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COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

October 26, 1993

Commander
Atlantic Division
Naval Facilities Engineering Command
1510 Gilbert Street
Attn: Code 1822, Mr. Ken Walker
Norfolk, Virginia 23511-2699

RE: Draft Final RI, FS and Baseline RA, Camp Allen Landfill,
Norfolk Naval Base

Dear Mr. Walker:

The Department of Environmental Quality is in receipt of the following documents: "Draft Final Remedial Investigation Report, Camp Allen Landfill, Norfolk Naval Base," dated August, 1993; "Draft Final Baseline Risk Assessment, Camp Allen Landfill, Areas A and B, Norfolk Naval Base," dated July 27, 1993; and "Draft Final Feasibility Study Report, Camp Allen Landfill, Norfolk Naval Base," date August 5, 1993. The documents have been reviewed by Michele Monti, ARARs Coordinator, Patricia McMurray, Superfund Toxicologist, and me. Questions and comments related to these documents or to issues discussed at the Technical Review Committee meeting of September 30 and October 1 1993, are attached.

It should be noted that, where applicable, additional comments may be warranted based upon corrections made to the reports following receipt of these comments.

Due to the limited number of documents provided, we were previously unable to provide copies to the other DEQ divisions for review. However, the documents will be now be forwarded to other appropriate areas for comment.

If you have any questions, please feel free to contact me at (804) 225-2906.

Sincerely,

Lisa A. Ellis
Remedial Project Engineer
Federal Facilities Program

Attachment

cc: Rob Thomson, EPA Region III
Ken Walker, LANTDIV
Dave Forsythe, Norfolk Naval Base
Michele Monti
Pat McMurray
Erica Dameron
K.C. Das

Norfolk Naval Base
Camp Allen Landfill
Document Review Comments

Executive Summary

1. The executive summary mentions, on page ES1-3, the existence of the Salvage Yard in the vicinity of the Camp Allen Landfill. It should be noted that, if the Salvage Yard is currently operational, as it appeared to be during the site visit which took place during the Technical Review Committee (TRC) meeting, runoff from the Salvage Yard area could still be impacting the surrounding soils. If the runoff direction is either in the direction of Area A or Area B, detected levels of contaminants could still be increasing due to current activities at the Salvage Yard. } *
2. No mention is made, throughout the reports, of the potential for ordnance to have been disposed at the Camp Allen Landfill. Has this possibility been explored?
3. Based upon the information provided in Figure 2-1 on page ES2-2, it appears that there are 67 monitoring wells in the vicinity of the Camp Allen Landfill. However, this number does not correlate to the number of wells indicated in the RI. Please clarify.
4. A map indicating surface water runoff direction somewhere in the report would be useful.

Remedial Investigation Report

5. Pages 1-5 and 1-6 of the RI detail historic landfilling activities at the Camp Allen area. Are there any historic records to indicate that the landfill boundaries actually extend into areas which have subsequently had buildings constructed, or other information to indicate that the landfill boundaries may not coincide with what was found during the geophysical investigation? Did the geophysical investigation extend beyond the suspected boundary of the landfill? ✓
6. Page 1-6 indicates the existence of an incinerator at the Camp Allen area. When did operation of the incinerator cease? When was the incinerator removed from the site? Please detail the history of the incinerator.
7. On page 1-8, it is indicated that the Salvage Yard portion of the Camp Allen area is at the PA/SI phase of remediation. As I stated during the TRC meeting, it seems impractical to consider remediating portions of the Camp Allen area when the full implications of contamination at the Salvage Yard have not been assessed. It is my recommendation

that the Remedial Design phase not begin until contamination at the Salvage Yard has been fully characterized.

8. Page 1-20 of the report indicates the Remedial Investigation report organization. This page would be more useful as a table of contents to the report.

9. The soils map provided on page 2-3 of the report does not provide any information in black and white. It is recommended that color-sensitive maps be included as color copies to fully utilize the information on the map.

10. When the question was posed during the TRC meeting, it was stated that the groundwater flow patterns in the Camp Allen area prior to any filling activity when Bousch Creek was active are the same as the groundwater flow patterns today. This information should be included in the report.

