



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

J.P. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

December 22, 1994

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: Revised Draft Feasibility Study ("FS") for the Area A Landfill for the Naval Submarine Base in Groton, CT ("NSBNL")

Dear Mr. Evans:

I am writing in response to your request for EPA to review the *Revised Draft Feasibility Study for the Area A Landfill* dated November 8, 1994. I reviewed this document in light of EPA's RI/FS guidance and its responsiveness to our previous comments sent on May 27, 1994 and September 1, 1994. Detailed comments on the Applicable or Relevant and Appropriate Requirement ("ARAR") tables will be sent in a separate letter shortly. In general, the revised draft FS shows notable improvement in addressing EPA's concerns. I am optimistic that our mutual goal of issuing a Record of Decision ("ROD") before September 1995 can be attained.

The revised draft FS for the NSBNL outlines the alternatives for remediation for the Area A Landfill. The alternatives analyzed include no action, capping, capping with disposal of PCB contaminated soils at a RCRA landfill, and capping with incineration of PCB contaminated soils. I understand that further evaluation and possible action regarding migration of contaminants via groundwater will be addressed in the forthcoming Phase II Remedial Investigation ("RI"). As a presumptive remedy and interim source control action, a landfill cap has been proposed. Our primary concerns are addressed below and our page-specific comments can be found in Attachment A.

Given that the draft final FS will be a public document and the basis for much of our current 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 development or basis of remedial action objectives and the rationale for limiting the risk discussion to PCBs when other contaminants were detected should be more clearly explained. Throughout the FS, there is a need to explain that the proposed action is an interim source control measure. Although the proposed cap should



mitigate further contamination of groundwater from landfill wastes, the FS should state that remediation of groundwater contamination will be addressed in the final remedy.

Ecological effects at the Area A Wetland

EPA is concerned about the potential for the proposed remedy to adversely effect the adjacent Area A wetland. Three of the remediation alternatives may require either some minor filling to stabilize the landfill slope where it abuts the adjacent wetland or excavation of contaminated soils and placing them on top of the landfill. Mitigation is necessary to satisfy the provisions of the Clean Water Act ("CWA") Section 404, an ARAR, and must be complied with under the National Contingency Plan. It is EPA's responsibility to ensure mitigation for injury caused by response actions at all hazardous waste sites.

One purpose of a presumptive remedy is to streamline the evaluation of risk posed by contaminants at a landfill such that analysis of direct contact exposure to both humans and environmental receptors can be eliminated. As a result, the ecological risk assessment regarding the Area A Landfill can be limited to a brief discussion. Any potential for ecological risk at downgradient locations involving migration from landfill contaminants should be evaluated after the Over Bank Disposal Area ("OBDA") and Area A wetland investigations have been completed. As discussed with you on December 1, 1994, such an evaluation should be addressed in a separate Ecological Risk Assessment Report as an appendix to the Phase II RI report. Comments regarding the ecological risk discussions in the revised draft FS for areas other than the Area A Landfill will be addressed in more detail later.

Prior to the initiation of remedial activity, the type and extent of mitigation should be agreed upon by all stakeholders. Depending upon the assessment and habitat impacted, mitigation may take the form of habitat enhancement (e.g., planting of native shrubs or berry/fruit bearing bushes) adjacent to the landfill or perhaps wetland improvement in some other area of the base (e.g., in the downstream wetlands). More detail on Section 404 of the CWA and its implementing regulations is provided in Attachment B.

References to Section 404 of the CWA in the ARARs tables should include federal regulations from both EPA (see 40 CFR Part 230) and the U.S. Army Corps of Engineers (see 33 CFR Parts 320 to 330). The basic requirements of the EPA 404(b)(1) guidelines are provided in 40 CFR § 230.10. Additionally, the description of alternatives should explain how each remedy alternative addresses the environmental risks to the wetlands and the extent to which such alternative complies with state and federal ARARs regarding wetlands protection.

