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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

April 6, 1992

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

Subj: Draft Record of Decision
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 "draft" Record of Decision (ROD) for Sites 1 and 3 at the Naval Air Station Brunswick in Brunswick, Maine.

EPA's comments regarding this document are provided as attachment I to this letter. Upon satisfactory response to our comments, EPA anticipates that we will provide concurrence on this ROD. According to the schedule presented by the Navy at the Technical Review Committee meeting held on February 20, 1992, the Navy will respond to comments and resubmit the ROD on April 27, 1992.

Also attached to this letter is a correspondence from the U.S. Fish and Wildlife Service regarding their review of the draft ROD. EPA endorses the remedy as outlined in the Navy's draft ROD.

In order to facilitate the finalization of the ROD, EPA recommends that a meeting or conference call be scheduled to discuss the attached comments and the Navy's responses. Please contact Meghan Cassidy, the Remedial Project Manager, at (617)573-5785 to schedule such a meeting/conference call.

Sincerely,

Mary Jane O'Donnell

Mary Jane O'Donnell, Chief
ME & VT Superfund Section

cc: Ted Wolfe/ME DEP
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ATTACHMENT I

The comments provided below are EPA's comments pertaining to the draft "Record of Decision (ROD) for Sites 1 and 3". This draft ROD was submitted by the U.S. Department of the Navy for the Naval Air Station Brunswick, Maine.

1. General. The text repeatedly refers to discharge to the POTW as the preferred alternative. Clearly indicate whether this is the preferred alternative that will be implemented upon acceptance of the ROD, or whether the POTW has yet to commit to accepting the discharge.

2. **DECLARATION**, Page 1, **DESCRIPTION OF THE SELECTED REMEDY:** This section must include a description of the role of the operable unit within the overall site strategy.

3. **DECLARATION**, Page 1, **DESCRIPTION OF THE SELECTED REMEDY:** Because inorganic contaminants are part of the problem, the description should also include a brief synopsis of inorganic contaminant treatment/pretreatment.

4. **DECLARATION**, Page 2, ¶ 3: Indicate in the narrative whether the Brunswick POTW has agreed to accept the additional hydraulic loading from the groundwater treatment system. Also, refer to the other options in the text.

5. **DECLARATION**, Page 2, **STATUTORY DETERMINATIONS:** In the third sentence of this paragraph change "may" to "will".

6. Page 4, **SITE NAME, LOCATION, AND DESCRIPTION:** This section should include discussions on natural resource usage in the area, and general surface water and ground water uses in the area.

7. Page 5, Figure 1: Change Site Boundary to Base Boundary.

8. Page 8, **LAND USE AND RESPONSE HISTORY:** This section should include the following statement.

   "A more detailed description of the history of Sites 1 and 3 can be found in the Remedial Investigation Report at pages ____."

9. Page 8, ¶ 3. Clarify whether the 1.1 mg/kg of chlordane was the only observed level, or the "only low-level" data point.

10. Page 8, ¶ 5, last sentence: Insert "(Sites 1 and 3)" after the word landfill in this sentence.

11. Page 11, ¶ 2: The first sentence of this paragraph should be rewritten to read, "...the Navy established an information repository for public review of site-related documents...".

12. Page 11, ¶ 2: The first sentence of this paragraph should be followed by:

"On ____ the Navy made the Administrative Record available for public review at the Curtis Memorial Library."

13. Page 11, ¶ 2: Include the date when the notice regarding the Proposed Plan was published in the Times Record.

14. Page 13, **SUMMARY OF SITE CHARACTERISTICS:** This section should end with the following sentence.

"A complete discussion of the site characteristics can be found in the Remedial Investigation Report at pages ____.

15. Page 13, ¶ 2: Concentrations of inorganic contaminants should be included, particularly in the case of mercury, which has been associated with environmental risk at these sites.

16. Page 13, ¶ 2: Some language is missing in the third from the last sentence of this paragraph: "... NAS Brunswick may account for the (------) of the PAHs in soils..." In the last sentence, clarify whether lead and mercury were the only metals found above background, and if not, also list the other metals.

