UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

July 27, 1999

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

Re: Draft Feasibility Study for the Area A Weapons Center

Dear Mr. Evans:

EPA reviewed the *Draft Feasibility Study for the Area A Weapons Center* dated June in light of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), the National Contingency Plan ("NCP") (40 C.F.R. Part 300.430), and EPA's RI/FS guidance (OSWER Directive 9355.3-01, October 1988). Detailed comments are provided in Attachment A. Since the FS did not include alternative specific Applicable or Relevant and Appropriate Requirements (ARARs) tables, EPA developed them for each alternative and provided them in Attachment B.

Given that the FS will be a public document and the basis for future decision-making, EPA also reviewed the FS in light of its clarity to a non-technical reviewer. As indicated in some of our comments in Attachment A, the FS needs substantial improvement in this arena and several issues should be better explained before the draft final FS is issued. In particular, the FS should minimize the use of jargon and better explain the methodologies used to develop cleanup goals and compare alternatives.

Risks have been recalculated in this FS using supplemental data. However, such data are not presented in this report. As a result, exposure point concentrations and final COCs cannot be verified. All data that have not been presented elsewhere should be included in this report and appropriately referenced.

Appendix A shows the Preliminary Remediation Goal (PRG) calculations. Based on review of the calculations for all of the Inhalation Conversion Factors and Inhalation Lifetime Average Doses, several problems were noted with these calculations. Using the information presented, some of the units did not cancel out. The units of the PM10 Factor used are not defined in this Appendix. The IRc for the inhalation pathway is given as mg/event rather than the standard 20 m^3/day. The equations and parameters for the inhalation doses should be checked to ensure that

the risk results from this pathway are accurate. In addition, the source of the equation used to calculate the intake for the inhalation pathway should be cited.

A treatment alternative must be developed and evaluated to provide a full range of alternatives, because the NCP expresses a preference for treatment alternatives. As stated in the NCP, EPA expects to use treatment to address the principal threats posed by a site, wherever practicable [40 C.F.R. §300.430(a)(iii)(A)]. The FS must be substantially modified to present a clearer rationale for dismissing each of the treatment technologies.

In discussing the development of PRGs, the FS should discuss how site background concentrations affect the selection of constituents and their PRGs. Please describe how background concentrations affected the selection of COCs and their PRGs.

In Section 3.0 the technologies considered must address contaminated soil and sediment. The discussion for most technologies mentions soil but not sediment. Please edit the discussions to include both soil and sediment.

The FS does not show the calculations for the 95% UCL of the mean used in Appendix A. Please include those calculations in the FS.

The FS must present the analytical data for this site including the depth of each sample because the ARARs establish different action levels based on depth. Certain ARARs apply to samples that are less than 2 feet if under pavement, less than 4 feet if covered by permeable material, and contaminant depth relative to the water table . Please include an appendix with tables that clearly provide this necessary information.

The document needs to have a thorough QC review, not only for the issues discussed in these comments, but also for consistency and grammar. Various sections in the Feasibility Study that contain information and conclusions about the human health and ecological risk assessment need to be revised to be consistent with the Phase II Remedial Investigation and appropriate regulatory guidance.

From the review of Tables 8-20 Hazard Quotients for Benthic Invertebrates Based On Maximum Sediment Concentrations and 8-21 Hazard Quotients for Benthic Invertebrates Based on Average Sediment Concentrations, it is apparent the gamma-chlordane is present at an elevated concentration largely contributing to an HQ of 362. In addition, the soil component of the exposure pathway to the short-tailed shrew is responsible for contributing approximately 55% to the overall exposure pathway (soil, food, and water). Antimony is the major contaminant responsible for contributing to the greatest percentage (approximately 70%) of the calculated risk. Any future remedial activities should consider where elevated gamma chlordane concentrations were detected in the sediments and whether a preliminary remedial goal should be established for this contaminant. EPA recognizes that there are a number of uncertainties associated with terrestrial food chain models. However, the FS could benefit from inclusion of a

brief discussion about the uncertainties surrounding the derivation of antimony reference toxicity values since this contaminant contributes significantly to the Hazard Indices for both the short-tailed shrew and red-tailed hawk. This uncertainty combined with the use of more realistic site use factors could result in much lower Hazard Quotients and Hazard Indices and therefore lead to the conclusion that site contaminants are not responsible for an adverse effect to these terrestrial vertebrates. As a result, it is important to discuss how uncertainty affects the conclusions of both the ecological risk assessment, development of cleanup goals, and the alternatives developed to address those risks.

Any excavation impacts within the Area A wetland boundaries must be mitigated pursuant to Section 404 of the Clean Water Act. The FS must be clear on this point and incorporate any associated mitigation costs into the alternatives analysis.

A table with a comparison of site data and the corresponding preliminary remediation goal (PRGs) and chemical specific ARARs could be useful. In addition, the site-specific chemical data point (*i.e.*, maximum, &/or average, &/or 95% Upper Confidence Limit) used for comparison with PRGs and ARARs should be discussed in the text and noted in the PRG/ARAR/data table proposed.

Please discuss the relevance of the presence of arsenic above PRGs. How does it relate to site background data? Currently, arsenic is mentioned in the text (*i.e.*, page 2-16) and in some tables, but does not appear in Table 2-6.

I look forward to working with you and the Connecticut Department of Environmental Protection to protect the environs of the Area A Weapons Center. Please contact me at (617) 918-1385 to arrange a meeting.

Sincerely,

Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachments

cc: Mark Lewis, CTDEP, Hartford, CT
Darlene Ward, NSBNL, Groton, CT
David Peterson, USEPA, Boston, MA
Cindy Hanna, USEPA, Boston, MA
Patti Lynne Tyler, USEPA, Lexington, MA
Jennifer Stump, Gannett Fleming, Harrisburg, PA
Charles McLeod, EA Engineering, Newburgh, NY

ATTACHMENT A

Page	Comment
p. ES-2	In the beginning paragraph of this page, the first sentence incorrectly states, "...Site 20...and no ecological risks...." Please revise and review Section 8.9.3 titled Ecological Risk Assessment which is located within the Phase II RI. The third paragraph of this section presents the following important information: "...The results of the ecological risk assessment indicate that with the exception of soil invertebrates, organisms using this area would potentially be at risk, assuming that the Area A Weapons Center provided habitat and forge for terrestrial receptors. However, because of the current conditions associated with this site, actual risks to ecological receptors are likely to be much less than those calculated for the area. When the current site conditions are factored into this evaluation, it is concluded that the Area A Weapons Center represents little potential risk to ecological receptors that might utilize this area. However, it should be noted, due to potential transport from this site, contaminants associated with the Area A Weapons Center may be impacting organisms inhabiting the Area A Wetland...."
p. ES-2, bullets	The contaminants of concern (COCs) noted for each drainage area bullet do not agree with information presented later in the document. For instance, arsenic is the only COC evaluated for the full-time employee and construction worker in the PRG appendices. A PRG is also calculated and presented for arsenic in soil on page 2-14. In addition, beryllium contributes a similar risk as the other polycyclic aromatic hydrocarbons (PAHs). Therefore, the COCs included in these bullets should be expanded or their selection criteria should be clarified.
p. ES-2, §ES.2.1	Another remedial action objective should be developed to minimize the potential future overland transport of contaminants from the three drainage areas into the Area A Wetlands and the Area A Downstream watercourses. This is important because surface water concentrations of cadmium and zinc were detected above acute ambient water quality criteria. Furthermore, Section 8.9.5 of the Phase II RI states that "...potential exists for contaminants to migrate from the site to Area A Wetland and impact ecological receptors...."
p. 1-1, §1.1.2	Based on comments provided in this review, the information and discussion presented within the FS does not adequately address potential risks to the environment in all three drainage areas. Revisions to this document should better describe those ecological risks.