Placement of a cap on the Area A landfill would eliminate the need to evaluate ecological exposure pathways resulting from direct contact of surface soils. Since the proposed action is a presumptive remedy and because this FS is an interim source control action document, the need for the ecological risk discussion in this document is limited. As stated in OSWER

Directive No. 9355.O-49FS, Presumptive Remedy for CERCLA Municipal Landfill Sites:

"A quantitative risk assessment also is not necessary to evaluate whether the containment remedy addresses all pathways and contaminants of concern associated with the source. Rather, all potential exposure pathways can be identified using the conceptual site model and compared to the pathways addressed by the containment presumptive remedy. Ultimately, it is necessary to demonstrate that the final remedy addresses all pathways and contaminants of concern, not just those that triggered the remedial action."

In the present document, risk-based cleanup goals appear to be derived for protection of human health only. As discussed at earlier meetings, a TBC cleanup goal for PCBs of 10 parts per million ("ppm") for surface soils may not be ecologically protective. A discussion of a potential PCB ecological screening value is presented in EPA's letter to you dated November 15, 1994. We should discuss the need to develop risk-based cleanup goals that are based on ecological hazard indices after we evaluate the habitat and the levels of contaminants found along the interface of the landfill/wetland.

Comments to be addressed during Remedial Design

At our meeting of September 28, 1994, EPA, the Navy, and the Connecticut Department of Environmental Protection agreed that a Subtitle C cap will be the remedial measure for the Area A Landfill. This is reflected on page 9 of the October 31, 1994 letter from Atlantic Environmental Services, Inc. addressed to me. The revised draft FS, however, still discusses only a Subtitle D cap. The Draft final FS should reflect this.

The belief that the eastern portion of the Area A landfill does not contain hazardous materials, and therefore does not need to be included in the interim or final remedy is repeatedly stated. EPA generally treats a landfill as a single diffuse source of potential contamination, and does not attempt to distinguish the internal contents, due to the likely heterogeneity of landfill material. In the absence of detailed records to the contrary, or extensive site characterization (which has not been performed) there is not sufficient data to support excluding the eastern portion of the landfill from the remedy (see also page 48).

The sampling data which have been performed to date in the eastern portion of the landfill do not conclusively establish the non-hazardous character of the fill material. As a result, the extent of the landfill material has not yet been determined. Only one subsurface boring has been advanced in the area. Samples from boring 2WMW3S contained elevated concentrations of organic compounds (acetone, carbon disulfide, anthracene, fluoranthrene), inorganics above proposed background levels (cadmium, boron) and groundwater contaminants which exceed ARAR/TBC levels (boron, gross alpha/beta). Limited surface soil sampling which was performed at the eastern end of the landfill also identified contaminants of concern in the upper one foot of soil/fill, and soil.

On page 4 of Section 2.3 of the Design Analysis in Appendix G, there is a statement that the fill in the eastern limit is not contaminated. However, the sampling results provided in Appendix A to this report indicate that the samples were only collected to a depth of one foot. In other words, only the sandy gravel layer was analyzed. Contamination in the surficial foot would not be expected. EPA therefore recommends that additional samples be taken in this area where the "10 to 20 feet" of landfill material was disposed (see pages 4 and 5 of Section 2.3 of the Design Analysis in Appendix G).

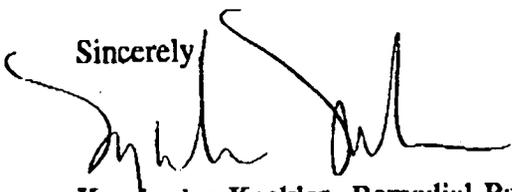
There is discussion in the text regarding review of historical aerial photographs and ground penetrating radar data which were used by the Navy to determine the eastern extent of the landfill, however, these data have not been presented to support this interpretation. In addition to presenting this information, additional test borings or test pits to visually inspect, whether any waste is present along the eastern boundary of the landfill to confirm the true extent are necessary. Without such investigations, EPA must insist that the entire landfill area be capped. EPA is not yet convinced that the eastern portion of the landfill can be excluded from the remedy.