11. According to page 6-6 of the document, documented field observations strongly suggest a potential source area north of the Brig facility. Will there be future sampling activities conducted to attempt to locate this source? Please describe. ✓

12. On page 6-11 it is stated that "additional metals were also detected; however, their occurrences and distribution can be considered natural in the soils." Upon what was this assumption of background based?

13. Based upon the information contained on pages 6-25 and 6-26 of the RI report, it is unclear for what the data obtained from the Storet Database system was used. Please clarify.

? 14. The DEQ has received an EE/CA for the removal action at Camp Allen Landfill Area B. Additionally, during the TRC meeting, mention was made of an intended removal action at Area A of the landfill. However, the RI, FS and Baseline RA reports contain little reference to these removal actions, other than section 1.0 of the Feasibility Study. As these removal actions could affect contaminant levels in all media, a description of the activities in the report would be justified. Additionally, the final remedy selected for each media at each location will be based in part on contaminant levels present. These contaminant levels will not be known until the removal actions are completed. Therefore, it is unclear how a remedial technology can be appropriately selected at this point, without post-removal action sampling data available. Also, during the TRC, it was stated that a Record of Decision would be prepared following finalization of the Feasibility Study and Proposed Plan. However, it is intended, according to the schedule provided during the TRC,

that these activities take place prior to the completion of the Removal Action at Area B. The Removal Action at Area A was not included on the schedule shown during the TRC meeting. How can a Record of Decision be signed prior to the completion of activities upon which the Record of Decision is relying for data? The schedule for all future activities is not clear.

15. On page 6-46, it is indicated that arsenic and barium are the exceptions to the rule that detected concentrations of dissolved metals were significantly reduced compared to total metals levels, which were consistently above MCLs. However, barium was not examined as a COPC. Please indicate the reasoning for this.

Agreed to
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including Barium

16. On page 6-64, it is stated that based on detected total metal constituent concentrations found and the lack of consistently elevated constituent concentrations across the drainage ditch, the zone of metal contamination is believed to be related to an off-site source and not Area B or due to interference caused by suspended solids present in groundwater samples collected from this area. This argument is unclear. Please further justify the reason to disregard metals contamination in the drainage ditch.

17. Several references are made in the report to potential off-site sources. Please speculate as to the nature of these sources. Is it possible that these sources are merely additional source areas within the Camp Allen Landfill area outside of Areas A and B?

18. It should be noted that, based upon the map of wetlands provided in figure 2-7 on page 2-21, a wetlands area overlaps a portion of Area A. However, it was stated during the TRC that the wetlands would not be impacted during the activities to be conducted at the Camp Allen Landfill. Please clarify.

19. Who performed the wetlands delineation at the site? Have the Army Corps of Engineers been contacted about potential contamination of wetlands on the base? Fish + wildlife only I believe

20. Please note that information has been provided to the Virginia Marine Resources Commission regarding the remedial activity at the Camp Allen Landfill and the adjacent wetlands. They have been asked to comment on the activity in an effort to comply with state ARARs. The Navy will be provided with a copy of the response that is sent to the DEQ-Waste Division, Superfund Program. Correspondence has also been sent to the Department of Conservation and Recreation and the Department of Game and Inland Fisheries for comment on the potential impact of the remedial investigation and activities on any

rare, threatened, or endangered species. A copy of the response will be forwarded upon receipt.

21. The sediment sample results for Area A for selected metals show that the majority of the samples exceed the NOAA ER-L concentrations for those metals. The same phenomenon was exhibited for pesticides. Will toxicity tests be conducted as a follow-up?

22. For surface water samples, the surface water quality standards for pesticides and PCBs are lower than the detection limits and the estimated concentrations that were found in the samples at Area A. Please comment.

23. On page 6-3, with reference to criteria and ARARs please see comment 24. Please also note that the Federal Ambient Water Quality Criteria are ARARs and, according to the NCP, "are to be attained where relevant and appropriate under the circumstances of the release or threatened release." (NCP, pg. 8755, Federal Register Vol. 55, No. 46.)

