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Date: September 22, 1995

Mr. Dave Forsythe
Atlantic Division, Naval Facilities Engineering Command
Environmental Quality Division
Code: 1822
Building N 26, Room 54
1510 Gilbert Street
Norfolk, Virginia 23511-2699

Re: Norfolk Naval Base, Virginia
CD Landfill
Review of draft *RI/BRA*

Dear Mr. Forsythe:

The U.S. Environmental Protection Agency (EPA) has preliminarily reviewed the Navy's draft *Remedial Investigation and Baseline Risk Assessment* for the CD Landfill, located at the Norfolk Naval Base, Norfolk, Virginia. Based upon that review, we offer the following preliminary comments, exclusive of FWS, NOAA, and BTAG review:

SPECIFIC COMMENTS

1. Section 1.3.3, Page 1-7, first paragraph; refers to the landfilling of inert chemicals. The type of chemicals as well as justification of inertness should be described in the text, and specifically in the introduction section of the document.
2. Section 1.4.3, Page 1-9, third paragraph; uses language such as high and moderate, the terms are subjective and have little meaning, (i.e. high compared to background, moderate in terms of risk?).
3. Section 1.4.4, Page 1-10, second paragraph; describes samples which are below detection limits for TCLP analyses. It may seem picky but the text attempts to trivialize these exceedances by stating that "four of five were below standards... and three of five were below... and are below Virginia Department of Waste Management action levels". The report also fails to address or propose any action or non-action based upon these findings.
4. Section 2.6.4, Page 2-7, first two paragraphs; describes the potable wells in the area of the site. The report is contradictory in its description of the presence of wells within a four-mile radius of the landfill when identifying the Glenwood Park community. If these wells were ever used for supply of potable water this information should be included.
5. Figure 2-4, General Shallow Groundwater Flow Direction; this figure is of little use in regards to this report. Contouring of equipotential lines should have been included. Due to the information provided in subsequent section of the document, this comment is probably superfluous.

6. Section 3.0, Page 3-1, third bullet and Section 3.3.1, Page 3-13, Page 3-13; the rationale for the field activities conducted during Round 3 should be explained. This should include an explanation of whether it was based upon data gaps or through negotiations with regulatory agencies. Additionally, a summary of the data analyzed should be provided to support the level of work performed.
7. Section 3.3.2.2, Page 3-14; the change in laboratories should be explained. Additionally, a statement that analytical methods and detection limits are either comparable or the same should be made.
8. Section 3.4, Page 3-15; the change in data validation contractor should be explained and an assurance that the validations are comparable.
9. Section 5.2.4.7, Page 5-32 through 5-34; the document should present a narrative describing the on-site detections of radionuclides to background conditions.
10. Section 6.5.2.3 Page 6-22 through 6-23; provides a description of the presence of radionuclides in soils and a rationale for their presence, the analysis presented should be re-analyzed for groundwater sampled from well MW-04B in light of the potential presence of coal fines which are suggested to have been disposed of near the vicinity of the well.
11. An analysis of the statistical differences between on-site wells to an appropriate background well should be made so that a better view of the impacts on groundwater from the landfill can be ascertained. This should also be done for soils sediments and surface water media for all analytical parameter detected. A clear definition of the location and water quality of the background well(s) should be made as well as an over view of the ambient ground water quality of the site setting.
12. An examination of the extent of chlorobenzene contamination should be made. This can be performed using soil gas techniques and the extent confirmed with monitor wells based upon this screening.
13. Data generated during this investigation should be submitted to EPA in electronic media. The data should include a scaled site map (in Digital Exchange Format DXF) which shows all sampling locations as well as physical features, locational data of all sampling points, analytical data in a spreadsheet format.

RI Report:

- **Section 5.0: Analytical Results**
 - The FWQC for beryllium is 0.0037 $\mu\text{g/L}$.
 - The action level for lead is 400 ppm.
 - The RI report should indicate the RBCs (Risk-based Concentrations) for groundwater.
 - It is not clear if analyses for asbestos fibers or dioxins (from the incinerator ash) were performed.

Risk Assessment:

- **Toxicity Assessment:**
 - Soil residential COCs (not RBCs) should **ONLY** be used to identify sediment COCs if no BTAG screening levels for sediment are available for the particular chemical constituent(s)

detected. Also, this methodology applies **ONLY** to the identification of COCs, not to the performance of the actual ecological risk assessment.

- Reference doses (RfDs) for aluminum and thallium are available. They are 1E+00 and 8E-05 mg/kg/day, respectively. These RfDs should be used in the Report to assess risk from these COPCs.
- Toxicity profiles for radioactive materials were not presented in the Appendix.
- **Exposure Assessment:**
 - The current usages of surface water in the area were not adequately addressed in the RI Report. Therefore, it is not known whether there is recreational fishing on-site. If there is recreational fishing on-site, a fish ingestion scenario should be evaluated in the Report.
 - The use of 4 years as a conservative number to use for the exposure duration for a military person is not justified. Where are the data? It seems that 4 years is at best a minimum value.
 - Dermal contact from groundwater is usually only considered for children, while adults are usually assumed to shower only. The Foster and Chrostowski Shower Model (1986) is preferred over Andelman's Model and should be used to estimate VOC concentrations in air during showering.
 - The default PEF (Particulate Emission Factor) currently preferred is 6.79E+08 m³/kg.
 - Sample calculations for the 95%UCL and the W-test should be presented in the Appendix.
 - Potential risk(s) from exposure to contaminants discharged from groundwater into the drainage ditches on-site should have been evaluated.
 - It is not clear if the shallow and deeper aquifers are connected. If they are connected, the risk should be based on the maximum levels detected between the two aquifers for any given contaminant.
- **Risk Characterization:**
 - The toxicity criteria used in assessing dermal absorption should be corrected for absorption, if necessary.
 - A risk estimate for ingestion and dermal exposure to chlorobenzene and 1,4-dichlorobenzene should have been presented for GW04. See Table T-24 and T-25. Note that all groundwater COPCs should be evaluated. The RME (reasonable maximum exposure) concentration should be calculated for **all** COPCs. If GW04 represents the well having the highest levels of some COPCs but not others, then other wells containing the highest levels of all of the other COPCs should be identified.
 - Risks from surface and subsurface soil are not additive, since they represent the same exposure route.
 - Central tendency risk estimates should be presented in the Report.
 - The Lead Uptake/Biokinetic Model (version 0.99) should be used to assessed potential risk(s) from exposure to lead on-site.

- Potential risk(s) from exposure to radioactive materials should be presented in this Report.
- Potential risk(s) from exposure to asbestos and/or dioxins should be presented in this Report if the data are available. It appears that analyses of asbestos fibers and/or dioxins (potentially from incinerator ash) were not performed which may indicate a significant data gap in the Report.

This concludes EPA's preliminary comments on the review of the Navy's draft *Remedial Investigation and Baseline Risk Assessment* for the CD Landfill located at the Norfolk Naval Base. If you have any questions regarding the above, please feel free to call me at (215) 597-1110,

Sincerely,

Robert Thomson, PE
VA/WV Superfund Federal Facilities (3HW71)

cc: Diane Bailey (NAVBASE)
Stacie Driscoll (USEPA, 3HW71)
Nancy Jafolla (USEPA, 3HW13)
Bill McKenty (USEPA, 3HW13)