17. Page 14, **LEACHATE SEEPS, SURFACE WATER, AND SEDIMENT:** It is unclear as to the location of the seeps in relation to Mere Brook. The text should clarify whether they come in contact with one another. Also, the text should clarify the location of the surface soil sampling locations (i.e., SS-101, SS-102, and SS-103) in relation to potential contact with surface water.

18. Page 14, **LEACHATE SEEPS, SURFACE WATER, SEDIMENT:** This discussion should include at least maximum concentrations of contaminants. Also, a description of seep sediments appears to have been omitted and must be included.

19. Page 14, ¶ 1: In the last sentence, change the word "flow" to "migrate".

20. Page 14, ¶ 2: The concentrations of chlorinated solvents do not correlate with those presented in Table 3 (Page 33). Revise the text such that the maximum level of VOCs in the text and Table 3 coincide.

21. Page 15, **SUMMARY OF SITE RISKS:** Risk tables should be formulated and presented as in the model ROD. Also, include the appropriate text to accompany these tables.

22. Page 15, ¶ 1: Item number 4 in the second sentence should be revised to read as follows.

"...(4) risk characterization, which integrated the three earlier steps to summarize the potential and actual risks posed by hazardous substances at the site, including carcinogenic and non-carcinogenic risks."

23. Page 15, ¶ 2: Specify the number of contaminants of concern in the text.

24. Page 15, ¶ 2: The following sentence should be incorporated as the last sentence of this paragraph.

"A summary of the health effects of each of the contaminants of concern can be found in **[insert section/chapter/pages]** of the risk assessment which is contained in Appendix ____ of the Remedial Investigation Report."

25. Page 15, ¶ 3: This paragraph is not consistent with the language provided in the model ROD. The paragraph should be replaced with the following information.

"Potential human health effects associated with exposure to the contaminants of concern were estimated quantitatively through the development of several hypothetical exposure pathways. These pathways were developed to reflect the potential for exposure to hazardous substances based on the present uses, potential future uses, and location of the Site. The following is a brief summary of the exposure pathways evaluated. A more thorough description can be found **[insert relevant pages or chapter of the Risk Assessment]. For each exposure pathway, briefly summarize the exposure evaluated in a sentence emphasizing frequency and duration of exposure. Also be certain to indicate if a model was used. For example: For contaminated groundwater, a lifetime of consuming 2 liters per day was presumed.** For each pathway evaluated, an average and a reasonable maximum exposure estimate was generated corresponding to exposure to the average and the maximum concentration detected in that particular medium."

26. Page 16, Table 1: This table must include the average and maximum concentrations, and frequency of detection for each contaminant of concern.

27. Page 16, Table 1 and Page 33, Table 3: Table 1 presents a comprehensive list of contaminants of concern for Sites 1 and 3. The majority of constituents are addressed in Table 3 (Proposed Clean-up Levels), but other contaminants of concern, such as aluminum, barium, ethylbenzene, manganese, sodium, toluene, and xylene (presented in Table 1) are not shown in Table 3 or in its accompanying narrative. Provide a rationale as to why the above contaminants are not reported in Table 3 with their respective target clean-up levels.

28. Page 17, ¶ 2: Hazard Quotient (HQ) is the term used for a single chemical. Hazard Index (HI) is the sum of quotients across chemicals.

29. Page 17, ¶ 3 and 4: This section should include a more detailed summary of risks to human health. The summary should present risk estimates for noncancer effects and carcinogenicity; for children and adults (separately); and for current vs. future land use.

30. Page 17, ¶ 4: The risk calculation and results for the soil incidental ingestion and dermal contact pathways shown in Appendix B of this draft ROD are exactly the same as the ones shown in Appendix Q-2 of the final RI. In this ROD, risk results need to be summarized. It is not necessary to repeat the same tables from the RI.

