



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

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

August 14, 1991

Mr. James Shafer (Code 1421)  
Northern Division  
Naval Facilities Engineering Command  
U.S. Naval Base, Bldg. 77 Low  
Philadelphia, PA 19112-5094

Subj: U.S. EPA Comments  
Draft Final Focused Feasibility Study  
Sites 1 and 3  
Naval Air Station Brunswick  
Brunswick, Maine

Dear Mr. Shafer:

The United States Environmental Protection Agency (EPA) has received and reviewed the document entitled "Draft Final Focused Feasibility Study (FFS) - Sites 1 and 3" dated July 1991. Attachment I to this letter contains general comments pertaining to the document. Attachment II lists specific comments.

As we discussed in our conference call August 13, 1991 involving the Navy, the Maine Department of Environmental Protection and EPA, EPA has significant concerns regarding the Groundwater Flow Model presented in Appendix B of the Draft Final FFS. EPA believes that the model as presented will not sufficiently support the remedy selection process and will affect our ability to concur with a Record of Decision based on this information.

EPA and the Navy agreed in the conference call to the following approach:

1. The Navy will conduct additional modelling after the Draft Final FFS becomes final and conclude such modelling prior to issuance of the Proposed Plan for Sites 1 and 3.
2. The Final FFS will be modified based on the results of additional modelling, pursuant to Section 6.10 of the Federal Facility Agreement (FFA), if deemed appropriate by any party.

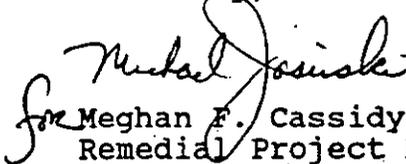


3. The Navy submitted a draft Proposed Plan for Sites 1 & 3 on August 5, 1991. In view of the fact that a new proposed plan may be necessary based on the results of the additional modelling, EPA will not conduct a review of the previously submitted Proposed Plan until it is determined whether modifications to the FFS are needed. The Navy will submit a revised schedule for submission of a new proposed plan based on the schedule for completion of the additional modelling and any modifications to the final FFS.

Please note that we have not included in Attachments I and II our comments on the Groundwater Flow Model. We would like to schedule a conference call or meeting to discuss the deficiencies we see in the model. At such time, the scope of the additional modelling effort will be determined based on discussions between EPA and the Navy.

Please contact me at (617)573-5785 to discuss the comments attached to this letter or to schedule the above-referenced meeting/conference call.

Sincerely,

  
for Meghan F. Cassidy  
Remedial Project Manager

Enclosures

cc: Eileen Curry/NASB  
Mel Dickenson/E.C. Jordan  
Ted Wolfe/ME DEP  
Ann Johnson/SAIC  
Mary Jane O'Donnell/US EPA  
Richard Willey/US EPA  
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Diane Ready/US EPA

## ATTACHMENT I

The comments provided below are general comments which pertain to the report entitled "Draft Final Focused Feasibility Study, Sites 1 and 3" (July 1991). The report was submitted by the U.S. Department of the Navy for the Naval Air Station Brunswick in Brunswick, Maine.

1. As has been discussed in the past, EPA believes that the modeling presented in this report is preliminary in nature and will require significant modifications prior to final design. Further, any modeling performed during the pre-design phase should be coordinated closely with the EPA to ensure that all objectives of the modeling are met.
2. For all alternatives where waste is left in place, deed restrictions will be required. The need for deed restrictions will not depend on whether or not the base is sold. This should be indicated throughout the text.
3. For all alternatives which require institutional controls/deed restrictions, the Navy will have to indicate how they will control maintenance and construction activities in the area of the Weapons Compound so that they do not interfere with the selected remedy.
4. A statement should be added to all discussions in the Feasibility Study regarding Reduction of Toxicity, Mobility, or Volume (TMV) which indicates that there will be no reduction in TMV for the landfilled materials.
5. When presenting the costs for alternatives with groundwater treatment and air stripping, the cost of off-gas treatment should be included since Maine is a non-attainment area for ozone. Since this is the case, off-gas treatment will be required.
6. Each alternative involving extraction of groundwater may require a higher pumping rate than 78 gallons per minute (gpm), particularly in Alternative 1,3-E. Differing flow rates will impact the cost of the alternatives. This factor should be recognized in the FS.
7. The summary of contamination section should include a table summarizing all of the contamination detected in the various media. A table should have been prepared for the RI Report and could be inserted in this document. Several comments have been made alluding to the contaminants detected and a summary table of contaminants detected would help clarify matters.

