Ground-water extraction should be retained as an alternative for each of the seven zones. |
| | | <i>Response</i> —Comment noted. The text will be changed accordingly. Placement of any potential extraction wells will be "coordinated with CTDEP" to ensure that CTDEP concurs with placement of the wells. |
| 49 | Page 3-9, Section 3.1.3.1, Soil Excavation | Soil excavation should be retained as an alternative for all seven zones since contaminants in excess of the Remediation Standard Regulation criteria and other ARARs were detected in all zones. |
| | | <i>Response</i> —Comment noted. Revisions have been made to the analyses of applicable remedial technologies for each media and COC, where appropriate. Subsequent modifications to the assembly of applicable technologies, such as soil excavation, into remedial alternatives have resulted from this revision. The text will be modified appropriately. |
| 50 | Page 3-10, Section 3.1.3.2, Ground-Water Extraction | Please state more clearly the distinction between ground-water extraction as discussed here, and extraction wells as discussed on Page 3-7. Does the discussion in this section refer to ground-water extraction for the purposes of actively remediating an aquifer? |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 51 | Page 3-11, Section 3.1.3.3, Light, Non-Aqueous Phase Liquid | Please include a contingency for recovery of LNAPL, should it be encountered in the future. |
| | | <i>Response</i> —The RI indicated that no LNAPL has been identified at the site. No consideration in the design will be given to contaminants or conditions that were not identified in the RI. |
| 52 | Page 3-12, Section 3.1.4.1, Monitored Natural Attenuation | Organic contaminants were detected in soils in all seven zones at concentrations exceeding cleanup criteria. It is therefore unclear why monitored natural attenuation was not retained for all zones. |
| | | <i>Response</i> —Comment noted. Chapter 3 has been modified significantly to ensure that potentially relevant technologies are properly considered for each zone, media, and COC. |
| 53 | Page 3-13, Section 3.1.4.2, Aerobic Bioremediation | It is not appropriate to eliminate this technology from consideration simply because it would be ineffective against inorganics. Aerobic bioremediation could be used to treat organic contaminants as one component of a treatment train of several technologies. |
| | | <i>Response</i> —Comment noted. Revisions have been made to the analyses of applicable remedial technologies for each zone, media, and COC, where appropriate. Subsequent modifications to the assembly of applicable technologies into remedial alternatives have resulted from this revision. The text will reflect these modifications and additions to Chapters 3 through 10. |
| 54 | Page 3-22, Section 3.1.4.10, Chemical Fixation/Solidification | Chemical fixation/solidification is eliminated from consideration "due to the extensive subsurface utility network and because the long-term effectiveness is uncertain." This is inappropriate since this process has already been used by the Navy to remediate lead contaminated soil at Building 31 in Zone 3. |
| | | <i>Response</i> —Comment noted. Chapter 3 has been modified significantly to ensure that potentially relevant technologies are properly considered for each zone, media, and COC. |

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| 55a | Page 3- 24, Section 3.1.4.13, Vacuum Vapor Extraction | The explanation of this technology is somewhat confusing. Please define a "pinhole plate." Please clarify that ground-water pumping is caused by the reduced air pressure in the top of the well, rather than by air bubbles. The bubbles serve to strip volatile contaminants from the dissolved phase to the gaseous phase. <i>Response</i> —Comment noted. The text will be modified to further clarify these issues. |
| 55b | | In the first bullet point regarding effectiveness, please clarify the statement regarding "... larger saturated zones (i.e., approximately 50 ft to ground water...)." The text should refer here to larger unsaturated zones. A large saturated zone is unlikely to be found in an area with a depth of 50 ft to ground water. <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 56 | Page 3-30, Section 3.1.5.5 (Ex Situ) Chemical Fixation/ Solidification | This technology is eliminated due to the potential for damage to subsurface utilities. This is an ex situ technology which would be used to treat soil removed by excavation or other means. It is therefore unclear why this technology has any more potential to damage subsurface utilities than excavation. This technology should be retained for further consideration. <i>Response</i> —Comment noted. Chapter 3 has been modified significantly to ensure that potentially relevant technologies are properly considered for each zone, media, and COC. |
| 57 | Page 3-31, Section 3.1.5.8, (Ex Situ-) Chemical Reduction/ Oxidation | This technology is eliminated because it would not be effective against TPH and PAH. However, it would be effective against other site contaminants, such as lead. This technology might be effective as part of a treatment train. Chemical oxidation/ reduction should, therefore, be retained for further consideration. <i>Response</i> —Comment noted. Chapter 3 has been modified significantly to ensure that potentially relevant technologies are properly considered for each zone, media, and COC. |
| 58 | Page 3-41, Section 3.1.6.8, Ultraviolet Oxidation | Like many of the other technologies discussed, UV oxidation would most likely be used as part of a train of treatment technologies. When high concentrations of volatile organic compounds are present, an additional polishing step may be required to achieve discharge limits. In addition, pH adjustment and flocculation may be necessary to remove metals prior to treatment by UV oxidation. This comment applies also to the discussion on Page 3-42 regarding air stripping. <i>Response</i> —Comment noted and the point will be considered for both UV oxidation and air stripping application. |
| 59 | Page 3-45, Section 3.1.7.1, Discharge to Atmosphere | The last sentence states that no offgas treatment will be required for ground-water treatment. This directly contradicts the statement at the bottom of Page 3-44 that off gas treatment will be considered for Zone 4. Please note that the substantive requirements of the State's Air Pollution Control Regulations apply to any air discharge. <i>Response</i> —Comment noted. |
| 60a | Table 3-1, Summary of Initial Screening of Technologies and Process Options, Page 1 | Monitoring—Monitoring should be retained for each of the seven zones, since contaminants may remain at concentrations in excess of remediation criteria. In some circumstances, the Remediation Standard Regulations require monitoring to evaluate the effectiveness of remedial actions, and to demonstrate compliance with the Regulations. <i>Response</i> —Comment noted. Chapter 3 has been modified significantly to ensure that potentially relevant technologies are properly considered for each zone, media, and COC. |