The drain trench plan presented in Figure 4-1 indicates that groundwater (potentially contaminated) may be discharging directly into the trench (see also page 148). I understand that groundwater contamination issues will be addressed in the final remedy.

The landfill settling calculations should include an evaluation of the effect of dewatering from groundwater remediation that may ultimately occur as part of the final remedy.

I look forward to discussing these comments and their resolution with you on January 4, 1995. I believe that most of the comments herein can be easily addressed and should not affect the Area A Landfill ROD project schedule. Please do not hesitate to contact me at (617) 573-5777 should you have any questions or wish to arrange a meeting.

Sincerely



Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachments

cc: Timothy Prior, USFWS, Charlestown, RI
Andy Stackpole, NSBNL, Groton, CT
Rona Gregory, USEPA, Boston, MA
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ATTACHMENT A

<u>Page</u>	<u>Comment</u>
p. 9, 7th bullet	Change "has proposed to enter" to "has entered." Also, add a sentence explaining that the Federal Facilities agreement has been signed by all three parties and became effective on January 5, 1995.
p. 10, ¶ 4	Explain that the effects of contaminants from the NSBNL to natural resources in the Thames River is the subject of on-going investigations and will be addressed in an Appendix to the Phase II Remedial Investigation. Also, explain that the proposed remedy should minimize contaminants present in the landfill from migrating into the Thames River.
p. 13, ¶ 1	The text explains that from 1963 to 1973 "all wastes were disposed in the landfill." Do Navy records indicate whether medical or radioactive wastes were dumped at the landfill? This section should identify where radioactive and medical wastes were disposed and more specifically state what kinds of waste were dumped at the Area A Landfill (e.g., household wastes, petroleum products, machine parts, spent chemicals).
p. 13, ¶ 2	It is unclear what is meant by "the area fill method" and "refuse was dumped from the face." This paragraph should be rewritten to more clearly explain what occurred.
p. 13, ¶ 3	The FS should explain what kinds and how long wastes were stored on the concrete pad.
p. 31, ¶ 1	Explanation of (and rational for) a "slug displacement test" is needed.
pp. 30 & 32	The groundwater elevations used to prepare these figures should be provided. The values should be posted on the map, and the date specifying the timing of the water level measurements also needs to be included. A larger area should be indicated on these figures to illustrate whether groundwater flow either through or around the landfill could affect other areas. Further, the text should explain how placement of a cap will help protect the groundwater from being contaminated by the landfill.

- p. 33, ¶ 7 &
top of p. 35 Explain how the presence of large or buried metal objects will affect the integrity (e.g., settling) of the cap. Can the buried metal objects be identified? Are drums present? The significance of the presence of these objects should be explained.
- p. 35, ¶ 7 Change "raises the question of whether" to "makes it reasonable to assume that."
- p. 35, ¶ 8 This section should be explained in light of the likelihood of an explosion. The measures that will be taken to prevent explosion (e.g., gas venting) should be explained.
- A reference for the Lower Explosive Limit should be provided.
- p. 36 Figure 1-18 appears to conflict with Table 4-20 in Appendix A. Sample 2LSS2, which detected 2300 ppb (DJ) of DDT is listed as "ND" on Figure 1-18.
- p. 39 The description of surface soil contamination for the Area A Landfill should be discussed in light of the potential for downgradient impacts.
- p. 39, ¶ 2 Remove the word "predominantly," and at the beginning of the sentence add "According to best available knowledge.."
- p. 39 The presence of any contaminants should be discussed in light of remedial action objectives. Also, references to both Appendix A and to the section of the FS that explains the basis for remedial action objectives should be made. A table (possibly similar to the one on page 79) for groundwater and a table for soils would be very helpful. Such tables should list the cleanup goals or action levels, the basis for the standard, and the number of exceedances (including the highest concentration detected) should be reported.
- p. 41 Lead, cadmium, and 1,4-dichlorobenzene were detected above action levels in the groundwater. This could appear to contradict the statements that explain that PCBs are the only contaminants of concern and may therefore confuse some readers. This section should explain that the cap is an interim source control measure that should prevent contamination in the groundwater from worsening. The text should also indicate that groundwater contamination will be addressed in the final remedy.
- p. 42,
Supplemental This paragraph implies that the sampling results indicate that VOCs were analytical artifacts. Chemical analysis of laboratory blanks,

