03.01-08/18/94-00508

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18 AUG 1994

Commonwealth of Virginia
Department of Environmental Quality
Waste Division
Attn: Mr. Scott McMillan, Remedial Project Engineer
629 East Main Street
Richmond, Virginia 23219

Re: State Comments on the Draft Final Remedial Investigation, Risk Assessment, and Feasibility Study for Site 1, Camp Allen Landfill at Naval Base, Norfolk, Virginia

Dear Mr. McMillan:

We are in receipt of your letter dated October 26, 1994. Enclosed please find the response to your comments. These comments have been previously discussed with Ms. Lisa Ellis at the April 1994 meeting at your office with Mr. Ken Walker and Mr. Dave Forsythe of this command. It was understood that these responses were sufficient in order to finalize the Remedial Investigation and Feasibility Study report.

We are also sending for your review under separate cover, Exposure Concentrations, Selection of COPCs, and Exposure Input Parameters to be used in the Final Risk Assessment. The final version of the Risk Assessment will be forwarded shortly after your comments are received or by October 5, 1994.

If you have any questions, please contact the Remedial Project Manager, Mr. Dave Forsythe, at (804) 322-4783.

Sincerely,

N. M. Johnson

N. M. JOHNSON, P.E.
Head
Installation Restoration Section
(North)
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Enclosure

Copy to: (w/encl)
EPA Region III (Mr. Robert Thomson, 3HW71)
COMNAVBASE Norfolk (Code N42B, Ms. Dianne Bailey)
Baker Environmental, Inc. (Ms. J. Tregaser)
Administrative Record File (Naval Base Norfolk)

Attachment III
VADEQ Comment Responses
Camp Allen Landfill RI/FS

* Draft copy of these responses were faxed to VADEQ prior to the April 1994 meeting. The asterisk indicates changes to the draft responses as a result of that meeting.

*VADEQ Comment 1. The Camp Allen Salvage Yard (CASY) is currently operational. Surface water runoff from CASY is directed via storm sewers to the drainage ditches north of Area A and south of Area B. Given very little relief and physical barriers, storm water runoff directly to Area A and Area B soils is minimal. A discussion on overland runoff patterns and the storm sewer will be added to the Final RI report. In addition to the discussion of overland runoff text will be added to the Final RI which discusses the CH2M Hill groundwater data obtained from a well located within the boundaries of the CASY.

VADEQ Comment 2. Based on Naval Base operations and historical information related to Camp Allen Landfill operations at Area A and Area B, ordnance disposal is not indicated.

*VADEQ Comment 3. Prior to predesign efforts (Fall of 1993), a total of 69 "monitoring wells" were installed at the Camp Allen Landfill Site (43 shallow and 26 deep). However, based on previous investigation results, not all monitoring wells were sampled during the 1992/1993 RI effort. In general, seven shallow wells and one deep well were not sampled during the 1992/1993 RI effort. Additional text will be added to the Final RI to discuss the number of wells sampled.

VADEQ Comment 4. General surface water flow is indicated on most figures contained in the Executive Summary. A topographic map indicating likely surface water runoff in the area will be added to Section 4.0 of the RI Report.

VADEQ Comment 5. Yes, geophysical coverage did extend beyond documented boundaries of Areas A and B of the Camp Allen Landfill. All known historical records have been incorporated into previous investigations and the RI Report by reference. Construction atop disposal areas has reportedly been limited to the Brig Facility, Incinerator/substation, and the Heliport, all of which are/were located in Area A of the Camp Allen Landfill.

*VADEQ Comment 6. Detailed documentation of incineration activities is limited to previous investigation reports. As indicated in Section 1.0 of the RI Report, incineration activities ceased in the mid-1960s. All available information pertaining to the incinerator will be added to Final RI text.

VADEQ Comment 7. The Navy disagrees with the State's position regarding postponement of groundwater and soil remedial design activities until completion of the Camp Allen Salvage Yard (CASY) PA/SI activities. Based on information to date, potential CASY conditions would not significantly effect soil or groundwater design efforts. RI/FS findings justify an accelerated cleanup approach as governed by Superfund and NCP regulation and guidance.

VADEQ Comment 8. This page will be added as a summary to the Table of Contents.