31. Page 17, ¶ 4: This paragraph states that C-PAHs are the contaminants which contribute most to the carcinogenic risk. The risk from C-PAHs are $2.8x10^{-6}$ and $5.0x10^{-5}$ for adult average and worst case scenarios, respectively. The average and worst case risks from C-PAHs for children are $1.6x10^{-5}$ and $2.9x10^{-4}$, respectively. The risk conclusion described in this paragraph is incomplete since it does not present this information. This information must be included.

32. Page 17, ¶ 4: Appendix B presents the risk calculation for ground water ingestion based on the new parameters in OSWER directive 9285.6-03 "standard default exposure parameters". The risks are $6x10^{-4}$ and $5x10^{-3}$ for the average and worst cases, respectively. The exposure duration is 30 years and the exposure frequency is 350 days as opposed to 70 years and 365 days used previously. These risk results should be summarized in the text.

33. Page 17, ¶ 5: In the first sentence the word "adversely" should be inserted after "Mere Brook could...."

34. Page 18, ¶ 1: This paragraph discusses surface water contamination (iron and zinc) in Mere Brook upstream of Sites 1 and 3. As has been stated in the past, EPA requires that reference be made to specific actions being taken by the Navy (NORDIV or the base) to examine possible upstream sources of contamination. The text should also indicate that the results of any such studies will be provided to EPA and DEP.

35. Page 18, ¶ 2: The first sentence should read "...Ambient Water Quality Criteria (AWQC) for the protection of aquatic life." The second sentence, "organisms that live in aquatic environments" should be replaced with "freshwater species from acute and chronic toxic effects."

36. Page 18, ¶ 3: There should be some summary statement regarding the observed health/integrity of the ecosystem.

37. Page 18, ¶ 3: Include a statement in this paragraph which indicates that the monitoring program will be designed to evaluate the effectiveness of the remedy in decreasing the amount of iron and zinc in Mere Brook. Further, include a statement which explains that should long-term monitoring data show that the remedy is not successful in decreasing the amount of iron and zinc in the brook over time, additional remedial measures will be evaluated.

38. Page 18, ¶ 4: This paragraph should include some discussion regarding how implementation of the remedy is expected to effect the level of mercury in the sediment around the seep areas. Also, indicate that the monitoring plan will include a mechanism to assess whether the remedy is meeting the remedial action objective of minimizing further impact to the Mere Brook ecosystem.

39. Page 18, ¶ 4: Indicate whether statements regarding the long-term exposure to mercury is speculation or whether this has been quantitatively demonstrated in the risk assessment. Provide more detail on how the levels of contaminants in sediments not considered to present an ecological risk were derived (e.g., food web analysis).

40. Page 18, ¶ 5: The last sentence of this paragraph should read: "The objective of the selected remedial action is to cease the discharge of contaminated groundwater under Sites 1 and 3, remediate the groundwater, and by so doing, clean up the surface water, leachate, and related sediments."

41. Page 19, last sentence: The word <u>were</u> should be changed to <u>was</u>.

42. Page 20, ¶ 4: Table 2 does not list the alternative eliminated from further consideration as stated. Correct this discrepancy.

43. Page 22, **DESCRIPTION OF ALTERNATIVES:** All alternatives which result in waste remaining onsite, must include 5 year reviews.

44. Page 22, ¶ 1: Add the following statement to this paragraph.

"A detailed tabular assessment **[or description]** of each alternative can be found in Table ____ **[or at pages ____]** of the Focused Feasibility Study."

45. Page 23, bullet number one: "Well" should be "wall".

46. Page 23, ¶ 1: Specify the type of low-permeability cap which will be constructed.

47. Page 23, ¶ 1: Specify the area (i.e., acreage) that will be capped.

48. Page 28, Threshold Criteria, item number 1: The text should be revised to read as follows:

"Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls, or institutional controls."

49. Page 29, ¶ 4: The text regarding modifying criteria should be revised as follows:

"The modifying criteria are used in the final evaluation of remedial alternatives generally after public comment on the RI/FS and Proposed Plan has been received."

50. Page 29, ¶ 6: Remove the reference to an "interim" remedial action.

51. Pages 28 through 30, **SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES:** This lacks the necessary comparison of each alternative against the nine criteria, with specific attention paid to the four step thought process described in the model ROD. This comparison is necessary and must requires more detail than simply inserting or referencing the table from the FS.