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| 60b | | Access/Use Restrictions—The use of physical barriers or notices should be retained for each of the seven zones. The text should also note that environmental land use restrictions will be recorded as specified in the Regulations if the based is ever closed and transferred to another entity as specified in the Regulations. |
| | | <i>Response</i> —Comment noted. The text has been modified appropriately to address these points. |
| 60c | | Capping should be retained as an option for each of the seven zones. An asphalt cap could be used to comply with the Remediation Standard Regulation requirements regarding direct exposure. |
| | | <i>Response</i> —Comment noted. Chapter 3 has been modified significantly to ensure that potentially relevant technologies are properly considered for each zone, media, and COC. |
| 61 | Page 4-1, Section 4.1, Development of Remedial Alternatives | Lead and arsenic were also detected at concentrations in excess of the Pollutant Mobility Criteria. |
| | | <i>Response</i> —Comment noted. Chapter 3 has been modified significantly to ensure that potentially relevant technologies are properly considered for each zone, media, and COC, including inorganic COCs. |
| 62 | Page 4-2, Section 4.2, Description of Evaluation Criteria | This section is repeated verbatim for each of the seven zones. This section should be presented only once. |
| | | <i>Response</i> —Comment noted. The text has been modified appropriately. |
| 63 | Page 4-4, Section 4.3.1.2, Evaluation (Zone 1, Alternative 1) | Please add that lead and arsenic were detected at concentrations in excess of the Pollutant Mobility Criteria. |
| | | <i>Response</i> —Comment noted. Chapter 3 has been modified significantly to ensure that potentially relevant technologies are properly considered for each zone, media, and COC, including inorganic COCs. |
| 64a | Page 4-6, Section 4.3.2.1, Description—Monitored Natural Attenuation | In the second paragraph, please provide an estimate of how long it would take for natural attenuation to achieve compliance with cleanup criteria. |
| | | <i>Response</i> —Comment noted. The text will include a discussion concerning the parameters affecting the rate of treatment for natural attenuation, will relate these parameters to the overall Lower Subbase site, and will offer an approximation of the anticipated remediation time period for a generalized zone. |
| 64b | Tiered Monitoring Program | The Navy would conduct quarterly sampling until baseline conditions had been established. Once baseline conditions are established, the State would require monitoring to be conducted, at a minimum, on an annual basis. The report states that monitoring would continue as long as contaminants remained at concentrations in excess of “current industrial land use PRG.” Please clarify that monitoring would continue as long as contaminants remain at concentrations in excess of any cleanup criteria, regardless of the land use scenario. This comment applies also to the second paragraph on Page 4-11. |
| | | <i>Response</i> —Comment noted. Chapter 3 has been reviewed and modified significantly with respect to the scope of technologies studied and their application at Lower Subbase. |

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| 65a | Page 4-7, Section 4.3.2.1, Description—Environmental Land Use Restriction | <p>The title of this section should be changed to “Institutional Controls.” This change should be made throughout the FS wherever the term “Environmental Land Use Restriction” is used in the title of a remedial alternative. The Navy uses the term “environmental land use restriction” generically, to describe land use controls of any sort. It would be more appropriate to avoid the use of this term except when describing an environmental land use restriction as defined in the Regulations. Please see my comments above regarding site use restrictions on Page 3-3 (Section 3.1.1.2). As long as the Subbase remains under the Navy’s control, institutional controls would be used instead of environmental land use restrictions. Institutional controls might include notations to the base master plan and base instructions, coordination with the base excavation permitting system, use of signs, and other methods. If the base is closed and transferred, the State would require that the Navy file environmental land use restrictions as prescribed by the Remediation Standard Regulations. This comment applies in each of the subsequent chapters to discussions regarding environmental land use restrictions.</p> |
| | | <p><i>Response</i>—Comment noted. The use of the term “ELUR” will be replaced with “institutional controls” appropriately in the text.</p> |
| 65b | | <p>The report states that a deed restriction prohibiting residential land use would be put in place if contamination remained in shallow soil at concentrations exceeding the Residential Direct Exposure Criteria. If inaccessible soil exceeds the industrial/ commercial Direct Exposure Criteria, residential use and excavation would have to be restricted. Please note that for this purpose, shallow soil should be defined as: soil at a depth of less than four feet below ground surface, or more than two feet below an asphalt surface with a minimum thickness of 6 in. The regulations provide that such soil is considered inaccessible. The Direct Exposure Criteria do not apply to inaccessible soil if an environmental land use restriction is in place to prevent the soil from being disturbed as the result of excavation, demolition, or other activities. The Navy may take advantage of the exemption from the Direct Exposure Criteria provided for inaccessible soil. To do so the Navy must maintain a minimum of four feet of clean fill in unpaved areas, or two feet of clean fill in areas with asphalt pavement. The pavement must have a minimum thickness of 6 in., and the pavement must be maintained in good condition.</p> |
| | | <p><i>Response</i>—Comment noted. The definition of “inaccessible soil” will be reviewed and made to comply with this explanation. The application of ARARs, including DEC, to this soil will also be reviewed in light of this comment.</p> |
| 66 | Page 4-7, Section 4.3.2.2, Evaluation—Overall Protection of Human Health and the Environment | <p>Monitored Natural Attenuation also would not address lead and arsenic at concentrations in greater than the Pollutant Mobility Criteria.</p> |
| | | <p><i>Response</i>—Comment noted. Appropriate revisions to the development and analyses of applicable remedial alternatives for each zone have resulted from the modifications to Chapters 3 through 10, which have been made to better evaluate the applicability of remedial technologies for each media and COC, including inorganic COCs, where appropriate.</p> |
| 67 | Page 4-8, Section 4.3.2.2, Evaluation—Compliance with ARAR | <p>This alternative would not comply with the Remediation Standard Regulation requirements regarding pollutant mobility.</p> |
| | | <p><i>Response</i>—Comment noted. The text will be revised to fully discuss compliance with all ARARs.</p> |