## ATTACHMENT II

The comments provided below are specific comments which pertain to the report entitled "Draft Final Focused Feasibility Study, Sites 1 and 3" (July 1991). The report was submitted by the U.S. Department of the Navy for the Naval Air Station Brunswick in Brunswick, Maine.

1. Page 2-3, Figure 2-2: The figure presented and entitled "Approximate Location of Site 1 and Site 3" does not accurately depict these sites as shown in figures previously submitted. Replace this figure with a figure which shows the extent of the sites including the area under the Weapons Compound.
2. Page 2-4, Paragraph 2: Include a figure which shows the sampling locations discussed in this paragraph.
3. Page 2-8, Paragraph 3: The second sentence of this paragraph indicates that a target clean-up level for lead is proposed. However, there is not mention of lead in the summary of surface water contamination. Clarify.
4. Page 2-30, Table 2-5: the MCLs for trans- and cis-1,2 dichloroethylene and chromium were finalized in the January 30, 1991 Federal Register. Therefore, the notation "p" for MCLs of these three compounds should be deleted.
5. Page 2-31 and 2-32: Since Mere Brook is being considered as part of operable unit AWQC are ARARs and will not be met. We therefore recommend that Mere Brook surface water not be considered as part of this operable unit. The report mentions the development of the stormwater runoff characterization study. Indicate, in the text, that the study is not being performed under the ongoing work associated with past disposal sites. This study could be discussed at a later date in a feasibility study for another operable unit at NAS Brunswick. It will be determined in that feasibility study if it is appropriate to address surface water contamination in Mere Brook under CERCLA.
6. Page 2-33, Table 2-6: This table lists a Remedial Action Objective for Surface Water. However, as explained in item 5 above, surface water is not being addressed. Revise the table accordingly by eliminating the references to surface water in Tables 2-5 and 2-6.
7. Page 3-1, Paragraph 3: EPA recommends that the third sentence of this paragraph be revised to read, "The State is a party to the FFA and has had the opportunity to review and comment on this FFS."
8. Page 3-8, Paragraph 1: EPA believes that monitoring well

MW-101 should be considered for determining background contamination levels when the monitoring plan is finalized.

9. Page 3-15, Paragraph 4: The first sentence of this paragraph must be revised to indicate that an environmental monitoring program would be required.
10. Page 3-16, Paragraph 2: Describe more fully, in the text and in response to comments, how it was determined that only 7.4 acres of the 12 total acres of Sites 1 and 3 would be capped. Also, discuss the fact that Figure 3-2 appears to show a much greater percentage of Sites 1 and 3 as being capped.
11. Page 3-16, Paragraph 3. A list of contaminants is needed here.
12. Page 3-16, Paragraph 4: This paragraph should indicate that the cap will be designed in the EPA guidance document listed and sound engineering design practices.
13. Page 3-16, Paragraph 4: The geomembrane should be at least 40 mils in thickness based on seamability (burn outs) and survivability during and after construction.
14. Page 3-16, Paragraph 5: Very low density polyethylene (VLDPE) over PVC is recommended because VLDPE is more resistant to gases that might be contacted (i.e., methane, VOCs...).
15. Page 3-18, Paragraph 4: The third sentence of this paragraph should be changed to read "A 16-inch thick drainage layer, ... at least  $1 \times 10^{-2}$  cm/sec would be placed over the barrier".
16. Page 3-18, Paragraph 4: EPA recommends that geotextile be added between the 24" fill layer and the 16" drainage layer. In addition, a gas vent layer should be added below the 24" clay layer.
17. Page 3-19, Figure 3-3: Change the slope of 0.003 ft/ft to 0.03 ft/ft or 3%.
18. Page 3-20, Paragraph 1: Include the basis for assuming that one gas vent per acre will be sufficient to provide ventilation of the landfill gases beneath the cap? Will off-gas from the vent system require treatment? These issues should be addressed.
19. Page 3-20, Paragraph 4: Provide a cross-section of the final grade of the cap surface indicating top (3%), side slope (33%) and the surface drainage system.
20. Page 3-20, Paragraph 5: Include a brief statement which