p. 1-4, §1.2.1.2 Before the late 1950s, the Area A Wetland was undeveloped and possibly a wetland. In the late 1950s, dredge spoils from the Thames River were deposited into this area and this disturbance has resulted in the development of a wetlands that is dominated by the Great Reed, *Phragmites australis*. The monotypic stand of this invasive species indicates a disturbed habitat and one that is not fully functional. Therefore, any potential migration of contaminants should be avoided.

p. 1-4, §1.2.1.2 The last paragraph appears to state that samples of media and excavated materials collected at the southern bunker area were found to contain cyanide, TPH, and various metals. However, the text does not indicate if these constituents were found in the media left in place or the material removed from the site. The results of confirmation samples for media left in place need to be considered for this FS. Please edit the text to indicate if detections of constituents were found in media left in place and, if so, what the concentrations were. The document needs to be edited to include these data and discuss its impact on the FS. Delete the last sentence.

p. 1-5, §1.2.2.2 The Phase II RI indicated that cadmium (6.6 µg/L) and zinc (135 µg/L) were detected in surface water collected from WCSW3 at concentrations greater than the acute Ambient Water Quality Criteria. Also, contaminants of concern in collected sediments were identified by comparing the site-specific chemical concentrations against NOAA's Effect Range Low, NOAA's Effect Range Median, Ontario Ministry of Environment Lowest Effect Level and Severe Effect Level. This discussion is presented within Chapter 3 of the Phase II RI.

p. 1-5, §1.2.2.2 The third paragraph states that various soil samples may have exceeded the Connecticut Remediation Standards but provides few additional details. Are the analytical results for all the samples exceeding the Connecticut Remediation Standards presented and discussed fully in subsequent sections of the FS? Since the Connecticut Remediation Standards are ARARs, any exceedances in samples collected at the site must be addressed in the FS. An appendix with the RI data could clarify this issue.

p. 1-7, §1.3.2 The second bullet in this section states that the Pleasant Valley community borders the southern boundary of NSB-NLON. The second paragraph states that Site 20 is located just west of the Pleasant Valley neighborhood. These statements contradict.

p. 1-8, §1.3.4 The second paragraph discusses a storm sewer at the site. Is this text describing a storm sewer pipe along the southwestern boundary of Drainage Area 1 that connects the western culvert to the southeastern

culvert? None of the figures appear to show storm sewer pipes on the site. Please describe the surface water features in more detail, and include a figure with the necessary details.

p. 1-8, §1.3.4 — This section does not include a description of Drainage Area 3.

p. 1-14, §1.4.2 — Within the discussion presented for each of the drainage areas, note what contaminant concentrations exceed ecotoxicological benchmarks and present this information in Section 1.7 Ecological Risk Assessment.

p. 1-15, §1.4.2.3 — The first sentence states that Drainage Area 3 is located on the southeast side of the weapons storage bunkers. It appears that is should read "...southwestern...."

p. 1-15, §1.4.2.3 — In the second paragraph, for the sediment constituents that exceed the direct exposure criteria for residential land use, include the maximum concentrations. Also, include the constituents that exceed the Pollutant Mobility Criteria and their associated maximum concentrations. These constituents and concentrations also need to be incorporated into subsequent tables, figures, and text.

p. 1-15, ¶3 — Remove the second and third sentences since the CT Remediation Standards define soil as not including sediment (RSCA §22A-133k-1(a)(60)). In addition, the pollutant mobility criteria only apply to soils above the water table and are not relevant to saturated conditions (such as sediment). Cleanup of sediments should be risk-based.

p. 1-16, §1.4.3 — The last sentence in the first paragraph of this page states, " The only chemical reported as...was arsenic." This statement should be revised to include the contaminants that exceeded the state or federal Ambient Water Quality Criteria for the protection of freshwater aquatic life and human health.

p. 1-16, ¶5 — In the third sentence, how was the 0-10 depth for residential soil exposure determined? Under the CT remediation regulations "inaccessible soil" is four feet below the surface [2 feet if below a paved surface or underneath a building)(RSCA §22A-133k-1(a)(28)]. Direct exposure criteria do not apply to "inaccessible soil" unless contaminated with PCBs, except that if the inaccessible soil is less than 15 feet from the surface an Environment Land Use Restriction must be recorded on the property to prevent exposure to the contaminated soil (RSCA §22A-133k-2(b)(3)). The top one foot of soil was used in the human health risk assessment.

p. 1-17, §1.6.2.2	This section summarizes the carcinogenic risks and does not fully agree with the results presented in the Phase II RI. The RI states that estimated carcinogenic risks for future residents are mainly a result of exposure to dibenz(a,h)anthracene and arsenic in groundwater. This section states that unacceptable risk for future residents were primarily attributable to incidental ingestion of benzo(a)pyrene and arsenic in soil. This statement should be corrected to match the Phase II RI results.
p. 1-17, §1.6.2.2	The fourth sentence of this section appears to be missing key words. The statement "...For incidental ingestion of the unacceptable carcinogenic risk..." is unclear.
p. 1-18, §1.7	Delete the last part of the last sentence in the introductory paragraph that states: "...which is supported by the fact that no evidence of adverse impacts have been observed in the vicinity of Site 20....." EPA recognizes that the levels of contaminants detected in site-related media are unlikely to cause outright mortality requiring immediate action. Moreover, it is very unlikely that one could observe chronic or subchronic affects with the data collected thus far. Therefore, this sentence is senseless.
p. 1-18, §1.7.1	Replace "...robust emergent marsh.." with "...monotypic stand of *Phragmites australis*...."
p. 1-21, ¶1	The risk assessment did not evaluate potential downstream receptors, or investigate if the ditches were used intensively by species such as breeding frogs, which use temporary waterways for laying eggs and supporting tadpoles for a few months of the year (primarily in the spring). Please delete the misleading text.
p. 1-21, §1.7.2.2	Please remove the last sentence in this section as it is not relevant to the characterization of potential risk to terrestrial vegetation.
p. 1-22, §1.7.2.4	The latter part of this section should clearly state: "When the size of the Area A Weapons Center is factored into the Hazard Index (HI) calculations for the short-tailed shrew, the resulting values are less than 1.0. These results, coupled with the fact that this site provides lower quality habitat, suggests that contaminants detected in this location are unlikely to represent an adverse risk to this receptor."
p. 1-22, §1.7.3	Please integrate more of the significant uncertainties discussed within Section 8.7.5.4 of the Phase II RI.