- Sample Results*, 2nd ¶ as listed in Appendices A and B, should support this conclusion. The text should be revised to reflect this.
- p. 43 Figure 1-20 should be revised to be consistent with boring and geophysical data obtained from the RI. Figure 1-20 presents the Navy's interpretation of the extent of landfill material is not consistent with information presented in Figure 1-11, Cross section A-A'. Figure 1-20 appears to understate the extent of landfill material. In particular, the thickness of the fill on the map is not consistent with the cross section. Location 2LMW9S/D indicates twelve feet of landfill material on the cross section, but the map indicates less than five feet.
- p. 48, 2nd ¶; & p. 57, 4th ¶ Please note that the inorganic background values being used at this site have not been accepted by EPA (*see* EPA letter dated October 5, 1994).
- p. 48, 1st ¶ Explain why the low concentrations of PCBs are "not of concern" and their relationship to the remedial action objectives established.
- p. 48, ¶3 Sufficient information to support the position that the eastern extent of the landfill does not include the area of the tennis and racquetball courts has not been provided. Not only did the samples collected from this area contain contaminants, but no sampling was performed deeper than one foot. Soil analyses are not presented from location 2WMW3S/D, however this boring encountered fill material. The revised draft FS does not adequately define the extent of the fill material to the east. Accurate assessment of the eastern extent of the landfill must be completed prior to remedial design. The FS should explain that this data will be forthcoming.
- p. 49, 2nd ¶ Change "with" to "and" in the second sentence.
- p. 49, 3rd ¶ Again, explain that groundwater remediation will be addressed in the final remedy and that the cap should minimize contamination from the landfill to the groundwater.
- p. 55, last sentence Change "Such as" to "For example,."
- p. 59, 1st bullet Delete the second sentence and "However" from the third sentence. The landfill requires a cap because of known disposal of hazardous wastes.
- p. 59, 4th ¶ Change "considered negligible" to "currently being investigated."

14th sentence

p. 60

Again, this section should discuss that the cap will protect the groundwater from further contamination from the landfill and that groundwater remediation will be addressed in the final remedy. Also, any exceedances should be discussed with respect to how the cap will remediate such exceedances. This section should also refer to the tables being developed in response to the comment above for page 39.

p. 60, last sentence

Delete "altered the natural environment to cause the" and replace with "caused."

p. 61, 1st ¶

The text here should explain that an ecological assessment of the Thames River is forthcoming and will be in an Appendix to the Phase II Remedial Investigation.

p. 61,
*Surface Water
And Sediments*,
2nd ¶

In the last sentence a second pond is referenced as being located south of the "Upper Pond." According to Figure 1-12, this second pond is actually west. Please revise the text accordingly.

p. 62

Change "1.7.6" to "1.8.6."

p. 63, 1st ¶

The text should explain what is meant by "elevated levels" in light of either action levels or background levels.

p. 63, Section
1.8.4 & p. 76,
Section 2.2.1.1

Include a discussion about risks to children using recreational facilities (e.g., tennis courts) or playing nearby.

p. 64, 5th ¶

Currently, the EPA only has guidance for assessing children's exposures to lead in soil (OSWER Directive #9355.4-12). EPA established a screening level of 400 ppm lead in soil for protection of children in a residential setting using the Integrated Exposure Uptake Biokinetic Model. Various methods for assessing adult exposures are under review by the Agency. In the past, the Agency has used the range of 500 to 1,000 ppm for assessing adult exposures to lead at commercial/industrial sites. Although, this does not affect the remedy selection, the text should be revised to reflect current EPA policy.