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| 68a | Page 4-12, Section 4.3.3.2, Evaluation—Overall Protection of Human Health and the Environment | The report states that it is unlikely the site would be used for residential purposes. However, if the base is closed, residential use could occur. An environmental land use restriction to prevent residential use of the property would be required if contamination were detected at concentrations exceeding the Residential Direct Exposure Criteria or volatilization criteria. Please revise the text. <i>Response</i> —Comment noted. The text will be modified appropriately to better explain the scope of the institutional controls. |
| 68b | Compliance with ARAR | This alternative would not address lead and arsenic at concentrations in excess of the GB Pollutant Mobility Criteria. <i>Response</i> —Comment noted. The text will be revised to fully discuss compliance with all ARARs. |
| 69a | Page 4-14, Section 4.3.4.1, Description (Zone 1 Alternative 4)—Selective Excavation/ Offsite Disposal | This section discusses options to address contaminants detected at concentrations greater than remedial criteria “under the current industrial land use scenario. This terminology is confusing since it implies that only the industrial Direct Exposure Criteria are applicable. In fact, the soil and ground-water criteria in the Remediation Standard Regulations apply regardless of the hypothetical risk assessment scenario being used by the Navy. <i>Response</i> —Comment noted. |
| 69b | | This alternative must also address lead and arsenic, which were detected at concentrations greater than the Pollutant Mobility Criteria. <i>Response</i> —Comment noted. Chapters 3 and 4 have been revised to better evaluate the applicability of remedial technologies for each media and COC, including inorganic COCs, where appropriate. |
| 69c | | The Navy proposes to place a plastic liner in the hole prior to backfilling “if additional impacted soil is suspected.” This is unacceptable. The Navy will be required to demonstrate compliance with all the requirements of the Remediation Standard Regulations before remediation may be considered complete. <i>Response</i> —Comment noted. The text will be modified to clarify this issue. |
| 69d | | The Navy proposes to screen for PAH and TPH using a photoionization or flame ionization detector. PIDs and FIDs are designed to detect volatile organics. They are not suitable for screening for TPH or PAHs. The Navy should propose and use a more suitable method to screen for these contaminants. This change should be made throughout the report where the Navy proposes to use a PID or FID to screen for TPH or PAHs. The Navy proposes on Page 7-11 to use a portable XRF to screen soils in Zone 4 for lead. If this technique is used in Zone 4, it would be appropriate to also use it in Zone 4, as well as all other zones where lead in soil is to be addressed. <i>Response</i> —Comment noted. Discussions of alternate field screening methods will be presented. |
| 70 | Page 4-16, Section 4.3.4.1, Description (Zone 1 Alternative 4)—Tiered Monitoring Program | Monitoring must continue as long as contaminants remain at concentrations greater than cleanup criteria. Please see Section 22a-133k-3(g)(3) for requirements regarding discontinuation of ground-water monitoring. <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 71 | Page 4-17, Section 4.3.4.2, Evaluation—Overall Protection of Human Health and the Environment | Would lead and or arsenic remain at concentrations greater than the Pollutant Mobility Criteria? Please note that the Pollutant Mobility Criteria apply only to soils located above the seasonal high water table. Please clarify. This comment applies also to the discussion in the next paragraph regarding compliance with ARARs. <i>Response</i> —Comment noted. The text will be modified to clarify this issue. |

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| 72 | Page 4-18, Section 4.3.4.2, Evaluation—Reduction of Toxicity, Mobility, and Volume | The text states that in situ biodegradation would not address arsenic in soil. It should also state that it would not address lead in soil. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately to discuss the application of this technology to COCs, including inorganic COCs. |
| 73 | Page 4-21, Section 4.4.1, Overall Protection of Human Health and the Environment | This paragraph discusses mercury and PAHs in Zone 1 soil. Previous discussions regarding Zone 1 discussed lead and arsenic, not mercury. Mercury is not listed on Figures 2-1 or 2-2, which depict the location of contaminants in Zone 1. Please clarify. This comment applies also to the discussion on Page 4-21 in Section 4.4.4, and to the discussion on Page 4-22 in Section 4.4.5. |
| | | <i>Response</i> —Comment noted. The text in each of the referenced sections will be modified to clarify this issue. |
| 74 | Page 4-21, Section 4.4.2, Compliance with Applicable or Relevant and Appropriate Requirements | Alternatives 1, 2, and 3 would not comply with the pollutant mobility requirements for metals. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns regarding technology evaluation and selection. |
| 75 | Page 4-21, Section 4.4.4, Reduction of Toxicity, Mobility, and Volume Through Treatment | The discussion implies that toxicity, mobility, and volume would be reduced through treatment. None of the alternatives would include treatment of soil. Please revise the text accordingly. Please make this change throughout the document, since none of the alternatives considered for any of the zones include treatment of contaminated soil. |
| | | <i>Response</i> —Comment noted. Appropriate revisions to the development and analyses of applicable remedial alternatives for each zone in the Lower Subbase have resulted from the modifications to Chapter 3, which have been made to better evaluate the applicability of remedial technologies for each zone, media, and COC, including inorganic COCs, where appropriate. |
| 76 | Page 4-23, Section 4.4.6, Implementability | The text states that Alternative 1 (No Further Action) can't be implemented because remedial action objectives would not be met. Whether or not an alternative meets remedial objectives is not a criteria for determining whether it can be implemented. The ability of an alternative to meet remedial action objectives would be evaluated under other criteria. This comment applies to the comments in each of the subsequent chapters regarding implementability. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 77 | Page 4-23, Section 4.4.7, Cost | The first paragraph states that preliminary cost estimates are supposed to be within -30% to +50% of actual costs. Preliminary cost estimates are, in fact, expected to meet actual costs within a range of -50% to +30%. |
| | | <i>Response</i> —Comment noted. The text will be reviewed and modified appropriately. |
| 78a | Table 4-2, Summary of Comparative Analysis of Remedial Alternatives- Zone 1—Overall Protectiveness-Environment, and Compliance with Applicable or Relevant and Appropriate Requirements | Alternatives 1 to 3 would not meet pollutant mobility criterion for lead. None of the alternatives would involve treatment of soil. |