Figure 1-3	Sediment sample location 2WCSD2 and soil sample 2WCTB1 are not labeled. Please correct.
Figures 1-6 & 1-7	The legend includes symbols for monitoring wells, but there are no wells on these figures. Please add the monitoring well locations.
Table 1-1	The table indicates that one well (two samples) were analyzed for radiological parameters. Is there reason to believe that radiological contamination might exist at this site? Could storage of submarine components or weapons radiologically contaminate the area? Please explain and indicate why only one location was sampled. Also, please explain why a dioxin sample was collected at one location.
p. 2-1, §2.1	In the first bullet and throughout the document change "ARAR" to "ARARs" since it is plural (unless a single specific ARAR is being discussed).
p. 2-1, §2.2	Change the two sentences in the first paragraph from "is similar to the CERCLA process. Pursuant to SARA and the NCP, the development and evaluation of remedial alternatives under CERCLA includes...ARAR" to "complies with CERCLA standards, including...ARARs." Change the third sentence in the first paragraph from "neither SARA nor the NCP" to "SARA and the NCP." The nine criteria in the NCP are the standard for determining whether a particular remedy provides a sufficient cleanup. In the second paragraph, first sentence remove ", techniques, materials, equipment, and methods." In the second sentence change "public health, welfare," to "human health." In the third paragraph change the second and third sentences to: "The remedial alternative must attain applicable or relevant and appropriate requirements under federal environmental laws and state environmental or facility siting laws or provide grounds for invoking one of the waivers permitted under the statute."
p. 2-2, ¶1	Change the sentence to: "CERCLA Section 121, codified at 40 C.F.R. Part 300.400(e), states that removal or remedial actions conducted entirely onsite do not require Federal, State, or local permits. However, any substantive, non-administrative requirements of statutes and regulations which include permitting requirements must be complied with or waived."

p. 2-2, §2.2.1	In the first bullet and second bullets change "substantive environmental protection" to "substantive Federal environmental and State environmental and facility siting."
p. 2-2, §2.2.2	In the first sentence change the beginning of the sentence to: "ARARs for remedial action alternative can be classified into..."
p. 2-3	Remove the third and fourth bullets since these are To Be Considered (TBC), not ARARs.
p 2-3, §2.2.3	Change the section to: "Federal and state guidance documents or advisories do not have the status of ARARs and are not enforceable. However, they may be considered when developing remedies that will be protective of human health and the environment."
p. 2-3, §2.2.4	Change the first paragraph to: "To comply with CERCLA, a remedy must either meet all identified ARAR standards or qualify for a waiver. Pursuant to Section 300.430(f)(3), there are several criteria under which an ARAR may be waived, if the standard cannot be attained." The last sentence of the original paragraph is not accurate because the cost-effectiveness of a remedy is not grounds for a waiver.
p 2-4, §2.2.5.1	Human health risk calculations are To Be Considered (TBC) not an ARAR. You may chose to add "and To Be Considered" after "Requirements" in the title and in the last sentence of the first paragraph change "ARAR were considered" to "ARARs and TBCs were considered." Also in the last sentence of the section change "ARAR are described" to "ARARs and TBCs are described." This approach is consistent with the ARARs tables provided in Attachment B.
p 2-5, ¶1	The second sentence is not accurate, since land under a Land Use Restriction may still be required to have soil in the first two feet to meet direct exposure criteria. In the second paragraph explain the abbreviations "PMC" and "COC."
p. 2-5, §2.2.5.1	The last paragraph on this page refers to the current EPA Region II Risk-Based Concentration table. This should be corrected to be Region III.
p. 2-6, §2.2.5.1	The first paragraph on this page uses the acronym "CFS." The acronym should be "CSF" for Cancer Slope Factor.

p. 2-6, §2.2.5.1	At the end of the first paragraph on this page explain that the Connecticut regulations consider an excess cancer risk of less than 1 X 10^{-5} as acceptable.
p. 2-6, ¶1	Add at the end of the paragraph: "A remedy may be selected that will result in a risk range between 1 X 10^{-4} and 1 X 10^{-6}."
p. 2-6, ¶4	There are no federal endangered species at the base. One of the state species is a fish that lives in the Thames. There are five species of state listed plants that may occur on the base (*see* the Area A Downstream FS).
p. 2-6, ¶5	The National Historic Preservation Act is not an ARAR if there are no sites or suspected sites in the area of the Remedial Action. What information is available to evaluate the area's sensitivity to the presence of historic cultural resources?
p 2-7, §2.2.5.3	In the first bullet, spell out RCRA and what the sections cited apply to (remove 263 and 268 - see response below). In the second bullet the only CWA action-specific ARAR would be Section 302 (33 U.S.C. 1342; 40 C.F.R. 122 through 125) if the remedy will result in any discharge of water into downstream waterbodies or wetlands. Section 404 would be a location-specific ARAR and Section 311 is not an ARAR (but instead addresses liability). In the third bullet the name of the regulation is missing, and there is only a partial citation. State that Sec. 22a-426 are the CT Water Quality Standards. In the fourth bullet, the CT Inland Wetland and Watercourses Act is a location-specific ARAR.
p. 2-7, last ¶	Section 263 is not an ARAR since it addresses off-site transportation and Section 268 is only cited as an ARAR if the levels of contaminants at the site exceed the regulatory thresholds.
p. 2-8, CWA	In the first bullet, this is not an action-specific ARAR. If you are using AWQC's to develop sediment cleanup levels then they would be chemical-specific ARARs In the third bullet the correct citation for the pretreatment standards is 40 C.F.R. 403. Do not cite this standard as an ARAR unless discharge into a POTW is proposed.