provides the basis for choosing three 24-inch diameter culverts. Include the rationale for their purpose, location and size.

21. Provide a hydrologic evaluation and surface soil erosion calculation based on the proposed cap.
22. Indicate whether a 100-year flood water surface exists in the vicinity of Sites 1 & 3.
23. Page 3-22, Subsurface Hydraulic Barrier: During the design phase, when more extensive computer modeling will be performed an interceptor trench or well-point system placed at the downgradient side of the area, within the slurry wall should be evaluated since one of these options may be more efficient than the extraction wells currently proposed.
24. Page 3-22, Paragraph 4: This paragraph states that the cap will extend over the slurry wall to prevent desiccation of the slurry wall. However, Figure 3-5 shows that the northern portion of the slurry wall is not covered by the cap. Discuss and clarify the discrepancy.
25. Page 3-23, Figure 3-5: This figure seems to indicate that the location of the proposed slurry wall would not be outside the limits of the waste in all cases. The figure should be corrected.
26. Page 3-22, Paragraph 5: Geotechnical testing for the underlying clay should also include natural moisture content in Atterberg limits, permeability, etc.
27. Page 3-26, Paragraph 1: Testing of the slurry wall mixture to determine the effects of exposure to contaminated groundwater should be conducted.
28. Page 3-26, Paragraph 1: The last sentence of this paragraph should be omitted.
29. Page 3-28, Paragraph 4: Explain briefly (in the text) how it was established that 16 million gallons of contaminated groundwater remaining within the landfill area.
30. Page 3-31, Paragraph 1. Why is there a reference to groundwater cleanup when only one pore volume will be removed from the landfill area? Flushing of the landfill wastes or contaminated soils is not expected to occur in this alternative.
31. Page 3-32, Paragraph 1: It is stated that the pretreatment system will remove inorganic compounds. However, the document also states that inorganic treatment will be used to ensure discharge compliance with ARARs. There is inconsistency with regard to the objective of the

pretreatment system.

32. Page 3-32, Paragraph 2: The potassium permanganate pretreatment system is a proven method for the removal of iron and manganese. However, what is the expected removal efficiency for arsenic and lead, two contaminants that exceed their respective MCLs?
33. Page 3-32, Paragraph 3: The polymer added is subjected to rapid mixing as shown in Figure 3-10 to coagulate the precipitated metals. Coagulation must be performed before flocculation to achieve effective agglomeration of particles.
34. Page 3-32, Paragraph 4: What are the disposal options for the dewatered sludge? Are there landfills in the vicinity of the site that will accept the sludge? Also, is there a possibility that the sludge will have to be disposed out of state? If so, do neighboring states have any restrictions on importation of wastes? Treatability tests should be performed to determine the regulatory status of the sludge.
35. Page 3-40, last paragraph: Indicate that NPDES permits are issued under Section 402 of the CWA, not Section 404 as stated here.
36. Page 3-42, Paragraph 1: Include a figure which shows the proposed infiltration location.
37. Page 3-42, Paragraph 1: For Alternative 1,3-C, no flushing of waste materials is proposed, therefore it is not clear why this issue is discussed here. Also, what is the effect of groundwater mounding on the slurry wall?
38. Page 3-42, Paragraph 3: Discuss briefly, in the text, the basis for assuming that eight injection wells would be required to discharge treated water.
39. Page 3-42: It is recommended that the Navy contact the Wastewater Management Section at EPA regarding the option of discharging treated effluent with stormwater to streams.
40. Page 3-45, Paragraph 1: Indicate whether the State's guidance on the Protection and Improvement of Air and Ambient Air Quality Standards applies to air stripping only.
41. Page 3-45, Paragraph 3: The third sentence of this paragraph should be revised to indicate that the cap provides long-term minimization of migration of rainwater through the closed landfill (not contaminants).
42. Page 3-45, Paragraph 3: The text should indicate that inspections of the landfill cap would be performed annually, not only during five year reviews.