RI Appendix Y

24. In the tables in Appendix Y, the Virginia State Water Quality Standards are listed and referred to as Criteria. The federal numbers are criteria, the state numbers are standards. There are Virginia Water Quality Criteria (for Groundwater), but criteria are not enforceable. The VA Water Quality Standards (VWQS) are the ARAR for surface waters. If the surface water that is being discharged to is used as a source of drinking water, then the VWQS for public water supplies should be used, otherwise, the numbers for the protection of aquatic life in fresh and saltwater should be used.

25. In the comparison between State MCLs and Groundwater Deep Wells (SVOCs), what is being used as the state MCL? Are these Virginia groundwater standards ?

26. Attached is a copy of the VA MCLs for organics and inorganics. You might want to use the VA MCLs to compare with the Federal MCLs and list the Virginia Groundwater Standards on a separate table. The list of MCLs are from the VA Waterworks Regulations most recently promulgated, dated June 23, 1993.

27. With reference to the use of the USGS Background Concentrations of Metals in soils, it is suggested that you look at the EPA Region III Risk-Based Concentration (RBC) Table, Second Quarter 1993, for risk-based numbers for metals in commercial/industrial and residential soils. Presently,

the Department of Environmental Quality-Waste Division is using the RBC Table as interim guidance for determining appropriate cleanup standards for environmental contaminants.

28. Soil cleanup levels should be developed using the more stringent concentration level resulting from the following analyses: (1) risk assessment taking into account all potential soil exposure pathways; (2) soil modeling to determine the concentration of contaminants that can remain in the soil such that water in equilibrium with the soil will not result in contaminant concentrations in the groundwater greater than MCLs; and, (3) soil modeling to determine the concentrations of contaminants that can remain in the soil such that water in equilibrium with the soil will not lead to a natural discharge to surface water resulting in an in-stream contaminant concentration greater than its surface water criteria.

29. Appendix Y would have been much more useful had the concentration ranges of the contaminants been listed. Knowing the number of exceedances and the number of times analyzed is secondary in importance to how much the standard or criterion was exceeded.

Baseline Risk Assessment

30. Exposure and risk calculations in this document have been based on a reasonable maximum exposure (RME) to an individual. While this is consistent with the **Risk Assessment Guidance for Superfund (RAGS)**, it should be noted that more recent guidance recommends the use of multiple risk descriptors to characterize risk. (See memo titled **Guidance on Risk Characterization for Risk Managers and Risk Assessors**, U. S. EPA, February 26, 1992.) It is therefore recommended that exposure estimates for an average individual be provided as well as those for the RME individual.

31. Page 2-3: Section 2 describes the process used for selecting the contaminants of potential concern (COPCs). It appears from the process described on this page that the comparison to EPA Region III risk-based concentrations (RBCs) was the last step used in the selection of COPCs. According to Region III guidance, this should be the first step after data quality evaluation. (See **Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening**, U. S. EPA Region III, January 1993.) If COPCs were selected according to this guidance, several contaminants that were eliminated from consideration would have been retained. Detected contaminants should be reviewed and those that exceed RBCs should be initially retained. Further reduction of the list

of COPCs can then be performed based on comparison to background and frequency of detection. Contaminants that are detected below ARARS should be still retained if they exceed RBCs.

32. Page 2-8, Section 2.1.2.1 indicates that methylene chloride and 2-butanone have been eliminated from consideration because they are common laboratory contaminants. It should be noted whether these contaminants were also detected in associated blank samples. If the detected concentrations were less than ten times the concentration seen in the blank sample the contaminants may be eliminated. If blank contamination was not seen, the chemicals should be retained. (This comment also applies to discussions of other media where common laboratory contaminants have been eliminated.)

33. Page 2-8, Section 2.1.2.2 states that surface soil samples taken within the school area were analyzed for inorganics only. A rationale for this decision should be provided since most of the COPCs at this site were organics.

34. Page 2-14, Section 2.3.1: In addition to the volatile organic contaminants listed, 1,2-dichloroethane should also be retained for consideration as a COPC since the maximum concentration exceeds the RBC. (It appears on page 2-22 that it has been retained but it should be added to page 2-14 for consistency.)