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| | | <i>Response</i> —Comment noted. Appropriate revisions to the development and analyses of applicable remedial alternatives for Zone 1 have resulted from the modifications to Chapter 3, which have been made to better evaluate the applicability of remedial technologies for each media and COC, including inorganic COCs, where appropriate. |
| 78b | Long-Term Effectiveness and Permanence | Alternatives 1, 2, and 3 would not meet Pollutant Mobility Criteria for lead and arsenic. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns regarding technology evaluation and selection. |
| 78c | Reduction of Toxicity, Mobility, and Volume Through Treatment | None of the alternatives include treatment and none would satisfy the statutory preference for treatment. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns about technology evaluation and selection. |
| 79a | Page 5-1, Section 5.1, Development of Remedial Alternatives (Zone 2) | Additional remedial alternatives, including selective excavation, must be evaluated. Contaminants are present at concentrations greater than the direct exposure and Pollutant Mobility Criteria, as well as other ARARs. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns about technology evaluation and selection. |
| 79b | | Lead was also present at concentrations greater than the pollutant mobility criterion. Please discuss in the text. |
| | | <i>Response</i> —Comment noted. The text has been modified appropriately to discuss the application of this technology to COCs, including inorganic COCs. |
| 80 | Page 5-5, Section 5.3.2.2, Evaluation—Overall Protection of Human Health and the Environment | This section should discuss the presence of contaminants other than TPH at concentrations greater than cleanup criteria. |
| | | <i>Response</i> —Comment noted. The text has been modified appropriately to discuss the application of this technology to COCs, including inorganic COCs. |
| 81 | Table 5-1, Comparison of Feasible Remedial Alternatives | Additional alternatives to address the requirements of the Remediation Standard Regulations must be considered. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns about technology evaluation and selection. |
| 82a | Table 5-2, Summary of Comparative Analysis of Remedial Alternatives- Zone 2—Overall Protectiveness-Environment | Alternatives 1 and 2 would not address pollutant mobility risks posed by lead in soil. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns about technology evaluation and selection. |
| 82b | Compliance With Applicable or Relevant and Appropriate Requirements | Please revise this table to acknowledge that none of the listed alternatives would comply with the requirements of the Remediation Standard Regulations regarding pollutant mobility. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns about technology evaluation and selection. In addition, the text has been revised to fully discuss all ARARs. |

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| 82c | Reduction of Toxicity, Mobility, and Volume Through Treatment | Alternative 2 would not satisfy the statutory preference for treatment. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns about technology evaluation and selection. |
| 82d | Implementability-Ability to Obtain Approvals and Coordinate with Other Agencies | Delete the language under Alternatives 1 and 2 and replace with, “No permits or other regulatory approvals required.” |
| | | <i>Response</i> —Comment noted. The text will be modified as requested. |
| 83 | Page 6-1, Section 6.1, Development of Remedial Alternatives (Zone 3) | The second paragraph states that it is unlikely that the property would be used for residential purposes. However, if the base is closed, then it is possible the site might be used for residential purposes. The FS must consider this possibility. The text also states that PAH concentrations in shallow soil “are below typical non- industrial urban background soil concentrations for New England.” This fact is irrelevant. The Remediation Standard Regulations do not allow the use of regional, non- site-specific data in setting cleanup objectives. Please see the definition of “background concentration for soil,” which is listed in Section 22a-133k-1 (a)(6) of the Regulations. |
| | | <i>Response</i> —Comment noted. The revised draft FS will fully discuss the application of institutional controls at Lower Subbase zones, and will be reviewed and revised for purposes of consistency and applicability of discussion of background soil relevancy. |
| 84a | Page 6-7, Section 6.3.2.2, Evaluation—Long Term Effectiveness and Permanence | The text states that “remediation of lead concentrations beneath Building 31 has been completed.” This remediation was completed as a Removal Action in 1994, prior to the adoption of the Remediation Standard Regulations. The cleanup criteria used during the Removal Action (5 mg/L TCLP lead and 500 mg/kg total lead) did not comply with CTDEP policy at the time the work was done, or the subsequently adopted requirements of the Remediation Standard Regulations. Compliance with the Regulations is required under the current Remedial Action. |
| | | <i>Response</i> —Comment noted. The text has been revised appropriately. |
| 84b | Implementability | Alternative 2 does involve the use of institutional controls. Please revise this paragraph. |
| | | <i>Response</i> —Comment noted. The text has been revised appropriately. |
| 85a | Page 6-8, Section 6.3.3.1, Alternative 3-Description | The Navy proposes to use a PID or FID to monitor for PAHs. Please propose a more suitable method to monitor for PAH as well as TPH. |
| | | <i>Response</i> —Comment noted. Discussions of alternate field screening methods will be presented, as directed in the response to Comment No. 69d. |
| 85b | | The Navy proposes to place a plastic liner in the hole prior to backfilling “if additional impacted soil is suspected.” This is unacceptable. The Navy will be required to demonstrate compliance with all the requirements of the Remediation Standard Regulations before remediation may be considered complete. |
| | | <i>Response</i> —Comment noted. The text will be modified to clarify this issue, as directed in the response to Comment No. 69c. |
| 86a | Table 6-2, Page 3—Implementability | The “ability to obtain approvals...” criterion refers to the ability to obtain permits and other approvals to carry out an alternative. It does not refer to whether or not the regulators will accept or reject a particular alternative. |
| | | <i>Response</i> —Comment noted. The text has been revised appropriately. |