p. 64, 6th ¶

Delete the last sentence. Explain how the cap should minimize contamination from the landfill to the groundwater and that groundwater remediation will be addressed in the final remedy.

p. 65 & p. 76,
3rd ¶

Actual risk values should be presented. The text should also explain that the need for remediation is not because risks to human health are unacceptable, but because hazardous wastes are present.

p. 67,
Soil
Invertebrates

The acronym EP should be EqP that represents "Equilibrium" Partitioning. Please correct both the acronym and the reference to "Exposure" Partitioning.

p. 70, 2nd ¶

The fifth sentence reasons that because a contaminant is ubiquitous it poses little risk. Ecological risk is evaluated based on result of an exposure to physical, chemical or biological stressors that result in an adverse impact to an ecological receptor. The fact that a contaminant is ubiquitous does not mean that the contaminant poses little risk. Please revise the text to reflect this.

p. 72, 2nd complete ¶ The two references cited in this paragraph are not found in Section 6.0, *References*. All references cited should be located in this section.

p. 73, top of page It is stated here and elsewhere in the discussion that sensitive species are unlikely to reside in this area and were not observed there. This statement does not warrant the elimination of concern, it elicits more. Sensitive species may not be able to survive in this area because the habitat has either been significantly altered or chemically contaminated.

The last sentence incorrectly implies fish can be found in these areas. Because of the ephemeral nature of these waterbodies, it is not necessary to evaluate impacts to fish.

p. 73, *Summary* It is recommended that any summary of ecological risk be limited to the landfill proper because further sampling, analysis, and field/lab studies are being conducted in these areas. These results should provide more definitive information to support conclusions for areas downstream of the landfill.

p. 76, last ¶ & Table on p. 78 The discussion of the PCB target levels is somewhat unclear. Is the PCB target level for the surficial foot 10 ppm? Is the PCB target level for the soils below the surficial foot down to the 10 foot strata 50 ppm?

p. 77, Section 2.2.1.2, last ¶ A target level of 10 ppm PCBs for surface soil may change depending on the results from sampling along the wetland/landfill interface. Please refer to our letter dated November 15, 1994 regarding this issue.

p. 79 The statement that "there are no chemical-specific ARAR values for soils" is incorrect. The 50 ppm PCB standard established in the Toxic Substances Control Act is an ARAR.

p. 84, *Table 2-3, Executive Order 11990* Under the "Action to be Taken" column it is indicated that no filling will take place. This may not be the case depending upon the results of the wetland/landfill interface sampling and the final cap design. Correction may be warranted.

p. 91 These exceedances should be discussed in light of the purpose and scope of this FS. Again, explain that groundwater remediation will be addressed in the final remedy and that the cap should minimize contamination from the landfill to the groundwater.

- p. 92, 1st ¶ EPA recognizes that there are not a sufficient number of samples to identify all sources of all contaminants. However, it is not necessary to identify all hot spots. The presence of contamination or landfill wastes is enough to require remediation.
- Delete the first sentence. In the 8th sentence, change "remediation" to "partial excavation."
- p. 122 Change "deed restrictions" to "institutional controls" in the 5th sentence and delete the 6th sentence.
- p. 147, 3rd ¶ Change "deed restrictions" to "institutional controls" in the 3rd sentence and delete the 5th sentence.
- p. 148 Figure 4-1 does not accurately portray the relationship between the water table and the drain trench elevation. The drain trench is shown on this figure at an elevation of approximately 85 feet, and groundwater is shown at an approximate elevation of 76 feet. However, the groundwater elevation for the bedrock aquifer shown in Figure 1-14 indicates a potentiometric surface elevation of approximately 85 feet. It appears that the water table in the bedrock may discharge directly into the drain trench, and could possibly cause contaminated groundwater to be collected in the trench. A more thorough analysis of the design plan for the drain trench to assure that contaminated groundwater will not be collected is warranted.
- p. 163, 2nd ¶ Change "deed restrictions" to "institutional controls" in the 14th sentence and delete the 16th sentence.
- p. 165, 3rd ¶ Change "deed restrictions" to "institutional controls" in the 3rd sentence and delete the 4th sentence.
- p. 177, 2nd ¶ Change "deed restrictions" to "institutional controls" in the 3rd sentence.
- p. 181, 1st ¶ Change "deed restrictions" to "institutional controls" in the 5th sentence and delete the 7th sentence.
- p. 181, 4th ¶ Change "deed restrictions" to "institutional controls" in the 3rd sentence and delete the 4th sentence.
- p. 192 Change "deed restrictions" to "institutional controls" in the 3rd sentence.