52. Page 30, ¶ 2: Add the following sentence to the end of this paragraph.

"This comparative analysis can be found in Table ____ of the Focused Feasibility Study."

53. Page 31, ¶ 2: In the first sentence, state for which media clean-up levels have been established.

54. Page 31, ¶ 2: In the third sentence, clarify that 10^{-6} risk level or HI=1 was used for each chemical of concern and each exposure pathway of importance.

55. Page 31, ¶ 4 and 5: It is Superfund policy to set clean-up levels based on carcinogenic risk of 10^{-6} and a hazard index of 1 if no MCLs, non-zero MCLGs or promulgated state standards exist. Health advisories are considered if the above conditions do not apply. This information must be included when discussing clean-up levels. The necessary language is shown in Region I's model ROD.

56. Page 32, ¶ 2: This paragraph designates Mere Brook as the point of compliance. The text should be modified to clarify that groundwater not surface water will be monitored to determine whether clean-up levels have been met.

57. Page 32, ¶ 2: The following language must be inserted at the end of this paragraph.

"..., unless the MCL and/or MCLG is outside the risk range due to the Practical Quantification Limit (PQL) for the particular hazardous substance being above the 10^{-4} excess risk level. Vinyl chloride's MCL is set at the PQL and the PQL represents an excess risk level greater than 10^{-4}."

58. Page 32, ¶ 3: In the first sentence, should "no risks" be "risks are within the acceptable range established by EPA...?"

59. Page 32, ¶ 4: The second sentence of this paragraph should be rewritten as follows.

"Surface water Target Clean-up Levels for iron and zinc were proposed at the contaminants' AWQC for purposes of determining whether the contribution from Sites 1 and 3 to Mere Brook has been alleviated..."

60. Page 32, ¶ 5, 1st sentence: This sentence should indicate that target clean-up levels were set at AWQC or risk based levels. No mention of chemical-specific ARARs should be made.

61. Page 32, ¶ 5: The third sentence should read: "Mercury was the only contaminant identified in the baseline risk assessment to present a propensity to bioaccumulate and biomagnify in terrestrial food chains."

62. Page 33, Table 3: The following changes should be made to this table.

- The MCL for chromium is final.
- The clean-up level for lead should be set at the action level of 15 ppb.
- The carcinogenic risk and the hazard index based on the clean-up level should be listed in the table. The necessary format is in the Region I model ROD.

63. Page 34, **SLURRY WALL:** The first sentence in this section indicates that the slurry wall will be placed around the landfill. The sentence should be rewritten to clarify that the wall will not be constructed in the area of the Weapons Compound.

64. Page 34, **SLURRY WALL:** If the formation into which the slurry wall will be keyed is a silty clay, describe it as such throughout the document. State the hydraulic conductivity of the silty clay in the text. Discuss how the clay will be differentiated from the transition clays when installing the slurry wall, and what measures will be taken to ensure that the slurry wall is keyed deeply enough into the clay to prevent leakage.

65. Pages 36 and 37, Figures 4 and 5: Indicate that the clay depicted in this cross section is actually a silty clay. Because the thickness of the silty clay is an important characteristic of the site, these cross sections should depict the total thickness of the silty clay and the underlying bedrock surface.

66. Page 38, **CAP:** EPA is concerned that prior to the establishment of the vegetated layer, there may be an increased probability of erosion and runoff. This concern is two-fold, a physical sedimentation increase and the increased probability that contaminated leachate sediments could be washed into Mere Brook. EPA requests that a statement regarding preventative measures to be taken during construction be added to the text.

67. Page 38, ¶ 3, Line 5: The sentence which reads, "The permeability of the cover system would be 10^{-7} cm/sec." should be changed to read as follows.

"The maximum permeability of the low permeability soil (or clay) layer would be 1 x 10^{-7} cm/sec.".