*VADEQ Comment 9. The soils map does provide useful information in that it identifies soil types in the Camp Allen area. Development of a "color-sensitive map" would not be cost effective considering the "added usefulness." However, the map will be "cleaned up" to provide more detail concerning soil types.

*VADEQ Comment 10. This statement was strictly a generalized interpretation. Groundwater information should be limited to documented sources and investigation activities and additional text will be added to the Final RI. Information on regional groundwater flow and changes in groundwater flow dynamics as a result of landfilling activities will be addressed further, if possible.

VADEQ Comment 11. Yes. Predesign activities were performed during the Fall of 1993 (Draft Final Remedial Design Project Plans, 1994).

*VADEQ Comment 12. Discussions presented in the Draft Final RI are based on USGS Background Information (Schacklette, H.T. and J.G. Boerngen, 1984). Discussions presented in the Final RI report will indicate that site-specific background soil data is not available and conclusions resulting from the comparison will be modified accordingly. Please note that ultimate conclusions presented in the Baseline Risk Assessment are based on a COPC selection process retaining the primary toxic/heavy metals for a conservative evaluation.

VADEQ Comment 13. Storet Database data were incorporated for reference of general sediment quality in areas nearby and adjacent to the Camp Allen Landfill Site. This will be clarified in the RI Report.

VADEQ Comment 14. There is no removal Action scheduled for Area A. RAP/ROD activities will be conducted following the Removal Action at Area B (Also see State Comment 56).

*VADEQ Comment 15. This statement "with the exception of arsenic and barium" was directed to the interim RI results (Malcom Pirnie, 1988), as indicated under RI results, barium was not a constituent of concern because it is detected at concentrations below the USEPA Region III RBC concentration of 2600 µg/L. Furthermore, language concerning COPCs will be removed from the RI report. Please note that ultimate conclusions presented in the Baseline Risk Assessment are based on a COPC selection process retaining the primary toxic/heavy metals for a conservative evaluation.

VADEQ Comment 16. This discussion refers to total inorganic constituent concentrations detected in the shallow groundwater south of the drainage ditch behind the Camp Allen Elementary School. This area is monitored by one shallow well. These detections appear to be the result of interference caused by suspended solids (indicated by high aluminum and iron concentrations compared to other shallow wells) in the well from which the groundwater sample was collected. The text will be revised to clarify this point.

*VADEQ Comment 17. Section 4.3.3 clearly identifies potential off-site sources. These potential off-site sources are not related to Area A or Area B of the Camp Allen Landfill. However, portions of the Section 4.3.3 text will be moved into Section 6.0 to clarify the discussion of off-site source areas.

VADEQ Comment 18. Removal Action and Soil/Groundwater Design activities are not anticipated to effect nearby wetland locations adjacent Area A. Wetland areas do not overlap the remediation areas of concern. Soil/Groundwater design activities will address wetland related issues.

VADEQ Comment 19. Wetland delineations were prepared by USDI, Fish and Wildlife Service, LANTDIV Code 20, 1988. The Army Corps of Engineers is reportedly in the process of surveying the Naval Base.

VADEQ Comment 20. Comment noted. Responses have been received by the Navy August 2, 1994.

*VADEQ Comment 21. No, toxicity testing is not considered for future activities. The results of the benthic macroinvertebrate sampling indicated a benthic environment dominated by tubificid worms. However, the presence of other families of benthos indicate a diverse community of benthic invertebrates. The dominance of the tubificid worms is expected due to the extreme fluctuations that would occur in a drainageway habitat. Station 5 was considered a background reference station and the benthic community was dominated by tubificid worms. However, there were no exceedances of relevant water quality criteria or sediment screening values. The dominance by the tubificid worms at Station 5 is a result of the habitat because of the absence of contamination. Text concerning the ecological risk assessment and the presence of tubificid worms in ditch sediments will be expanded in the Final RI.

*VADEQ Comment 22. In certain cases, the surface water quality standards for pesticides and PCBs are lower than the detection limits. In general, required detection limits for various constituents are unattainable using available, analytical methods. A discussion of data limitations concerning detection limits will be added in the uncertainties section of the baseline risk assessment, not in the Final RI report.