	In the fourth bullet move Section 404 into location-specific ARARs section.
p. 2-8, last ¶	In the second sentence change "a Connecticut Pollutant Discharge Elimination System permit" to "the Connecticut Water Pollution Control regulations (RSCA § 22a-430-1 through 8)."
p. 2-9, ¶2	The CT Wetlands and Watercourses Act is a location-specific ARAR and should be moved to that section. In the first sentence change "may be relevant" to "may be applicable." In the second sentence insert "remedial" after "All" and change "would require a permit from the local wetlands agency in accordance with Section 22-42a" to "will meet the substantive requirements." Delete the last two sentences.
p 2-9, §2.2.5.4	Promulgated regulations can not be a To Be Considered. The only TBCs cited in the text should be Cancer Slope Factors and Reference Doses.
p. 2-11, §2.3.2	Based on the extent of elevated concentrations or gamma chlordane detected in sediments, it should be retained as a COC throughout the FS.
p. 2-11, §2.3.1	To show the results of the screening in a straightforward manner, please create a table that includes the COCs in soil and sediment, their maximum concentrations, and the threshold concentrations for each scenario to pass the screening criteria.
p. 2-11, §2.3.1	The last paragraph in this section refers to potential soil COCs. The COCs actually are for both soil and sediment so delete the word "soil" from the sentence.
p. 2-11, §2.3.3	The text states that the maximum arsenic concentration in soil exceeded the Connecticut Remediation Standard for RDEC. Please include the maximum concentration detected and the required value to meet the arsenic standard for RDEC.
p. 2-12, ¶2	Sediment cleanup levels may be derived from AWQCs or from risk-based calculations (based on either federal or state guidance). Were not these considered in assessing potential exposure to sediment?

p. 2-12, ¶3	In the third sentence, could the ditches possibly support seasonal populations of aquatic life, such as breeding frogs?
p. 2-12, §2.3.3	The first paragraph on this page lists constituents in soil with maximum concentrations that exceed the GB PMC. The 95% UCL for the mean values was not provided and it does not appear that at least 20 soil samples were collected. Therefore, both indeno(1,2,3-cd)pyrene and dibenzo(a,h)anthracene should have a PRG for PMC.
p. 2-12, §2.4.1	In the second sentence, add at the end ", if risks to human and ecological receptors are adequately addressed."
p. 2-13, ¶1	What is the basis for assessing soil data down to 10 feet below the surface for human exposure?
p. 2-13, §2.4.1	The second bullet in the second paragraph lists protection of ecological receptors as a goal, but prior discussion in the FS eliminated ecological issues at this site. Please correct.
p. 2-13, §2.4.1	The third bullet in the second paragraph on this page lists inhalation of dust and emissions for soil only. However, based on the rationale that the drainage channels are dry most of the year, inhalation of sediment emissions is also a concern. Please emend the text accordingly.
p. 2-13, §2.4.1	The discussion in the third paragraph on this page, begins "For each scenario..." is not clear and may confuse individual and aggregate risks. The discussion in the first paragraph on page 2-14 seems to be what was actually done to select the constituents and their PRGs. Please clarify.
p. 2-14, ¶4	Please note that an environmental LUR under the State Remediation Standards cannot be established until a deed is created for the parcel. Since there are no deeds for the base, the best that can be done are restrictions included on the Base Master Plan. In the DRMO ROD a requirement was included that if the site was ever sold, that upon the creation of a deed, that the environmental LUR would be recorded in accordance with the applicable state standard.
p. 2-14, §2.4.1	The first two bullets on the page appear to summarize the COCs selected for PRG development based on risks from residential exposure to soil and sediment. Based on the results presented in Appendix A, additional chemicals meet the listed criteria for COC development. These chemicals include benzo(a)pyrene, and dibenzo(a,h)anthracene in soil, and arsenic, benzo(b)fluoranthene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene

	for sediment. In addition, a PRG should be developed for arsenic in soil based on risks to the full-time employee. The list of COCs selected for PRG development should be verified and expanded as necessary.
p. 2-14, §2.4.1	This section discusses the development of the final PRGs. The text on the top of page 2-14 shows a final arsenic PRG for soil of 0.27 mg/kg for the future resident. However, the tables in Appendix A show the arsenic soil PRG for the future resident as 0.236 mg/kg. Please correct.
p. 2-15, ¶3	Remove this paragraph as waiving an ARAR is not relevant to any of the remedies evaluated in the FS. Also cost is not a grounds for a waiver of an ARAR or exceeding a PRG.
p. 2-15, ¶4	The example of excavation and disposal of the entire site is not a CERCLA waiver situation, unless an ARAR would require such action. A waiver may only be sought for the remedial alternative that is being chosen. The feasibility of excavation and disposal of the entire site might be a grounds for eliminating an alternative, but that is not an ARAR issue.
p. 2-16, §2.5	See comment for p. 2-14, ¶4 regarding environmental LURs.
p. 2-16, Deep Soil	Please explain why arsenic in deep soil is an issue for the full-time employee. According to the Phase II Remedial Investigation, the full-time employee should only be exposed to surface soil.
p. 2-16 & Appendix A.1, first Table	If deep soil was only evaluated for the construction worker, why are the COCs different for the future resident? Please clarify through site data and PRG comparison tables in the text.
p. 2-16, §2.4.3.1	The last sentence under Deep Soil states that arsenic exceeded the HHRA risk-based PRG for full-time employees. Please explain why arsenic is not listed as a COC in Table 2-6.
p. 2-16, §2.4.3.2	Under Deep Soil the text states that arsenic exceeded the HHRA risk-based PRG for the future resident scenario. However, arsenic is not listed as a COC in Table 2-6. Please explain.
p. 2-16, §2.4.3.2	Under Sediment, the text states that benzo(a)pyrene exceeded the HHRA-based PRG for the future resident scenario. Appendix A.2 calculations show that in addition, arsenic, benzo(a)fluoranthene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene also exceed the HHRA-based PRG for the future resident. Please explain why these additional constituents were not also included in Table 2-6 or correct the error.

p. 2-16, §2.5	This paragraph is not clear, especially considering what is presented in Table 2-6. Please review this paragraph, Table 2-6, and rewrite this paragraph to clarify the intended meaning.
p. 2-17, §2.6	The RAOs also include achieving ARARs. Please include an additional bullets to state this. The NCP specifies that "...remediation goals shall establish acceptable exposure levels that are protective of human health and the environment...." The RAOs should list the PRG concentrations.
p. 2-17, §2.7	The reference in the first sentence to Section 2.5 should be Section 2.6.
p. 2-17, §2.7	All the bullets in this section that refer to soil should instead refer to soil and sediment.
Figure 2-1	It appears that locations where arsenic exceeded the HHRA risk-based PRG have not been presented in the figure. Please edit accordingly.
Figure 2-2	It appears that locations where arsenic, beryllium, and dibenzo(a,h)anthracene exceeded the HHRA risk-based PRGs have not been presented in the figure. Please explain or edit the figure.
Table 2-1, 2-2, and 2-3	Revise all of these tables based on the EPA supplied tables. For example: CT Remediation Standards, Requirement: Change "22a-133k-3" to "22a-113k-2" since "3" pertains to groundwater, which will be remediated as part of a separate OU.
Table 2-3	For the Connecticut Inland Wetlands and Water Courses Act, the action to be taken is incorrect. Please correct.
Table 2-3	Connecticut Hazardous Waste Management Regulations are listed twice with different actions to be taken. Please correct.
Table 2-3	Add the following ARAR and TBC: 1) Connecticut Water Pollution Control (RCSA §22a, 430 1 to 8), applicable; and 2) Connecticut Guidelines for Soil Erosion and Sediment Control, TBC.
Table 2-3	The Connecticut Air Pollution Control Regulations will also require that odors and dust emissions be appropriately controlled.
Table 2-5	There are several values in this table listed as zero that do not appear to be correct. If parameters do not have listed or calculated values, use "not