68. Page 38, ¶ 5: Gas generation in a landfill can pose potential problems (i.e., explosion hazard, stressing vegetation, disruption of the cover system, etc.). Therefore, a gas vent (or collection) layer should be included in the design and mentioned in the ROD. A landfill gas predesign study would then determine gas collection processing, discharge, etc.

69. Page 39, ¶ 4: Reference to the 20-mil PVC liner should be deleted since paragraph 2 on this page states "the material type and thickness would be included in the final design...".

For design purposes, however, EPA recommends that a minimum thickness of 40-mil be used for the geomembrane.

70. Page 40, Figure 6A: The slope should be 0.03 ft/ft as opposed to 0.003 ft/ft.

71. Page 41, **GROUNDWATER EXTRACTION WELLS:** Explain more completely what the groundwater extraction wells are intended to do, and how the opening in the slurry wall will influence this objective. This explanation should consider statements/figures contained within the ROD text and responsiveness summary (e.g., page 41, Responses to Comments 2 and 3). For example, the statements "A groundwater extraction system would be designed and installed to remove contaminated groundwater trapped beneath the cap and within the slurry wall (p.41)" and "The groundwater extraction component of the remedial alternative is designed to remove only the volume of water which is enclosed by the slurry wall (Response to Comment 3)" suggest that all groundwater contained within the slurry wall will be removed. In actuality, the Navy is proposing lowering the water table to below the level of the waste, not removing all groundwater within the slurry wall.

Provide a rationale for the pumping rate proposed for the extraction wells. Indicate whether groundwater extraction is expected to create subsidence beneath the landfill, and if so, what impact subsidence will have on the performance of the remedy.

Include some discussion regarding what will happen after what is conceptualized as one pore volume of groundwater is removed.

This section should discuss whether it will be necessary to continue groundwater extraction after one pore volume is removed, in order to maintain an inward gradient and the integrity of the containment system.

72. Page 42, ¶ 2: Is the value for "depth of clay" referred to in the first and second sentences the same measurement (i.e., depth to the silty clay surface)?

73. Page 44, Figure 7: Include the lime addition step, which is referenced in the accompanying narrative, in Figure 7, the process flow diagram. A subheading may be added to the figure indicating that this step is optional, depending on the results of the groundwater treatment treatability study.

74. Page 47, ¶ 2: A sentence must be added to this paragraph which supports the statement that the selected remedy will result in human exposure levels within the risk range.

75. Page 47, **SELECTED REMEDY ATTAINS ARARS:** This section, in conjunction with Appendix C, is inadequate to meet the purpose and requirements of the model ROD. This section should summarize how the selected remedy will attain each category of ARARs. In addition, the section must explain <u>why</u> an ARAR is applicable, or relevant and appropriate as well as <u>why</u> a TBC was considered. Reference the model ROD and the enclosed ARAR section of the Union Chemical ROD.

76. Page 51: Add "As a party to the FFA,..." to the beginning of the first sentence.

77. Section XIV, **RESPONSIVENESS SUMMARY:** This should be included as an appendix.

78. Page 58, Response to Comment 4: Clarify that analytical methods will not allow detection to 0.2 micrograms per liter. This is not the same as saying that technology might not be able to achieve this level.

79. Page 60, Response to Comment No. 8: Provide more detail on how the diversion of clean groundwater from Sites 1 and 3 to the Eastern Plume will be evaluated (preferably via field monitoring) in the event that the modeling effort does not adequately show the interaction.

80. Page 64, Response to Comment No. 12: As in response to Comment No. 1, indicate that another purpose of the Remedial Action Monitoring Plan is to evaluate the need for alternative remedial action.

81. Page 66, Response to Comment No. 13 (last bulleted paragraph of response): Provide a discussion regarding potential air emissions from the pretreatment system upstream of the UV/oxidation system shown in Figure 7 (Page 44).

82. Page 66, Response to Comment No. 14: EPA has commented previously that a statement should be included in the ROD which says that if the Weapons Compound is decommissioned at any time, the Navy would assess whether remedial action is necessary for the portion of Sites 1 and 3 that is part of the compound. The response and the text should be revised to reflect this.