43. Page 3-45, Paragraph 4: The sludge hauler may also have to be licensed in Maine.
44. Page 3-46, Paragraph 2: The sentence beginning "NPDES requirements and the Maine Antidegradation statute set the requirements..." through the end of the paragraph is somewhat misleading. NPDES discharge limits may be established from effluent guidelines, water quality criteria or best professional judgement. In addition, the statement regarding the antidegradation policy should be more expansive. Antidegradation applies to new or increased discharges to surface waters.
45. Page 3-46, Paragraph 1: If treated groundwater is recharged back to the underlying aquifer, what limits (e.g., MCLs) will be imposed. Maine has primacy over the Underground Injection Control (UIC) program, which regulates discharges to aquifers.
46. Page 3-47, Paragraph 3: This paragraph indicates that the slurry wall would be installed upgradient of Sites 1 and 3 only. However, discussions on previous pages and figures presented earlier in the text show the slurry wall to the north, west and east of the sites. Revise the text here.
47. Page 3-47, Paragraph 3: Provide a calculation to support 0.5 inches of infiltration per year into the refuse.
48. Page 3-49, Paragraph 2: Without a lime addition step, other metal precipitates may not be formed (e.g., arsenic and lead precipitates). Discuss this further.
49. Page 3-50, Paragraph 4: Clarify whether the estimated time for construction presented in this paragraph also includes the construction/installation of the groundwater extraction and treatment systems.
50. Page 3-51, Paragraph 3: Is it known if the potential clay source(s) for the cap is located in a wetlands area? If so, will the Corps of Engineers allow disturbance of the wetlands to obtain the necessary clay?
51. Page 3-51, Paragraph 3: Include an estimate of the time it would take to perform the clay borrow study.
52. Page 3-54, Table 3-5:
  - A. Labor costs need to be included in the cap construction.
  - B. Installation of the slurry wall and the environmental monitoring activities will require personnel that are trained according to OSHA regulations for work at hazardous waste sites. These costs should be included.

C. The costs for off-gas treatment should be included as emissions since the entire state is a non-attainment area with respect to ozone.

D. Do air monitoring costs include the collection and analysis of air stripper off-gas samples and ambient air samples at the fence line for compliance with MEDEP emission standards?

It should be noted that issue A is also applicable to Alternatives 1,3-E and 1,3-F; issues C and D are applicable to all alternatives with a groundwater treatment component.

53. Page 3-61, Paragraph 4: The second sentence of this paragraph states that VOC treatment or discharge of water may take place off-site. The text should be revised to indicate that treatment and/or discharge may occur at another site on base.
54. Page 3-64, Paragraph 2: If shallow groundwater exists between 25 to 30 below ground surface (bgs), the depth of the trench should extend well below 30 feet bgs to minimize underflow or bypassing of the trench.
55. Page 3-64, Paragraph 2: Include a statement regarding how the actual location of the trench would be determined prior to construction.
56. Page 3-64, Paragraph 2: Include a discussion regarding how the trench would capture contaminated groundwater at depths greater than the bottom of the trench.
57. Page 3-65, Figure 3-15: Explain why the proposed interceptor trench can not lower the groundwater level below the bottom of the waste.
58. Page 3-69, Paragraph 4: Indicate how the downgradient trench could intercept an estimated 15,000 cubic feet of water per day (78 gpm).

Clarify why the pumping rate of 78 gpm is suggested for the passive groundwater collection system

59. Page 3-68, Paragraph 3: How will the interceptor trench collect groundwater at 37 feet bgs if the trench extends to a depth of only 25 feet bgs?
60. Page 3-70, Paragraph 1: What effects will upgradient reinjection have on the interceptor trench?