35. This section states that relatively low levels of semivolatile organic compounds and pesticides were detected in Area A. It should be noted, however, that 2,4-dimethylphenol, 4-methylphenol, aldrin, heptachlor epoxide, and 4,4-DDT exceeded RBCs and should be retained for consideration as COPCs. Manganese and barium should also be retained since their concentrations exceed RBCs in the filtered samples.

36. Page 2-17, Section 2.3.2: This section states that residential wells were sampled for volatile organic contaminants only. The rationale for this decision should be explained since several inorganic and semi-volatile contaminants and pesticides exceed RBCs in the on-site well samples. Sampling for these additional contaminants would help in understanding the extent of contamination at this site.

37. Page 2-18, Section 2.3.3: In addition to the volatile organic contaminants listed, 1,1-dichloroethene, chloroform, and tetrachloroethene should also be retained for consideration as COPCs for Area B since the maximum

concentrations exceed the RBC. The pesticides gamma-BHC, dieldrin, and heptachlor epoxide should also be retained for consideration. The inorganic contaminants arsenic, antimony, and manganese should be retained as well.

38. Page 2-19, Section 2.4 states that upwind outdoor air samples were collected as background. It is not clear however, whether there was a background sample taken for the indoor air samples. Were the background concentrations from the cited database representative of indoor air in similar buildings? A quantitative background comparison should be provided for any contaminants detected above RBCs.

39. Page 2-20, second paragraph states that 1,4-dichlorobenzene was detected at relatively low concentrations. This statement is misleading since the maximum concentration cited in this paragraph exceeds the RBC, indicating that there is a potential for harmful effects due to exposure to this chemical. The statement should be revised accordingly.

40. Page 3-3, Section 3.3.1 states that volatilization is not as important for evaluating groundwater as it is for surface soil and surface water. Does this statement take into consideration the use of groundwater for domestic purposes such as watering yards and filling swimming pools? It seems that volatilization would be likely when groundwater is used for these purposes.

41. Page 3-11 and 3-12, Figures 3-1 and 3-2: The conceptual site model includes emission of volatiles from showers only. As noted in the comment above, volatilization may be possible from other domestic uses of groundwater and should therefore be included as current potential exposure. In addition since volatilization had previously been mentioned as an important process in surface water (page 3-3), the populations exposed to surface water via ingestion and dermal contact could also be exposed via inhalation.

42. Page 3-12, Figure 3-2: The conceptual site model for Area B includes Brig Employees as a potentially exposed population. Do Brig employees perform maintenance duties in Area B or should this be changed to school employees?

43. Page 3-15, Table 3-3: The rationale for not selecting inhalation of fugitive dusts is that residential development would entail landscaping and lawn care that would limit the potential for dust emissions. However, landscaping work could actually be a release mechanism for fugitive dusts. Although exposure may be infrequent and/or of short duration, this pathway should be considered.

44. Tables 3-5 through 3-10: General soil absorbance factors (ABS) for organic and inorganic contaminants are presented in these tables. It should be noted that specific values are available for two of the contaminants of concern, PCBs and cadmium in the **Dermal Exposure Assessment** document (EPA, 1992). These specific values are preferable to the general values used.

45. Page 3-33, fourth paragraph: It is not clear why a commercial/industrial ingestion rate was used for Brig prisoners when they would presumably be in the Brig area at all times. A residential rate of 100 mg/day may be more appropriate.

46. Page 3-37, Table 3-8: It is not clear why the sediment ingestion rate for Area B children is 200 mg/day while the sediment ingestion rate for Area A children (as noted on Tables 3-5 and 3-7) is 100 mg/day. This apparent discrepancy should be either corrected or explained.

47. Page 4-5, Table 4-1: The reference dose listed for 1,2-dichloroethene could not be verified from the references cited. Please check the value and correct if necessary.

48. Page 5-4, Table 5-1: The value presented on this table does not agree with the value presented on the worksheet in Appendix D for risk due to surface water ingested by a child. This discrepancy should be corrected or explained.

49. On this table it is also not clear why risks due to exposure to shallow groundwater have not been calculated for a 6-15 year old child. The risk estimate based on this exposure should be added to this table or the reason for its exclusion should be explained in the exposure assessment section.