	applicable" rather than zero. If the zeroes are correct, then there are additional parameters in exceedance of the Connecticut Remediation Standards.
Table 2-6	In Table 2-5, the RDEC for ideno(1,2,3-cd)pyrene is 0.84 mg/kg, and the PMC is 0.017. These differ from the values listed in Table 2-6. Please correct.
Table 2-6	Regarding the HHRA PRG for benzo(a)pyrene, achieving the PRG of 0.127 does not reduce the cumulative excess risk for sediment to less than 1×10^{-5}. Therefore, this is not adequate risk reduction for the site. Please explain why only the PRG for benzo(a)pyrene is listed for sediment in Table 2-6 when arsenic and beryllium significantly exceeded their PRGs and benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene also exceeded their PRGs, according to Appendix A calculations.
Table 2-6	It appears that other constituents identified previously in the text have maximum concentrations in excess of screening criteria that have not been included in this table, and the text has not explained this. If PRGs have not been exceeded based on depth of soil or depth to water table, that needs to be adequately discussed in the text. Please edit accordingly.
p. 3-2, §3.1	Delete the first sentence under "Cost" and put the last sentence first.
p. 3-2, last ¶	In the last two sentences change "Deed restrictions" to "Land use restrictions recorded on the Base Master Plan." Add a last sentence: "If property interests in the Site are ever transferred land use restrictions will be recorded against the deed according to applicable federal, state, and local standards."
p. 3-3, §3.1.1.2	In the first sentence under effectiveness, delete "in soil" following COC. Exposed sediment must be considered as well, based on prior comments.
p 3-3, bullet 1	Add at the end of the last sentence "and land use restrictions are recorded on the Base Master Plan."
p. 3-3, §3.1.2.1	Under implementability the text states that the impacted areas are already paved. However, contaminated sediment exists in several areas that are not paved. Please correct.

p 3-3, bullet 2	In second sentence remove the statement that notices are not required. Signs should be installed if waste is left in place that poses a risk. In addition any land use restrictions should be recorded on the Base Master Plan.
p. 3-3, ¶2	In the second sentence insert "recorded on the Base Master Plan" after "LUR.".
pp. 3-3 to 3-4, §3.1.2	It would be more appropriate to refer to surface water control as surface water runoff control throughout this section.
p. 3-7, ¶1; p. 3-8, bullet 4; & p. 3-10, bullet 2	Change the last sentence (and everywhere else this appears in the text) from "CTDEP" to "federal and state regulators."
p. 3-7, §3.1.4.2	Edit the last sentence in the second paragraph to read: "Therefore, considering that the soil and sediment volume requiring remediation is relatively small,...."
p. 3-10, §3.1.4.5	The last paragraph states that in situ soil flushing has been demonstrated to be effective...." This implies that a pilot study or other testing has been conducted at Site 20. Is that correct? If not please correct the text. Also, the rationale for eliminating this technology is inadequate. Please correct.
p. 3-13, §3.1.4.10	The discussion of *in situ* vitrification does not address PAHs. Could this technology be used to treat site COCs? The discussion under cost and the last sentence in this subsection are inconsistent with the site characteristics, because there is only a limited amount of soil and sediment to treat at the site. Please correct the inconsistency.
p. 3-19, §3.1.5.9	The text should explain why *ex situ* SVE would not be for the primary COCs at Site 20.
p. 3-23, §3.1.7.1	Under effectiveness, add a sentence: "Needs to be implemented with a capping technology to be effective."
Table 3-1	Rather than including a summary description of each technology, this table should include the rationale for retaining or rejecting each technology.
p. 4-1, §4.1	The rationale for eliminating COCs other than those listed here is not clearly presented. As discussed earlier, exposed sediment must be considered when selecting primary COCs. Contaminants in soil other than those listed pose an excess HHR in the future resident scenario (*see*

	Appendix A.1). Also, arsenic in soil poses an excess HHR in the full-time employee scenario. Finally, other COCs exceeding the PMC (*see* top of page 2-12) have not been properly eliminated in a text discussion. Please add the appropriate COCs to this section and add an adequate explanation for not assigning PRGs to COCs identified previously in the FS.
p. 4-4, ¶1	In the last sentence change "This FS states that a more realistic assessment of the ERA" to "Further evaluation noted in this FS" and add at end of the sentence "due to limitations in available habitat, but also recognizes that migration of Area A Weapons Center COCs could cause potential effects to receptors in adjacent areas."
p. 4-4, ¶2	At the end of the first sentence add: "(Tables 4-1, 4-2, and 4-3)." Remove the third sentence since No Action alternatives do not have location-specific ARARs.
p. 4-5, §4.3.2.1	Edit the bullet to read: "LUR to prevent removal of asphalt over areas where COC in soil exceed the PMC and prevent residential use of the site." A LUR would not prevent contact with impacted sediment.
p. 4-5, §4.3.2.1	In the last paragraph, describe better the administrative procedure for obtaining an LUR and why a deed restriction cannot be implemented at the same time. In order to get an LUR, a legal description of the property would need to be obtained, and presumably a deed could be drawn up at that time and the restriction attached.
p. 4-5, last ¶	In the first sentence change "LUR will" to "LURs, recorded in the Base Master Plan and in any future property transfer documents, will."
p. 4-6, ¶4	At the end of the first sentence add: "(Tables 4-4, 4-5, and 4-6)."
p. 4-6, ¶5	In the first sentence change "LUR would" to "LURs, recorded in the Base Master Plan and in any future property transfer documents, would."
p. 4-7, ¶3	In the first sentence change "no remedial actions are specified" to "required monitoring can be conducted."
p. 4-7, ¶4	Monitoring must be included in the cost of the remedy.
p. 4-7, §4.3.3	Throughout this section only PAH contamination is addressed. Inorganic COCs also need to be addressed.