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| 86b | Reduction of Toxicity, Mobility, and Volume Through Treatment | None of the alternatives includes treatment, and none would satisfy the statutory preference for treatment. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been substantially modified to better address CTDEP concerns about technology evaluation and selection, and alternative development and analyses. |
| 87 | Page 7-1, Section 7.1, Development of Remedial Alternatives | Please revise the text to acknowledge that if the site were ever to close, then residential land use is possible. |
| | | <i>Response</i> —Comment noted. The text has been revised appropriately. |
| 88 | Page 7-6, Section 7.3.2.1, Description—Monitored Natural Attenuation | The second paragraph states that volatile organic compound concentrations can be slow to biodegrade. I believe the author meant to more specifically state that chlorinated volatile organic compounds may biodegrade slowly. Please see the second paragraph of the section entitled “Monitored natural Attenuation” on Page 7-12. |
| | | <i>Response</i> —Comment noted. The text has been revised appropriately to improve the clarity of the discussion. |
| 89 | Page 7-6, Section 7.3.2.1, Description—Tiered Monitoring Program | Please clarify that second tier monitoring would be carried out if specific criteria were exceeded. The plan should also specify that actual remediation will be conducted if warranted. |
| | | <i>Response</i> —Comment noted. The text has been revised appropriately. |
| 90a | Page 7-9, Section 7.3.2.2, Evaluation—Compliance with ARAR | The text states that “lead concentrations in excess of industrial land use PRG would be addressed through ELUR.” Please add that this option would not comply with the Pollutant Mobility Criteria. |
| | | <i>Response</i> —Comment noted. Chapter 7 has been modified to allow for better alternative selection to enable compliance with ARARs and TBC criteria. |
| 90b | Reduction of Toxicity, Mobility, and Volume Through Treatment | This option does not involve any treatment of soil or ground water. The last two sentences of this paragraph appear to contradict each other. If physical and chemical processes will reduce the concentration of inorganic compounds in ground water, then natural attenuation would be likely to reduce the toxicity, mobility or volume of these contaminants. |
| | | <i>Response</i> —Comment noted. Chapter 7 has been modified to allow for better alternative selection to enable compliance with ARARs and TBC criteria. |
| 91a | Page 7-11, Section 7.3.3.1, Description—Selective Excavation and Offsite Disposal | The Navy proposes to use a PID or FID to screen for PAHs and TPH. These instruments would not be effective for this purpose. The Navy appropriately proposes to use portable XRF to screen for lead in soil this zone. XRF should be used to screen for lead and other inorganic wherever excavation will be conducted. Please refer to the attached New England Waste Management Official’s Organization advisory opinion regarding the use of XRF. |
| | | <i>Response</i> —Comment noted. Discussions of alternate field screening methods will be presented, as directed in the response to Comment No. 69d. |
| 91b | | The report notes that lead, measured by TCLP, was detected near Building 80 “at concentrations above industrial land use PRG.” Please clarify that lead was detected at concentrations greater than the GB pollutant mobility criterion. Were any samples analyzed for lead using the SPLP method? |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |

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| 92 | Page 7-12, Section 7.3.3.1, Description—Monitored Natural Attenuation | The Navy speculates that lead concentrations in ground water would decrease as a result of physical processes such as dispersion, adsorption, and dilution. It is unlikely that this would occur in an acceptable time frame unless the source of the lead was removed from soil or made immobile. The statement that natural attenuation will decrease the concentration of inorganic compounds contradicts earlier statements that natural attenuation would not be effective on inorganics. <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 93 | Page 7-15, Section 7.3.3.2, Evaluation—Reduction of Toxicity, Mobility, and Volume Through Treatment | This option does not involve any treatment of contaminated soil or ground water. <i>Response</i> —Comment noted. Chapter 7 has been modified to allow for better alternative selection to enable compliance with ARARs and TBC criteria. |
| 94a | Page 7-17, Section 7.3.4.1, Description-Alternative 4 | A PID or FID would not be effective in screening for PAH or TPH. <i>Response</i> —Comment noted. Discussions of alternate field screening methods will be presented, as directed in the response to Comment No. 69d. |
| 94b | | Soil would be excavated to a minimum depth of 4.5 ft to comply with the Pollutant Mobility Criteria. Please note that the Pollutant Mobility Criteria do not apply to soils below the seasonal high water table in a GB area. What is the depth of the water table in this area? Were any soil samples from this area analyzed for lead using the SPLP method? <i>Response</i> —Comment noted. The text will be reviewed and modified to clarify the depth of the excavation and to detail the results of the sample analyses. |
| 94c | | The Navy proposes to place a plastic liner in the hole prior to backfilling “if additional impacted soil is suspected.” This is unacceptable. The Navy will be required to demonstrate compliance with all the requirements of the Remediation Standard Regulations before remediation may be considered complete. <i>Response</i> —Comment noted. The text will be modified to clarify this issue, as directed in the response to Comment No. 69c. |
| 95 | Page 7-18, Section 7.3.4.1, Description-Alternative 4—Ground-Water Extraction and Treatment | Please specify what is meant by UCL slightly above the volatilization criteria. The term “UCL” should not be used generically in place of the term “concentration.” The term UCL should only be used in describing the results of statistical evaluation of the results of analytical data for a group of samples. Where analytical results for individual samples are being discussed, the term “concentration” should be used. <i>Response</i> —Comment noted. The text will be reviewed and modified appropriately to better define and apply UCL. |
| 96a | Page 7-19 Description-Alternative 4—Ground-Water Extraction and Treatment | In the third paragraph, delete “CTPDES” and replace it with “Connecticut Water Discharge.” <i>Response</i> —Comment noted. The text will be modified as requested. |