61. Page 3-70, Paragraph 3: Environmental monitoring for Alternative 1,3-D should also include air monitoring during the installation of the trench.
62. Page 3-70, Paragraph 3: Clarify, in the text, that the effluent monitoring discussed here refers to treatment system effluent.
63. Page 3-71, Paragraph 4: This paragraph must discuss ARARs which apply to Mere Brook.
64. Page 3-74, Paragraph 1: What components in the environmental monitoring program will be used to assess the effectiveness of the passive groundwater collection system? A reference to Section 3.4.6 is needed.
65. Page 3-74, Paragraph 3: The toxicity of the metal sludge will have to be evaluated using the TCLP.
66. Page 3-86, Paragraph 3: This paragraph explains that a range of pumping rates were estimated for the different pumping wells. However, according to B.4 Model Grid (page B-3), the water table aquifer is assumed to be a single layer. Explain further why different pumping rates are being assumed.
67. Page 3-87, Figure 3-18: The current placement of the extraction wells appears to leave a gap on the western and southwestern side of the landfill. Will the extraction wells ensure that groundwater does not impact Mere Brook from the western side of the landfill?
68. Page 3-88, Paragraph 4: What are the effects of groundwater recharge on the corresponding aquifer flow patterns and the extraction well system design?
69. Page 3-89, Paragraph 1: An environmental monitoring program similar to Alternative 1,3-D is probably more applicable.
70. Page 3-90, Paragraph 3: Indicate that the landfill cover system would be designed to meet RCRA (USEPA, 1989).
71. Page 3-92, Paragraph 3: Revise the second sentence of this paragraph to indicate that the chosen process option would effectively remove or destroy all contaminants, not just contaminants of concern.
72. Page 3-94, Paragraph 4: Indicate in this paragraph that drill cuttings will be screened, managed and disposed of properly, if determined to be contaminated.
73. Page 3-94, Paragraph 5: This paragraph states that "... increased flows may affect the habitat of some species." According to Maine's Water Classification Program

(38 M.R.S.A. Section 465) for Class B waters, "The habitat shall be characterized as unimpaired." If it is determined that this discharge affects habitats it would violate water quality standards.

74. Page 3-94, Paragraph 6: Does the estimated time for construction include construction of the treatment system?
75. Pages 4-2 through 4-9, Table 4-1: The table as presented is almost illegible. This table should be enlarged and reprinted.
76. Page 4-3, Table 4-1, Chemical-specific ARARs for Alternatives 1,3-C, 1,3-D, 1,3-E and 1,3-F: Add a statement to these descriptions which addresses ARARs and Mere Brook.
77. Page 4-3, Table 4-1, Location-specific ARARs for Alternatives 1,3-C, 1,3-D, 1,3-E and 1,3-F: Add a statement clarifying what "set-back" pertains to.
78. Page 4-3, Table 4-1, Action-specific ARARs for Alternatives 1,3-C, 1,3-D, 1,3-E and 1,3-F: Clarify how AWQC will be complied with since none of these alternatives provide for any action to clean up the surface water.
79. Page 4-3, Table 4-1, Alternative 1,3-C: The timeframe shown to comply with chemical-specific ARARs (142 to 370 days) is the time required to extract one pore volume from beneath the landfill. Clarify this issue.
80. Page 4-4, Table 4-1, Adequacy of controls for Alternative 1,3-C: Clarify that the slurry wall would divert clean groundwater around the site.
81. Page 4-10, Paragraph 1: Add a statement here regarding how the proposed UV system would/would not attain ARARs.
82. Page 4-11, Paragraph 4: The second sentence of this paragraph should be changed to read, "However, these components would be designed to have minimal impact on the environment".
83. Page 4-11, Paragraph 4: The third sentence of this paragraph should indicate that preliminary groundwater modeling has been used to site the downgradient trench.
84. Page 4-13, Paragraph 2: Reference Table 2 in Appendix A for the cost comparison of Alternative 1,3-D.