VADEQ Comment 23. Comment noted. Please note that RI comparisons are for reference only. ARARs are one of the main considerations in development of remedial action objectives presented in the FS Report

VADEQ Comment 24. Comment acknowledged.

VADEQ Comment 25. Yes, the Virginia Water Quality Standards for groundwater were used. The term "State MCL" is merely used to label this information in Appendix Y.

VADEQ Comment 26. VA Waterworks Regulations (6/23/93) were not available during the RI Report compilation. The latest Virginia MCLs will be added to the tables in Appendix Y.

VADEQ Comment 27. Comment acknowledged. (See State Comment 31)

VADEQ Comment 28. Soil cleanup goals will be developed as appropriate (See State Comment 72).

VADEQ Comment 29. Please note that concentration ranges are presented in the Baseline Risk Assessment (Appendix A), where this information is actually utilized.

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VADEQ Comment 30. Although USEPA Directives present the use of multiple risk descriptors to characterize risk, USEPA Region III toxicologists suggest that remedial decisions be made on the RME unless an average case risk estimate can be supported by the use of multiple risk descriptors such as Monte Carlo simulations. Monte Carlo simulations require statistically defensible inputs for the exposure factors used to derive risk. Many of the exposure scenarios used in the Camp Allen Landfill risk assessment do not have statistically defensible exposure factors which would make risk estimates derived using multiple risk descriptors meaningless. Therefore, the RME should be used for FS decision making and should be retained in the baseline risk assessment.

VADEQ Comment 31. Risk based screening using risk-based concentration (RBC) values was developed by USEPA Region III toxicologists to replace the existing toxicity screening approach in RAGS. RBCs cannot be used solely to determine chemicals of potential concern. Other screening criteria presented in RAGS and discussed in the text of the baseline risk assessment must also be considered in the determination of COPCs.

VADEQ Comment 32. Methylene chloride and 2-butanone were detected in blank samples. Text will be modified to reflect this fact, however, raw analytical data will not be presented in the baseline risk assessment but are presented in the Remedial Investigation Report. Five and ten times rules were applied to blank results in addition to mass/mass conversions for comparison to solid samples.

*VADEQ Comment 33. Surface soils were collected and analyzed for inorganics at the request of USEPA to identify any potential contamination associated with past smelting operations. This will be explained in the Final Baseline Risk Assessment. Organic analyses were not requested by the Agency.

VADEQ Comment 34. The chemical 1,2-dichloroethane was retained as a COPC and page 2-14 will be modified to reflect this.

VADEQ Comment 35. RBCs cannot be used solely to determine COPCs (USEPA Region III, 1993). Other criteria such as chemical prevalence (defined as frequency of positive detection and chemical concentration in environmental media) must also be considered in the selection of COPCs.

VADEQ Comment 36. The rationale for analyzing well samples for volatile contaminants was based on the relative environmental mobility of these chemicals as opposed to the lesser mobility of semivolatiles, pesticides, PCBs and inorganics. It is reasonable to assume that if volatile organics are not detected in a manner consistent with known plumes at the site, their presence is probably not site related. Therefore, other less mobile contaminants (i.e. PCBs, pesticides, semivolatiles and inorganics) should not be present due to site activities. Additionally, it must be noted that a shallow groundwater hydrogeologic barrier (drainage ditch) exists between Area A of the Camp Allen Landfill and Glenwood Park. Analytical results from shallow groundwater monitoring wells in this area further support that detected constituents in noted residential well groundwater samples are not site related. Furthermore, the less environmentally mobile semivolatiles, pesticides, and PCBs were not detected in residential area monitoring wells located between the Area A landfill and Glenwood Park residences. This rationale will be clarified in Section 3.0.

VADEQ Comment 37. RBCs cannot be used solely for the selection of COPCs. However, COPC selection will be revisited and the list of COPCs will be revised, if necessary, in subsequent versions of the Final Baseline Risk Assessment.

VADEQ Comment 38. Agreed. Selection of air COPCs will be revisited in the Final Baseline Risk assessment.

*VADEQ Comment 39. Maximum concentrations exceeding RBCs do not necessarily indicate that adverse health effects will occur subsequent to exposure. Text will, however, be modified and COPCs will be reevaluated in subsequent versions of the baseline risk assessment. Additional COPCs may be selected and included, if necessary, in the Final Baseline Risk Assessment.