p. 4-7, §4.3.3	Consider asphalt batching, soil recycling, or other off-site treatment process to treat the waste off-site under this alternative.
p. 4-7, §4.3.3.1	A 5-year review program is not warranted for Alternative 3 if all soil and sediment exceeding PRGs is removed.
p. 4-8, bullets 2 & 3	Side wall and bottom testing must be conducted to determine whether all material exceeding PRGs has been removed.
p. 4-8, §4.3.3.1	Under Drainage Area 3, in the second sentence, insert "2WCTB1" after "excavated at."
p. 4-8, ¶3	In the last sentence insert "treatment or disposal" after "licensed."
p. 4-8, ¶4	In the first sentence change "CTDEP" to "federal and state regulators." Remove the second sentence and change the third from "If a potential conflict exists" to "If Site investigation determine that state-listed protected species are present within the Site."
p. 4-8, ¶5	In the first sentence change "CTDEP" to "federal and state regulators." Add at the end of the paragraph: "Any groundwater or surface what in the excavations will be tested for hazardous constituents, treated if necessary, and disposed of in accordance with applicable federal and state water quality standards."
p. 4-9, ¶3	In the first sentence add at the end "(Tables 4-7, 4-8, and 4-9)." In the last sentence insert "treatment or disposal" after "licensed."
p. 4-9, ¶5	Change the paragraph to: "Excavation and removal would not create any reduction in toxicity, mobility, or volume through treatment. However, if the material is sent to an off-site treatment facility, such as a soil recycling or asphalt batching plant, then this criteria would be achieved. Landfill disposal will not satisfy this criterion."
p. 4-10, §4.4.1	In the fourth sentence, delete the phrase "and the environment."
p. 4-10, §4.4.2	Delete Alternative 2 from the first sentence and add a new sentence stating that Alternative 2 meets human health risk-based PRGs, but not all ARARs. Carry through the rest of the discussion in Section 4.4.
p. 4-11, ¶2	Add three new beginning sentences: "There are no location-specific ARARs for the No Action Alternative. Alternative 2 meets all location-specific ARARs. Alternative 3 will meet all location-specific ARARs if

	alterations to wetlands and watercourse comply with federal and state standards."
p. 4-11, ¶5	Change the sentence to: "None of the alternatives will provide on-site reduction in toxicity, mobility, or volume of COCs through treatment. Under Alternative 3 it may be possible to treat the excavated waste material off-site in a soil recycling or asphalt batching, or similar treatment facility."
	Remove the second and third paragraphs under Section 4.4.4.
p. 4-12, §4.4.5	In the second paragraph, add to the second sentence: ", although alternative 3 has the greatest potential for creating impacts."
p. 4-12, §4.4.7	The Cost of Alternative 2 should include the cost of monitoring. The cost of Alternative 3 should include the cost of water treatment as part of the removal and disposal of groundwater and surface water from the excavations.
p. 4-13, ¶1	The net present worth ($61,000) of Alternative 2 should be stated along with the net present worth of Alternatives 1 ($48,000) and 3 ($68,000).
p. 4-13, bullet 2	Change to "LURs and Monitoring."
p. 4-13, §4.5	In the last paragraph, alternative 2 does not meet ARARs, therefore, delete the first sentence.
Figure 4-1	There are reaches of the drainage swales where the chance for sediment deposition appears high, yet no samples were collected there. These areas include: the western end of Drainage Area 1 where the swale makes a 90 degree turn; a wide area in the last segment of the continuation of that swale; and the wide area in the swale in Drainage Area 2 following the last bend. The remediation should include a pre-design or remedial action sampling task to address these areas as they may be areas where sediment has accumulated.
Table 4-2	Please revise to reflect the comments made on the text and in the new ARARs tables.
Table 4-2	Under alternative 2 for "Potential onsite receptors": an LUR will not prevent the migration of COC from contaminated sediment. Please revise.

Table 4-2	Under Alternative 3 for "Reduction of TMV": state that no treatment is used. Also, this alternative does not satisfy the statutory preference for treatment.
Table 4-2	Under Alternative 3 for "Protection of community": State that engineered controls would prevent significant risks.
Table 4-2	Under Alternative 1 for "Ability to construct": Change "No treatment included" to " No action required".
Table 4-2	Under Alternative 2 for "Ability to obtain approvals": State that approval is questionable because the alternative does not address migration of COC from exposed sediment.
Appendix A	This appendix presents the calculation of PRGs. The equations for the Inhalation Conversion Factor include the Contaminant Fraction (Fi) parameter. However, this parameter was not defined in the inhalation parameters located above the equations. Please define.
Appendix A	The units for the Conversion Factors are not shown for either inhalation, dermal, or ingestion exposure pathways. This information should be presented on the tables.
Appendix B	The costs presented in all the tables do not clearly show the scope of work required, and may not adequately address the required costs. One of the purposes of the five-year review is to monitor the status of the site by collecting and analyzing samples of media to determine if the condition of the site has changed such that it warrants closure. The costs for the five-year review need to include that sampling and analysis effort. If these costs have been included, please note that in the description of the cost item, otherwise, add these costs.
Appendix B	Please check the calculations for 30-year present worth. The numbers presented are not correct.
Appendix B	Under O&M costs: "Annual 30-year review costs" should be "annualized 30-year review costs (future dollars)."
Appendix B	Under cost summary: "annual O&M costs" should be "Present worth of O&M costs". Use the present worth value of the O&M added to the capital costs to calculate the 30-year present worth costs.

Appendix B-3	For completeness, include both "B. O&M Costs" and "C. Total Present Worth O&M Costs" in this table (as zero cost), so it does not appear to be omitted.
Appendix B-3	Under pre- and post-excavation sampling: the samples may not need to include a full suite of analyses, therefore, the cost per sample may be overestimated. However, more than 10 samples is expected to be required. Please edit these numbers to reflect what is required for this site.
Appendix B-3	The engineering design costs presented seem to be underestimated. A 10% multiplier may not be appropriate for such a small job. $10,000 may be a more appropriate cost.

ATTACHMENT B

TABLE 4-1

ASSESSMENT OF CHEMICAL-SPECIFIC ARARs AND TBCs
FOR ALTERNATIVE 1 - NO ACTION,
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON, GROTON, CONNECTICUT
PAGE 1 OF 1

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
FEDERAL				
Cancer Slope Factors (CSF)		To be considered	These are guidance values used in risk assessment to evaluate the potential carcinogenic or non-carcinogenic hazard caused by exposure to contaminants.	The No Action alternative would provide no protection from risk posed by contaminants in the soil and sediment.
Reference Dose (RfD)		To be considered	These are guidance values used in risk assessment to evaluate the potential carcinogenic or non-carcinogenic hazard caused by exposure to contaminants.	The No Action Alternative would provide no protection from risk posed by contaminants in the soil and sediment.
STATE OF CONNECTICUT				
Remediation Standard Regulations	CGS 22a-133k; RCSA 22a-133k - 1 thru 3	Applicable	These regulations establish direct exposure and pollutant mobility criteria for contaminated soils based on either industrial or residential used of the Site. Requirements are based on groundwater in the area being classified by the state as a GB.	The No Action Alternative does not satisfy state standards for either site remediation nor for sufficient engineering controls to prevent risk to human health and the environment.