50. Page 5-8, Table 5-3: The value presented on this table does not agree with the value presented on the worksheet in Appendix D for risk due to inhalation of shallow groundwater by a child. The value for risk due to inhalation of deep groundwater by an adult also does not agree with the worksheet. The values for dermal exposure to sediments and surface water by children also do not agree. These discrepancies should be corrected or explained.

51. Page 5-13, Table 5-6: An incremental cancer risk has not been presented for potential future exposure to surface soil in Area B although this was calculated in Appendix D. This discrepancy should be either corrected or explained. Also on this table the value presented for risk due to dermal exposure

to surface water by an adult does not agree with the value presented in the appendix.

52. Appendix C, Lead Page 6: The EPA carcinogen classification for lead has been stated as B2-possible human carcinogen. It should be noted that a B2 classification indicates a probable human carcinogen.

53. Appendix D, Surface Water Scenarios, Area A: It is not clear why no carcinogenic risk values have been presented for trichloroethene. This should be either explained or corrected.

54. Appendix D, Groundwater Ingestion, Area A: It is not clear why the carcinogenic risk for the future child resident is zero. This should be either explained or corrected.

55. If the same populations are being exposed at the different areas of the Camp Allen Landfill, the risks for each separate area should be additive. This would be true in the case of installation maintenance workers who are maintaining the grounds in Areas A, B and the Salvage Yard. The Salvage Yard risk has not yet been quantified, but for certain populations, it would be appropriate to add this risk also for a total Camp Allen Landfill risk value.

Feasibility Study Report

56. It is stated on page 2-21 of the FS that a removal action is planned for the areas of contamination in the landfill at Area B that could serve as sources of groundwater contamination. For this reason, source control general response actions for the Area B landfill are not considered in the FS. However, this assumes that the removal action will succeed in removing the source of contamination below risk-based levels which are not identified in the EE/CA for the removal action. Additionally, it is intended that a ROD for the landfill remedial activities will be completed prior to the completion of removal action activities. This is not reasonable. A removal action is an interim action subject to ARARs waivers on the basis that it is not the final action to take place at a site. What is the intended action if cleanup goals for the area are not achieved during the removal action?

57. Proposed groundwater treatment alternatives involving treatment of the groundwater at the base industrial wastewater treatment plant do not discuss the issue of base IWT plant capacity, capabilities, cost and time to upgrade.

58. It could not be determined from information contained in Appendices A and B if pilot scale testing of proposed alternatives was included in the cost estimates for the alternatives. It is assumed that this cost is included in the engineering and design estimate. Is this a valid assumption?

59. Page 2-4, Cleanup Level Development - With reference to sediment cleanup levels, was there any examination of the risk to the environment from contaminated sediments? Was there any examination of the need for sediment cleanup for the protection of surface water?

60. Page 2-4, Groundwater Cleanup Levels - Although the shallow groundwater is not used as a source of drinking water, use of the groundwater to fill swimming pools will result in the incidental ingestion of the water. Watering lawns and washing cars will result in potential exposure to contaminants through dermal absorption. Both of these pathways should be considered in any discussion of groundwater cleanup.

61. With regard to Table 2-1 on page 2-5, with reference to NESHAPS, these standards are applicable to releases, or potential releases, of hazardous pollutants.

62. Page 2-6, The NAAQS are applicable, as opposed to relevant and appropriate, to discharges of the six criteria pollutants.

63. Page 2-6, With reference to the state contaminant-specific ARARs, the first entry should read: "Surface Water Standards With General, Statewide Application." For consideration in the FS, these are potentially applicable for remedial actions requiring discharge to surface waters.

64. Page 2-6, The Anti-degradation Policy for Surface Water (VR680-21-01.3), and the Anti-degradation Policy for Groundwater (VR680-21-04.2) are potentially applicable for remedial actions requiring discharge to surface waters and groundwater, respectively.

65. Page 2-7, Reference to the Virginia Water Quality Criteria for Surface Water (VR 680-21-03.2) should be removed from Table 2-1. These criteria have been superseded by the May 20, 1992 Virginia Water Quality Standards.

66. Page 2-7, The Virginia Groundwater Standards (VR 680-21-04) are potentially applicable for remedial actions requiring discharge to groundwater.