VADEQ Comment 40. Text will be modified to correct this statement.

VADEQ Comment 41. Comment acknowledged. Text concerning the conceptual model will be modified to explain that although volatilization is important with respect to contaminant removal form surface waters it is doubtful that volatilization from surface waters is important from an exposure standpoint because of the infinite dilution potential of outdoor air.

VADEQ Comment 42. Brig employees perform maintenance duties primarily in Area B Pond. School employees perform maintenance around the school. The model will be reevaluated to stress the division of responsibilities.

VADEQ Comment 43. Agreed. This pathway will be considered in subsequent versions of the baseline risk assessment.

VADEQ Comment 44. Comment acknowledged. Specific values will be evaluated and, if agreeable to USEPA Region III toxicologists, will be used in the Final Baseline Risk Assessment.

*VADEQ Comment 45. Prisoners will not be digging as an adult resident might. The contact is assumed to be more of an incidental nature, in line with commercial/industrial types of exposure. The rationale for selecting the commercial/industrial ingestion rate will be added to the Final Baseline Risk Assessment.

VADEQ Comment 46. Older children were considered to be the receptor most likely to access Area A. Younger children could potentially access Area B, thus the use of a higher ingestion rate.

VADEQ Comment 47. The RfD for 1,2-dichloroethene will be checked. The oral RfD for total 1,2-dichloroethene is 0.009 mg/Kg/d and can be found in Health Effects Assessment Summary Tables (FY 1993).

VADEQ Comment 48. The discrepancy will be resolved.

VADEQ Comment 49. Because adults and younger children were used to evaluate this pathway, the range of potential risks have been accounted. Older children would fall in the middle of the adult-child risk range. Text will be expanded to address this comment.

VADEQ Comments 50, 51, 52, 53, 54. Tables and appendix spreadsheets will be corrected.

VADEQ Comment 55. Salvage yard workers do not work at the Camp Allen Landfill. If workers at the Camp Allen Landfill did work in Area A and Area B the risk would not be additive, but averaged to account for potential exposure to both Areas.

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* VADEQ Comment 56. The RI/FS is usually finalized after a removal action is completed. However, the objective of the removal action at Area B is the protection of groundwater, which will be demonstrated through the attainment of soil cleanup goals based on groundwater protection. No additional risk assessment calculations will be required following the removal action, and therefore, the RI and risk assessment can be finalized before the removal action is completed.

The FS can also be prepared and finalized before the removal action is completed based on the assumption that cleanup goals will be achieved. Based on available information concerning the nature and extent of subsurface contamination within the Area B Landfill, there is no reason to suspect that the removal action will not succeed in removing the source of groundwater contamination. Therefore, development of source control (i.e., soil) alternatives for Area B in the FS is not warranted at this time. The Navy is planning to delay finalization of the Remedial Action Plan and the public comment period until after the removal action is completed. Should confirmation sampling results indicate that the source of contamination was not adequately removed during the removal action, the FS and Remedial Action Plan may need to be revised to incorporate additional source control alternatives. The association between the Area B EE/CA and the FS will be discussed in the Final FS.

VADEQ Comment 57. Because limited information concerning the Industrial Wastewater Treatment Plant (IWTP) was available during development of the FS, only a preliminary evaluation of the feasibility of using the IWTP to treat contaminated groundwater from the site was included in the FS. A more thorough evaluation of the IWTP has been conducted as part of the pre-design activities, and it has been determined that this alternative is not cost-effective compared to on-site treatment. The FS will be revised to indicate this result.

VADEQ Comment 58. The cost of pilot-scale testing was included in the cost estimate for the in situ vapor extraction alternative (Alternative A-SO5) ($20,000). The cost of pilot-scale testing was not included in the thermal treatment alternative (Alternative A-SO6) because the scope of the test and associated costs are vendor-specific and are dependent on regulatory requirements (e.g., air monitoring requirements), which are usually determined on a

site-specific basis and were not available for the FS. Pilot-scale testing was not included in the groundwater extraction and treatment alternatives. Several short-term pumping/pilot tests were conducted as part of the predesign activities to better determine aquifer hydraulic and chemical characteristics.