TABLE 4-2
ASSESSMENT OF LOCATION-SPECIFIC ARARs AND TBCs
FOR ALTERNATIVE 1 - NO ACTION
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON GROTON, CONNECTICUT

FEDERAL

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
FEDERAL				
		There are no federal location-specific ARARs.		

STATE OF CONNECTICUT

There are no state location-specific ARARs.

TABLE 4-3
ASSESSMENT OF ACTION-SPECIFIC ARARs AND TBCs
FOR ALTERNATIVE 1 - NO ACTION
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON GROTON, CONNECTICUT

FEDERAL

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
FEDERAL				
		There are no federal action-specific ARARs.		

STATE OF CONNECTICUT

There are no state action-specific ARARs.

TABLE 4-4

ASSESSMENT OF CHEMICAL-SPECIFIC ARARs AND TBCs
ALTERNATIVE 2 - INSTITUTIONAL CONTROLS AND MONITORING
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON, GROTON, CONNECTICUT

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
FEDERAL				
Cancer Slope Factors (CSF)		To be considered	These are guidance values used in risk assessment to evaluate the potential carcinogenic or non-carcinogenic hazard caused by exposure to contaminants.	The alternative would limit exposure to contaminants in the soil and sediment through institutional controls.
Reference Dose (RfD)		To be considered	These are guidance values used in risk assessment to evaluate the potential carcinogenic or non-carcinogenic hazard caused by exposure to contaminants.	The alternative would limit exposure to contaminants in the soil and sediment through institutional controls.
STATE OF CONNECTICUT				
Remediation Standard Regulations	CGS 22a-133k; RCSA 22a-133k - 1 thru 3	Applicable	These regulations establish direct exposure and pollutant mobility criteria for contaminated soils based on either industrial or residential used of the Site. Requirements are based on groundwater in the area being classified by the state as a GB.	Land use controls would limit direct exposure to contaminated soil to acceptable levels under industrial use. The alternative does not meet residential use standards.

TABLE 4-5
ASSESSMENT OF LOCATION-SPECIFIC ARARs AND TBCs
ALTERNATIVE 2 - INSTITUTIONAL CONTROLS AND MONITORING
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON GROTON, CONNECTICUT

FEDERAL

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Clean Water Act, Section 404	33 USC 1344; 40 CFR Part 230 and 33 CFR Parts 320-323	Applicable	These rules regulate the discharge of dredge and fill materials in wetlands and navigable waters. Such discharges are not allowed if practicable alternatives are available.	Remedial action includes potential monitoring activities within contaminated wetlands and ditches. Measures will be taken to minimize adverse effects and to replace or restore protected wetland functions and values.
Executive Order 11990 RE: Protection of Wetlands	Executive Order 11990, 40 CFR Part 6, Appendix A	Applicable	This Order requires Federal agencies to take action to avoid adversely impacting wetlands wherever possible, to minimize wetlands destruction and to preserve the values of wetlands, and to prescribe procedures to implement the policies and procedures of this Executive Order.	Remedial action includes potential monitoring activities within contaminated wetlands and ditches. However, measures to minimize adverse effects and to replace or restore protected wetland functions and values will be considered and incorporated into any plan or action wherever feasible.
Fish and Wildlife Coordination Act	16 USC Part 661 *et. seq.*, 40 CFR 122.49	Applicable	This order protects fish and wildlife when federal actions result in control or structural modification of a natural stream or body of water.	Appropriate agencies would be consulted prior to implementation to find ways to minimize adverse effects to fish and wildlife from potential monitoring activities within contaminated wetlands and waterways.

TABLE 4-6
ASSESSMENT OF ACTION-SPECIFIC ARARs AND TBCs
ALTERNATIVE 2 - INSTITUTIONAL CONTROLS AND MONITORING
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON GROTON, CONNECTICUT

FEDERAL

There are no federal action-specific ARARs

STATE OF CONNECTICUT

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Hazardous Waste Management: Generator and Handler Requirements, Listing and Identification	RCSA § 22a-449(c) 100-101	Applicable	CT is delegated to administrate the federal RCRA statute through its state regulations. These sections establish standards for listing and identification of hazardous waste. The standards of 40 CFR 260-261 are incorporated by reference.	Hazardous waste determinations will be performed on all contaminated material generated during monitoring activities to determine that that levels of regulated constituents do not exceed applicable limits. Any contaminated materials which exceed applicable limits will be managed in accordance with requirements of these regulations, if necessary.
Hazardous Waste Management: TSDF Standards	RCSA § 22a-449 (c) 104	Applicable	This section establishes standards for treatment, storage, and disposal facilities. The standards of 40 CFR 264 are incorporated by reference.	Any hazardous waste which is temporarily stored of on this site as part of the remedy will be managed in accordance with the requirements of this section.
Connecticut Guidelines for Soil Erosion and Sediment Control	CT Council on Soil and Water Conservation	TBC	Technical and administrative guidance for development, adoption and implementation of erosion and sediment control program.	Guidelines will be followed to protect wetland and aquatic resources.
Water Quality Standards	CGS 22a-426	Applicable	Connecticut's Water Quality Standards establish specific numeric criteria, designated uses, and anti-degradation policies for groundwater and surface water.	Standards will be used to evaluate monitoring results to determine if further remedial action is required to protect resources.

TABLE 4-7
ASSESSMENT OF CHEMICAL-SPECIFIC ARARs AND TBCs
ALTERNATIVE 3 - EXCAVATION OF SOILS/SEDIMENTS
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON, GROTON, CONNECTICUT

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
FEDERAL				
Cancer Slope Factors (CSF)		To be considered	These are guidance values used in risk assessment to evaluate the potential carcinogenic or non-carcinogenic hazard caused by exposure to contaminants.	The alternative would eliminate exposure to contaminants in the sediment and soil through excavation and off-site disposal.
Reference Dose (RfD)		To be considered	These are guidance values used in risk assessment to evaluate the potential carcinogenic or non-carcinogenic hazard caused by exposure to contaminants.	The alternative would eliminate exposure to contaminants in the sediment and soil through excavation and off-site disposal.
STATE OF CONNECTICUT				
Remediation Standard Regulations	CGS 22a-133k; RCSA 22a-133k - 1 thru 3	Applicable	These regulations establish direct exposure and pollutant mobility criteria for contaminated soils based on either industrial or residential used of the Site. Requirements are based on groundwater in the area being classified by the state as a GB.	The alternative would eliminate exposure to contaminants in the soil through excavation and off-site disposal. The alternative meets residential use standards.