67. Page 2-7, The Virginia Ambient Air Quality Standards (VR 120-03-01) are potentially applicable for remedial actions requiring discharge to the atmosphere.

68. Page 2-7, The Virginia Regulations for the Control and Abatement of Air Pollution Part IV, Emission Standards for Toxic Pollutants Rule 4-3, Part V, Rule 5-3 Standards of Performance for Toxic Pollutants and Part 6, Special Provisions are potentially applicable for remedial actions requiring discharge to the atmosphere.

69. Page 2-7, The Coastal Zone Management Act is relevant and appropriate to activities conducted in the Virginia coastal zone. By definition, federal facilities are not considered part of a state's coastal zone, therefore, the requirements of this act would not be considered applicable.

70. Page 2-10, Compliance with the National Historic Preservation Act can be met by submitting copies of work plans or a description of work to be performed to the Virginia Department of Historic Resources (VDHR). A letter with accompanying information requesting the assistance of the VDHR has been sent by the Department of Environmental Quality-Waste Division, Superfund Program, as part of the activities covered by the DSMOA.

71. In section 2.0, references to Virginia Water Quality Criteria should be changed to Virginia Water Quality Standards.

72. With reference to compliance with ARARs for all of the Soil Alternatives in Section 5.0, soil cleanup levels should be developed by using the more stringent concentration level resulting from the following analyses: (1) risk assessment taking into account all potential soil exposure pathways; (2) soil modeling to determine the concentration of contaminants that can remain in the soil such that water in equilibrium with the soil will not result in contaminant concentrations in the groundwater greater than MCLs; and, (3) soil modeling to determine the concentrations of contaminants that can remain in the soil such that water in equilibrium with the soil will not lead to a natural discharge to surface water resulting in an in-stream contaminant concentration greater than its surface water criteria. The Virginia Water Quality Standards (VR 680-21-00) should be listed as a Chemical-Specific ARAR along with the National Primary Drinking Water Regulations, the federal Ambient Water Quality Criteria, and the EPA Region III Risk-Based Concentration (RBC) Table, Second Quarter 1993. These standards, criteria, and guidance will serve as ARARs and TBCs for purposes of developing the soil cleanup levels.

73. Landfill capping requirements for solid waste landfills are found in the Virginia Solid Waste Management Regulations VR 672-20-10, Part V. Requirements for hazardous waste landfills are found in the Virginia Hazardous Waste Management Regulations VR 672-10-1 Part X.

74. The off-gas generated by the soil vapor extraction unit must meet the Virginia air emission standards for toxic pollutants, particulate emissions, and volatile organic compounds. Virginia Regulations for the Control and Abatement of Air Pollution (VR 120-01).

75. With reference to Section 6.0, under CERCLA, there is no non-potable alternative for groundwater cleanup. You might want to refer to the alternatives as return to drinking water quality and return to beneficial use. Because the non-potable well water in the area is used to fill swimming pools, incidental ingestion must be taken into consideration for the beneficial use scenario.

76. With reference to compliance with ARARs for cleanup of contaminated groundwater, you might want to list the Virginia Water Quality Standards for Groundwater VR 680-21-04, with specific reference to the General Requirements and Anti-degradation Policy for Groundwater as chemical-specific ARARs.

77. Page 6-19, with reference to Compliance with ARARs, re-infiltration of treated contaminated groundwater (pg. 6-15) may require a permit under the Virginia Pollution Abatement Permit Program, regulations for which are VR 680-14-01. Treated groundwater must also meet the Virginia Groundwater Standards found in VR 680-21-04.3. Discharge to the "on-site drainage ditch," (pg. 6-15) constitutes discharge to surface waters, which is an activity that requires a permit under the Virginia Pollution Discharge Elimination System (VPDES) regulations, VR 680-14-01.

78. General comment: for the sections headed Compliance with ARARs, stating that an alternative will comply with all state and federal ARARs does not represent an ARARs identification. Stating the ARARs for the alternative by clearly identifying the known state and Federal requirements that you must comply with gives your reviewer the opportunity to comment on any ARARs that might still need to be identified. *