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| 96b | | The third paragraph states that the selective excavation program "may substantially reduce or eliminate the source areas for COC migration to ground water," likely resulting in "decreased COC concentrations in ground water." The areas where soil will be removed to address "hot spot" contamination have no apparent relationship to the proposed location of ground-water extraction wells. The hot spots do not appear to be upgradient of or in close proximity to proposed locations for ground-water extraction wells. It is difficult to see how excavation in the locations shown would, by itself, cause lead concentrations to decrease in the areas where the wells would be installed. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 7 will be made to better discuss "hot spot" excavation when it is a component of a remedial alternative. |
| 96c | Tiered Monitoring Program | Please clarify that second tier monitoring would be carried out if specific criteria were exceeded. The plan should also specify that actual remediation will be conducted if warranted. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 97 | Page 7-24, Section 7.4.3, Long Term Effectiveness and Permanence | Please delete the first sentence. Alternatives 2 and 3 would be less effective than Alternatives 3 and 4 because Alternatives 2 and 3 would leave in place material with contaminant concentrations greater than the RSR criteria. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 98a | Page 7-25, Section 7.4.4, Reduction of Toxicity, Mobility, and Volume Through Treatment | None of these alternatives involves treatment of soil. Only Alternative 4 involves treatment of ground water. |
| | | <i>Response</i> —Comment noted. Chapters 3 and 7 have been modified to better evaluate applicable treatment technologies and develop appropriate remedial alternatives to enable compliance with ARARs and TBC criteria. |
| 98b | | In the second paragraph, the Navy proposes to expand ground-water monitoring if contaminants remain at concentrations greater than the Surface Water Protection Criteria. Please note that the volatilization criteria apply also. The Navy must propose additional remedial action if contamination is detected at concentrations greater than the surface water protection or volatilization criteria. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 99a | Table 7-2, Summary of Comparative Analysis of Alternatives- Zone 4—Compliance with Applicable or Relevant and Appropriate Requirements | Alternative 2 would not address lead concentrations that exceed the direct exposure criterion. |
| | | <i>Response</i> —Comment noted. The text has been modified appropriately to discuss the alternative's effectiveness in addressing remediation of COCs, including inorganic COCs, and compliance with ARARs and TBC criteria. |
| 99b | Reduction of Toxicity, Mobility, and Volume Through Treatment | None of the alternatives would involve treatment of soil, and only Alternative 4 would involve treatment of ground water. Only Alternative 4 would satisfy the statutory preference for treatment. |
| | | <i>Response</i> —Comment noted. Chapter 7 has been modified for better alternative development in order to enable compliance with ARARs and TBC criteria. |

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| 99c | Implementability-Ability to Obtain Approvals and Coordinate with Other Agencies | Delete the language under Alternative 1, and replace with: "No permits or other regulatory approvals required." |
| | | <i>Response</i> —Comment noted. The text has been modified appropriately. |
| 100 | Page 8-1, Section 8.1, Development of Remedial Alternatives | Lead was also detected at concentrations greater than the Pollutant Mobility Criteria. |
| | | <i>Response</i> —Comment noted. The text has been modified appropriately to address remediation of COCs at this zone, including inorganic COCs. |
| 101 | Page 8-5, Section 8.3.3.2, Evaluation | The text states that residential use of the base is unlikely. However, if the base is closed, then residential use is a possibility. |
| | | <i>Response</i> —Comment noted. |
| 102a | Page 8-6, Section 8.3.3.2, Evaluation—Compliance with ARAR | Alternative 2 would not comply with the Pollutant Mobility Criteria of the Remediation Standard Regulations. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns about technology evaluation and selection, and remedial alternative development and analyses. |
| 102b | Reduction of Toxicity, Mobility, and Volume Through Treatment | Please delete the last sentence. Alternative 2 would not address the pollutant mobility criterion for lead. |
| | | <i>Response</i> —Comment noted. The text has been modified appropriately to address remediation of COCs at this zone, including inorganic COCs. |
| 102c | | This alternative does not involve any treatment. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better evaluate applicable treatment technologies and develop appropriate remedial alternatives. |
| 103 | Page 8-7, Section 8.3.3.1, Selective Excavation and Offsite Disposal | The Navy proposes to use a PID or FID to screen for TPH. Neither of these instruments is suitable for this purpose. Since lead is also present in the soil, the Navy should also propose a suitable method to screen the soil for lead. |
| | | <i>Response</i> —Comment noted. Discussions of alternate field screening methods will be presented, as directed in the response to Comment No. 69d. |
| 104 | Page 8-8, Section 8.3.3.1, Selective Excavation and Offsite Disposal | The Navy proposes to place a plastic liner in the hole prior to backfilling "if additional impacted soil is suspected." This is unacceptable. The Navy will be required to demonstrate compliance with all the requirements of the Remediation Standard Regulations before remediation may be considered complete. If the Navy wishes to provide a marker to identify the extent to which excavation took place, orange snow fence would be more suitable. Snow fence was successfully used for this purpose at the Raymark Industries NPL site in Stratford, Connecticut. |
| | | <i>Response</i> —Comment noted. The text will be modified to clarify this issue, as directed in the response to Comment No. 69c. |
| 105a | Page 8-9, Section 8.3.2.2, Evaluation—Compliance with ARARs | The text notes that contaminants were found in soil at concentrations greater than the "CTDEP industrial criteria," and that the alternative would be carried out "in accordance with location- specific and action- specific ARAR." Please revise the text to note that contaminant concentrations were also greater than the GB Pollutant Mobility Criteria. Will this alternative comply also with chemical specific ARARs? |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns about technology evaluation and selection. |