83. Page 67, Response to Comment No. 17: The Remedial Action Monitoring Plan should include a provision to assess the performance of the groundwater treatment system and to evaluate the need for process changes. Additionally, the design of the treatment system should be flexible to accommodate a variety of flow and contaminant loadings.

84. Page 69, Response to Comment No. 18: The response to the comment is ambiguous. The narrative states, "Because the cleanup levels for upgradient recharge were known (i.e., drinking water standards), these values were used to develop and cost the proposed remedial alternative." However, on Page 45 of the ROD, the narrative states, "The preferred option for discharge is...the base sanitary sewer system (Brunswick Sewer District POTW).

Clarify the response to reflect the preferred discharge option. A discussion with the Brunswick POTW indicating that they will accept the discharge should be referenced in the ROD and associated comment responses. If the POTW indicates that they cannot accept the discharge, the groundwater treatment system should be designed to meet the most stringent discharge criteria (i.e., Maine Water Quality Criteria).

85. Page 71, Response to Comment 18: Clarify whether a determination has been made by the oversight authority regarding whether the POTW will definitely be required to develop a local pretreatment program if they accept the discharge from NASB. If this is so, also indicate how long it would take for the POTW to have approved discharge standards that could be applied to the NASB discharge.

86. Page 73, Response to Recommendation B-4: The groundwater treatment treatability testing program should include provisions to characterize the sludge from the treatment process. Indicate whether disposal at either a hazardous waste landfill or municipal landfill are available options for sludge disposal. Include a discussion that the local solid waste district has agreed to accept the sludge if it is shown to be nonhazardous.

87. Page 82, Response to Comment 33: The proposed remedy (presented in Section X) states that monitoring at Sites 1 and 3 will be conducted for a minimum of 30 years. Include this information in the response.

88. Page 83, Response to Comment 35: Indicate in the response that the Remedial Action Monitoring Plan will provide a means of assessing whether the "system" (as referred to in the comment) or remedial program is a success or failure and that other remedial alternatives will be pursued if the proposed plan fails to achieve the cleanup goals and/or experiences technical difficulties.

89. Page 85, Comment 44: Provide a response to Comment 44.

90. Page 88, Response to comment No. 48: The statement that ATSDR is "performing an ongoing study" and is "involved with the remediation at the base" is misleading. While it is true that ATSDR attended the TRC meeting and toured the site, they have not reviewed the information specifically related to Sites 1 and 3 nor have they indicated that they have initiated any studies related to NASB. Therefore, the response should be clarified for the record.

91. Appendix A: Provide units for concentrations presented in the first table.

92. Appendix A: The second table (Analytical Summary for Groundwater) lists the vinyl chloride MEG as 0.15 ppb. Table 3 of the ROD indicates that the Maine MEG is 0.2 ppb. Clarify this discrepancy.

93. Appendix A, Analytical Summary (Groundwater): Ensure that all respective MCLs and proposed MCLs are shown in this table.

94. Appendix A: The third table (Analytical Summary Surface Soils, Surface Water, Sediments, Leachates)uses data qualifiers (i.e., J, D) without defining them. Provide footnotes regarding these qualifiers.

The footnote to this table indicates that all concentrations are ppb. Verify whether this is the correct unit for all media presented, particularly surface soils.

95. Appendix B: While it is understandable that the risk table for ground water has to be shown in Appendix B because it was not shown or calculated in the previous RI, it is not clear why the soil risk table is also included in Appendix B. If the purpose is to revise the soil risk based on the new parameters in OSWER directive 9285.6-03, then new calculations to reflect the new parameters are needed. If the Navy intends to provide new calculations, the RAFs in Region I's guidance and the new cancer potency factor of 5.8 mg/kg/day for benzo(a)pyrene should also be incorporated.

96. Appendix C: In general, more detail is required in the Consideration in the Remedial Process column of all tables in this appendix. Information regarding consideration in the RI should include a discussion of how each of requirement relates to the selected remedy. As an example, the description (as provided in the table) relating to MCLs includes the necessary site-specific information.