*VADEQ Comment 59. Sediment cleanup goals based on the protection of surface water were not developed in the FS because of the nature and extent of contamination present in the ditches. Furthermore, results of the ecological risk evaluation indicate that the sediments do not pose an unacceptable risk to ecological receptors. Results of the ecological risk assessment indicate that pollution tolerant species such as Mosquito fish and tubificid worms inditch surface waters and sediments occur because the ditches are similar to urban drainage ways. The results of the ecological risk assessment will be provided in the Final FS report to support the cleanup level development for the ditches.

*VADEQ Comment 60. The beneficial use of the shallow aquifer is non-potable use. Non-potable use cleanup goals were developed for the shallow aquifer, which are based on a 1×10^{-6} cancer risk level and the exposure pathways of incidental ingestion and dermal absorption of contaminants during outdoor activities, such as car washing and lawn watering. A discussion of beneficial aquifer use will be provided in the Final Feasibility Study report.

VADEQ Comments 61-71, 73, 74, and 76. The requested ARAR revisions will be incorporated into the Final Feasibility Study.

*VADEQ Comment 72. Soil cleanup levels were not developed in the FS because little data were available on the nature and extent of contamination within the "hot spot" area assumed for Area A. Soil cleanup goals have now been developed based on the results of the subsurface soil pre-design investigation. The soil cleanup goals and supporting calculations are provided in Attachment II. Following regulatory review, these goals will be incorporated into the FS.

Soil cleanup goals were developed based on attainment of Maximum Contaminant Levels (MCLs) in shallow groundwater immediately below the source area in order to protect the lower Yorktown Aquifer to its potential future beneficial use (i.e., drinking water supply). Since the MCLs for the contaminants of concern are less than the federal Ambient Water Quality Criteria and Virginia Water Quality Standards, soil cleanup goals are also protective of surface water.

The developed soil cleanup goals will be used to estimate remediation areas of concern for the Feasibility Study and Remedial Design. It should be noted that since Area A is a landfill, the remedial action objective (RAO) for the soils is groundwater protection rather than soil cleanup. Therefore, achievement of this RAO will not necessarily be based on attainment of the developed soil cleanup goals since they represent theoretical values calculated through modeling. The cleanup goals were developed using conservative assumptions (see Attachment I) and may not be representative of actual site conditions. Therefore, achievement of groundwater protection will be determined through development of treatment system performance curves and through evaluation of actual environmental monitoring results (i.e., via ongoing monitoring of contaminant levels in groundwater and in the extracted vapors from the in situ vacuum extraction system, the preferred treatment alternative for the soils). Soil contaminant concentrations may eventually reach asymptotic levels below which contaminant levels cannot be reduced via in situ vacuum extraction. If treatment system performance curves indicate that the cleanup goals for some or all of the contaminants cannot be achieved, then the soil cleanup goals will be reevaluated.

*VADEQ Comment 75. For each area of contamination (Areas A1, A2, and B), the potable-use and non-potable-use groundwater cleanup alternatives included in the FS (Alternatives 3 and 4) will be combined into one alternative entitled"Protection of Water Table and Yorktown Aquifers to Their Beneficial Uses through Extraction and Treatment." Under this alternative, the remedial action objective will be to protect the water table aquifer to its potential future beneficial use (non-potable use) and the Yorktown Aquifer to its potential future beneficial use (potable use).

VADEQ Comment 77. The requested ARAR references will be incorporated into the FS. Discharge of treated groundwater will comply with the substantive requirements of all pertinent federal and State ARARs. However, since the site is being addressed under DoD's Installation Restoration Program (IRP) and in accordance with CERCLA requirements, on-site discharge of treated groundwater will not require a permit.

VADEQ Comment 78. Federal and State ARARs are identified and discussed in Section 2.2 of the FS. Reiteration of all of the ARARs under the detailed analysis of alternatives (Sections 5.0 and 6.0) is not warranted. The "Compliance With ARARs" section for each alternative will be augmented to include the major federal and State contaminant- and action-specific ARARs pertinent to that alternative. The ARARs will be presented again in the Remedial Action Plan and in the Record of Decision, as well as identified during the Remedial Design.