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| 105b | Reduction of Toxicity, Mobility, and Volume Through Treatment | Alternative 3 would not address the pollutant mobility criterion for lead. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns about technology evaluation and selection, and alternative development and analyses for each zone, media, and COC, including inorganic COCs. |
| 106 | Page 8-10, Section 8.4.2, Compliance with ARARs | Alternative 2 would not comply with the Pollutant Mobility Criteria of the Remediation Standard Regulations. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns about technology evaluation and selection, and alternative development and analyses for each zone, media, and COC, including inorganic COCs. |
| 107 | Page 8-11, Section 8.4.3, Long-Term Effectiveness and Permanence | Alternative 2 would be less effective in achieving Remedial Action Objectives than Alternative 3. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 8 will involve better evaluation and comparison of remedial alternatives. |
| 108 | Page 8-11, Section 8.4.4, Reduction of Toxicity, Mobility, and Volume Through Treatment | None of these alternatives involves treatment of soil or ground water. |
| | | <i>Response</i> —Comment noted. Chapters 3 through 10 have been modified to better address CTDEP concerns about technology evaluation and selection, and alternative development and analyses for each zone, media, and COC. |
| 109 | Page 8-12, Section 8.4.5, Short Term Effectiveness | In the second paragraph, lead should be discussed also. This alternative does not comply with the pollutant mobility requirements for lead. |
| | | <i>Response</i> —Comment noted. Appropriate revisions to the development and analyses of applicable remedial alternatives for Zone 5 have resulted from the modifications to Chapters 3 and 8 which have been made to better evaluate the applicability of remedial technologies for each media and COC, including inorganic COCs, where appropriate. |
| 110a | Table 8-2, Summary of Comparative Analysis of Alternatives- Zone 5—Compliance with Applicable or Relevant and Appropriate Requirements | Alternative 2 would not comply with the Pollutant Mobility Criteria. |
| | | <i>Response</i> —Comment noted. Appropriate revisions to the development and analyses of applicable remedial alternatives for Zone 5 have resulted from the modifications to Chapters 3 and 8, which have been made to better evaluate the applicability of remedial technologies for each media and COC, including inorganic COCs, where appropriate. |
| 110b | Reduction of Toxicity, Mobility, and Volume Through Treatment, Page 2 | Please revise to indicate that none of the proposed alternatives includes treatment of soil or ground water. Alternative 3 does not satisfy the statutory preference for treatment. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 8 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone. |

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| 110c | Implementability-Ability to Obtain Approvals and Coordinate with Other Agencies | Delete the language under each alternative and replace with, "No permits or other regulatory approvals required." |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 111 | Page 9-1, Section 9.1, Development of Remedial Alternatives | The report must consider contaminants that exceed remedial criteria under all land use scenarios, not just the industrial land use scenario. For this reason, additional alternatives that actively address the contamination must also be developed. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 9 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone. |
| 112a | Page 9-6, Section 9.3.2.2, Evaluation—Compliance With ARAR | Alternative 2 would not address lead at concentrations greater than the GB Pollutant Mobility Criteria. This alternative would not comply with ARARs. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 9 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone, including inorganic COCs. |
| 112b | Reduction of Toxicity, Mobility, and Volume Through Treatment | Please revise to indicate that Alternative 2 does not include treatment of soil or ground water. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 9 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone. |
| 113 | Page 9-7, Section 9.4.1, Overall Protection of Human Health and the Environment | Alternative 2 would not be protective because it does not address lead and TPH which were detected in soil at concentrations greater than the Pollutant Mobility Criteria and Direct Exposure Criteria. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 9 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone, including inorganic COCs. |
| 114a | Page 9-7, Section 9.4.2, Compliance with Applicable or Relevant and Appropriate Requirements | If the base is closed, then residential land use would be more likely. Please revise the text. |
| | | <i>Response</i> —Comment noted. The text will be revised appropriately. |
| 114b | | Alternative 2 would not comply with the Pollutant Mobility Criteria or Direct Exposure Criteria. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 9 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone, including inorganic COCs. |
| 115 | Page 9-7, Section 9.4.3, Long Term Effectiveness and Permanence | Alternative 2 would not comply with ARARs, and would not achieve remedial action objectives. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 9 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone, including inorganic COCs. |
| 116 | Page 9-9, Section 9.4.7, Cost | The report should say that capital costs are highest for Alternative 2, and lowest for Alternative 1. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |

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| 117a | Table 9-2, Summary of Comparative Analysis of Remedial Alternatives- Zone 6— Overall Protectiveness- Environment | For both alternatives, please delete the statement that “COC does not exceed Pollutant Mobility” and replace it with “Lead is present at a concentration greater than the pollutant mobility criterion.” For Alternative 1, delete the language under Potential Onsite Receptors, and replace it with “TPH exceeds direct exposure criterion.” |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 117b | Reduction of Toxicity, Mobility, and Volume Through Treatment | Alternative 2 would not satisfy the statutory preference for treatment. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 10 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone. |
| 117c | Implementability | Under “Ability to obtain approvals...,” delete the language under Alternative 1 and replace with, “No permits or other regulatory approvals required.” |
| | | <i>Response</i> —Comment noted. The text will be modified as requested. |
| 118a | Page 10-7, Section 10.3.2.2, Evaluation | The first paragraph states that it is unlikely the property would be transferred for residential reuse. If the base is closed, residential use cannot be discounted. |
| | | <i>Response</i> —Comment noted. |
| 118b | | The second paragraph states the contaminated sediment was dredged, and later replaced with clean fill. The dredging referred to was done to prepare for home porting the Seawolf class submarines at the Subase. It is unlikely, therefore, that clean fill was placed following dredging. |
| | | <i>Response</i> —Comment noted. The text will be modified accordingly. |
| 119 | Page 10-9, Section 10.3.3.1, Description, Paragraph 1 | The Navy proposes to screen for PAHs using a PID or FID. Neither of these instruments is suitable for this purpose. Please propose another technique to screen for the presence of PAHs in soil. |
| | | <i>Response</i> —Comment noted. Discussions of alternate field screening methods will be presented, as directed in the response to Comment No. 69d. |
| 120 | Page 10-10, Section 10.3.3.1, Description Paragraph 1 | Please clarify that monitoring would continue as long as contaminants remain at concentrations in excess of any cleanup criteria. |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 121 | Page 10-11, Section 10.3.3.2, Evaluation— Compliance with ARAR | Institutional controls equivalent to an environmental land use restriction will be required if contaminants remain at concentrations exceeding the direct exposure or Pollutant Mobility Criteria. The last sentence states that Alternative 3 would be conducted in accordance with action and location specific ARARs. Would it also be conducted in accordance with chemical specific ARARs? |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 10 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone and better address CTDEP concerns. |
| 122 | Page 10-12, Section 10.3.3.2, Evaluation— Reduction of Toxicity, Mobility and Volume Through Treatment | None of the proposed alternatives make use of treatment. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 10 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone. |