TABLE 4-8
ASSESSMENT OF LOCATION-SPECIFIC ARARs AND TBCs
ALTERNATIVE 3 - EXCAVATION OF SOILS/SEDIMENTS
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON GROTON, CONNECTICUT

FEDERAL

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Clean Water Act, Section 404	33 USC 1344; 40 CFR Part 230 and 33 CFR Parts 320-323	Applicable	These rules regulate the discharge of dredge and fill materials in wetlands and navigable waters. Such discharges are not allowed if practicable alternatives are available.	Remedial action includes excavation of soil and sediment from the contaminated wetlands and ditches and replacement/restoration with uncontaminated material. Measures will be taken to minimize adverse effects and to replace or restore protected wetland functions and values.
Executive Order 11990 RE: Protection of Wetlands	Executive Order 11990, 40 CFR Part 6, Appendix A	Applicable	This Order requires Federal agencies to take action to avoid adversely impacting wetlands wherever possible, to minimize wetlands destruction and to preserve the values of wetlands, and to prescribe procedures to implement the policies and procedures of this Executive Order.	Remedial action includes excavation of soil and sediment from the contaminated wetlands and ditches and replacement/restoration with uncontaminated material. However, measures to minimize adverse effects and to replace or restore protected wetland functions and values will be considered and incorporated into any plan or action wherever feasible.
Fish and Wildlife Coordination Act	16 USC Part 661 *et. seq.*, 40 CFR 122.49	Applicable	This order protects fish and wildlife when federal actions result in control or structural modification of a natural stream or body of water.	Appropriate agencies would be consulted prior to implementation to find ways to minimize adverse effects to fish and wildlife from excavating and restoring the contaminated wetlands and waterways.

TABLE 4-8
ASSESSMENT OF LOCATION-SPECIFIC ARARs AND TBCs
ALTERNATIVE 3 - EXCAVATION OF SOILS/SEDIMENTS
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON GROTON, CONNECTICUT

STATE OF CONNECTICUT

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
Inland Wetlands and Watercourses	CGS § 22a-37 thru 45, RCSA § 22a-39-1 through 15	Applicable	These rules regulate all activities in wetlands and watercourses.	This alternative proposes to excavate soil and sediment from the contaminated wetlands and watercourses and to restore the areas using uncontaminated material. The substantive requirements of the CT standards will be met to address the alteration of wetlands and watercourses.
CT Endangered Species Act	CGS § 26-303 thru 314	Applicable	Regulates activities affecting state-listed endangered or threatened species or their critical habitat.	Two state-threatened plants, Golden Alexanders and Seaside Crowfoot, have been sighted in the NSB-NLON area. In addition, three state special concern species, Creeping Bush-clover, Crooked-stem Aster, and *Carex crawfordii*, have been documented in the NSB-NLON area. Excavation and restoration of the contaminated area will be implemented so as to address potential negative impacts to the listed plant species or any of their critical habitat which might occur within the Site.

TABLE 4-9
ASSESSMENT OF ACTION-SPECIFIC ARARs AND TBCs
ALTERNATIVE 3 - EXCAVATION/DREDGING OF SOILS/SEDIMENTS
DEWATERING, AND OFF-SITE DISPOSAL
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON GROTON, CONNECTICUT

FEDERAL

Requirement	Citation	Status	Synopsis	Evaluation/Action to be Taken
Clean Water Act, Section 402, National Pollution Discharge Elimination System (NPDES)	33 USC 1342; 40 CFR 122 through 125	Applicable	These standards govern the discharge of water into surface waters.	Ground and surface water removed removed from excavations, along with water from the sediment/soil dewatering process, will be treated, if necessary, to meet discharge criteria according to substantive requirements of NPDES if the discharge occurs on-site.

STATE OF CONNECTICUT

Requirement	Citation	Status	Synopsis of Requirement	Action to Be Taken to Attain ARAR
Water Pollution Control	RCSA § 22a-430-1 through 8	Applicable	These rules regulate water discharge to surface water.	Surface and groundwater removed from excavations, along with water from the sediment/soil dewatering process, will be treated, if necessary, in compliance with these regulations if the discharge occurs on-site.
Water Quality Standards	CGS 22a-426	Applicable	Connecticut's Water Quality Standards establish specific numeric criteria, designated uses, and anti-degradation policies for groundwater and surface water.	Surface and groundwater removed from excavations, along with water from the sediment/soil dewatering process, will be treated, if necessary, in a manner which is consistent with the antidegradation policy in the Water Quality Standards if the discharge occurs on-site.

TABLE 4-9
ASSESSMENT OF ACTION-SPECIFIC ARARs AND TBCs
ALTERNATIVE 3 - EXCAVATION/DREDGING OF SOILS/SEDIMENTS
DEWATERING, AND OFF-SITE DISPOSAL
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON GROTON, CONNECTICUT

Hazardous Waste Management: Generator and Handler Requirements, Listing and Identification	RCSA § 22a-449(c) 100-101	Applicable	CT is delegated to administrate the federal RCRA statute through its state regulations. These sections establish standards for listing and identification of hazardous waste. The standards of 40 CFR 260-261 are incorporated by reference.	Hazardous waste determinations will be performed on all contaminated soils/sediments excavated to determine that that levels of regulated constituents do not exceed applicable limits. Any contaminated soils/sediments which exceed applicable limits will be managed in accordance with requirements of these regulations, if necessary. Also, wastes produced from surface and groundwater and dewatering treatment will be tested to determine whether levels of certain regulated constituents exceed TCLP limits.

TABLE 4-9
ASSESSMENT OF ACTION-SPECIFIC ARARs AND TBCs
ALTERNATIVE 3 - EXCAVATION/DREDGING OF SOILS/SEDIMENTS
DEWATERING, AND OFF-SITE DISPOSAL
SITE 20 - AREA A WEAPONS CENTER
NSB-NLON GROTON, CONNECTICUT

Hazardous Waste Management: Generator Standards	RCSA § 22a-449(c)-102	Applicable	This section establishes standards for various classes of generators. The standards of 40 CFR 262 are incorporated by reference.	Surface and groundwater and dewatering treatment residues (spent filtration media and activated carbon) could contain high concentrations of regulated constituents. Although the residues are not expected to fail hazardous characteristics, substantive requirements of these regulations will be met.
Hazardous Waste Management: TSDF Standards	RCSA § 22a-449 (c) 104	Applicable	This section establishes standards for treatment, storage, and disposal facilities. The standards of 40 CFR 264 are incorporated by reference.	Any hazardous waste which is treated or temporarily stored on-site as part of the remedy will be managed in accordance with the requirements of this section.
Air Pollution Control	RCSA § 22a-174 1-20	Applicable	These regulations require permits to construct and to operate specified types of emission sources and contain emission standards that must be met prior to issuance of a permit. Pollutant abatement controls may be required. Specific standards pertain to fugitive dust (18b).	Emission standards for fugitive dust from excavation and restoration operations will be met with dust control measures. Emissions will be managed to comply with these standards.
Connecticut Guidelines for Soil Erosion and Sediment Control	CT Council on Soil and Water Conservation	TBC	Technical and administrative guidance for development, adoption and implementation of erosion and sediment control program.	Guidelines will be followed to protect wetland and aquatic resources.