- p. 192, Section 4.6.6, 1st ¶ The FS should explain how fugitive dusts from the trucks will be minimized and how the Navy plans to work with the community to develop an acceptable plan (e.g., routes and schedules).
- p. 200, last ¶ Change "much" to "somewhat" in the last sentence.
- Appendix A A key for data qualifiers (such as D, X, J, etc.) should be provided.
- Appendices The draft final FS should contain the results of the landfill/wetland interface sampling which was collected on November 28 and 29, 1994.

ATTACHMENT B

The type and level of mitigation necessary to demonstrate compliance with the CWA 404(b)(1) Guidelines generally occurs in the following sequence:

- 1) avoidance of wetland impacts to the maximum extent practicable through the evaluation of alternatives;
- 2) minimization of impacts by sighting project features such that impacts to aquatic resources are further reduced; and
- 3) compensatory mitigation of unavoidable impacts through mitigation or as a last resort, creation.

The most successful and widely practiced method of compensatory wetlands is restoration of previously degraded wetlands. The second most commonly acceptable method is on-site creation. Creation of wetlands off-site has had a variety of success rates. However, given that the quality of the Area A wetland is lower than other wetlands on the base, mitigation at an area other than the Area A wetland be preferred in this case.

Acres of wetlands are usually an appropriate surrogate endpoint for wetland functional values. However, in terms of creation the replacement ratio may be greater due to the uncertainties inherent in wetlands creation. Natural Resource Trustees such as the U.S. Fish & Wildlife Service should be consulted during this process to assist in the determination of either acreage or ratios for replacement wetlands.

Section 230.10 contains four basic requirements. Section 230.10(a) requires that no discharge of dredged or fill material be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem so long as the alternative does not have other significant adverse environmental impacts. In particular, Section 230.10(a)(3) explains that where the activity associated with a discharge which is proposed for a special aquatic site (as defined in Subpart E) does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (*i.e.*, it is not "water dependent"), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. Additionally, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise. The term "special aquatic site" includes sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes as defined in Subpart E (*see* 40 CFR §§ 230.40 to 230.45).

Section 230.10(b) states that no discharge of dredged or fill material shall be permitted if it:

- 1) causes or contributes, after consideration of disposal site dilution and dispersion, to

violations of any applicable State water quality standard; 2) violates any applicable toxic effluent standard or prohibition under Section 307 of the CWA; 3) jeopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973, as amended; or 4) violates any requirement imposed by the Secretary of Commerce to protect any marine sanctuary designated under Title III of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended.

Section 230.10(c) requires that no discharge of dredged or fill material shall be permitted that will cause or contribute to significant degradation of the waters of the United States. Effects to fish and wildlife diversity, productivity, stability, habitat, and life stages can constitute significant degradation. Effects on recreation and aesthetics may also contribute to significant degradation.

Section 230.10(d) states that no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize adverse impacts on the aquatic ecosystem. Subpart H of the Guidelines identifies such possible steps. Under the CWA, unavoidable impacts to wetlands are usually mitigated by providing compensatory wetland creation or wetland restoration.