| Comment No. | Page/Section | Comment/Response |
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| 123 | Page 10-13, Section 10.4.1, Overall Protection of Human Health and the Environment | The second paragraph states that it is unlikely that the site would be used for residential purposes. However, if the base is closed, then it is possible the Lower Base might be used for residential purposes. |
| | | <i>Response</i> —Comment noted. |
| 124 | Page 10-14, Section 10.4.2, Compliance with Applicable or Relevant and Appropriate Requirements | Please delete the first sentence. Replace it with “Alternatives 1 and 2 would not comply with ARARs. Alternative 3 would comply with ARARs, including the Pollutant Mobility Criteria of the State’s Remediation Standard Regulations. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 10 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone. |
| 125a | Table 10-2, Summary of Comparative Analysis of Remedial Alternatives- Zone 7—Overall Protectiveness-Environment | Alternatives 1 and 2 would not comply with the Pollutant Mobility Criteria requirements and would not protect potential offsite receptors. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 10 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone. |
| 125b | Compliance with Applicable or Relevant and Appropriate Requirements | Alternatives 1 and 2 would not comply with the pollutant mobility requirements and therefore would not comply with chemical specific ARARs. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 10 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone. |
| 125c | Reduction of Toxicity, Mobility, and Volume Through Treatment | None of the alternatives would satisfy the statutory preference for treatment, since none of them include treatment. |
| | | <i>Response</i> —Comment noted. Revisions to Chapter 10 will involve development and analyses of remedial alternatives that more comprehensively address COCs at this zone. |
| 125d | Implementability-Ability to Obtain Approvals and Coordinate with Other Agencies | Delete the language under Alternative 1 and replace with, “No permits or other regulatory approvals required.” |
| | | <i>Response</i> —Comment noted. The text will be modified appropriately. |
| 126 | Page 11-1, Section 11.1, Summary of Remedial Alternatives | Monitored natural attenuation and tiered monitoring should be retained for selected contaminants in all seven zones. Selective excavation should be retained for Zones 2 and 6. |
| | | <i>Response</i> —Comment noted. Revisions to the technologies that are incorporated into the modified list of remedial alternatives appropriate for each zone will be made. Modifications to Chapter 11 will involve presentation and comparison of the remedial alternatives that most comprehensively address COCs at each zone. |

| Comment No. | Page/Section | Comment/Response |
|-------------|--|--|
| 127 | Page 11-3, Section 11.2.3, Tiered Monitoring Program | Monitoring will be required in all zones where contaminants remain at concentrations greater than cleanup criteria. |
| | | <i>Response</i> —Comment noted. Revisions to the technologies that are incorporated into the modified list of remedial alternatives appropriate for each zone will be made. Modifications to Chapter 11 will involve presentation and comparison of remedial alternatives that most comprehensively address COCs at each zone. |
| 128a | Page 11-3, Section 11.2.4, Monitored Natural Attenuation | Monitored natural attenuation should be retained for organic contaminants in all zones. |
| | | <i>Response</i> —Comment noted. Revisions to the technologies that are incorporated into the modified list of remedial alternatives appropriate for each zone will be made. Modifications to Chapter 11 will involve presentation and comparison of remedial alternatives that most comprehensively address COCs at each zone. |
| 128b | | The Navy proposes in the third paragraph to conduct coordinated monitoring that would look at the Lower Base as a whole, rather than considering it as a group of isolated sites. The State agrees that this is a useful approach. |
| | | <i>Response</i> —Comment noted. This approach will be incorporated into the revised text where appropriate. |
| 129 | Page 11-4, Section 11.2.5, Selective Excavation and Offsite Disposal | Contaminants are present in the soil in all seven zones at concentrations greater than cleanup criteria. Selective excavation and offsite disposal should be retained for all seven zones. |
| | | <i>Response</i> —Comment noted. Revisions to the technologies that are incorporated into the modified list of remedial alternatives appropriate for each zone will be made. Modifications to Chapter 11 will involve presentation and comparison of remedial alternatives that most comprehensively address COCs at each zone. |
| 130 | Appendix B Preliminary Remedial Goal Calculations | The source of the analytical data used in the calculations is unclear. The UCL data provided for various pollutants do not agree with the UCL data presented in Appendix D-1. |
| | | <i>Response</i> —Commented noted. The data will be modified to clarify the calculations. |
| 131 | Appendix C Dilution Factor Calculations | The dilution factors presented here were not calculated in accordance with either Section 22a-133k-2(c)(2)(E) of the Remediation Standard Regulations (site-specific dilution for the Pollutant Mobility Criteria), or with Section 22a-133k-3(b)(3) (alternative Surface Water Protection Criteria). The site-specific dilution factor for the Pollutant Mobility Criteria considers the hydrogeologic characteristics of the aquifer. Since the Pollutant Mobility Criteria protect ground water, this dilution factor does not consider flow characteristics of a surface water body. |
| | | <i>Response</i> —Comment noted. The dilution factors have been evaluated and recalculated. |