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LETTER OFFERING COMMENTS ON THE DRAFT SITE INVESTIGATION REPORT FOR
LIGHTER AIR CUSHION VEHICLE 30 TON (LACV-30) MAINTENANCE FACILITY WETLANDS
AREA FORT STORY VA
6/1/1992
U.S. ENVIRONMENTAL PROTECTION AGENCY



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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File: 60.4

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Date: June 1, 1992

Ms. Joan Vandervort
U.S. Army Transportation Center
Attention: ATZF-EHE (Joan Vandervort)
Building 1407
Fort Eustis, Virginia 23604-5000

Re: Fort Story, Virginia
Review of the draft *Site Investigation Report for the LACV-30 Site, Ft. Story, VA.*

Dear Ms. Vandervort:

The U.S. Environmental Protection Agency (EPA) has reviewed the draft *Site Investigation Report for the LACV-30 Site* at Fort Story, Virginia, and we offer the following comments:

1. **Section 1.1, Objectives**

- The specific purpose of this investigation should be clarified. Is sampling meant to be equivalent to that conducted during a Superfund site inspection? EPA recommends that the following additional objectives be considered:

For the preliminary assessment (PA)

- Identification, based on existing information, of potential waste sources at the LACV-30 Site
- Review of the operational history of the LACV-30 Site
- Identification of receptors potentially affected by the LACV-30 Site operations (that is, location, type, and number of targets, such as wetlands and fisheries).

For the site investigation (SI)

- Field observations of existing waste source areas (that is, source dimensions, containment, type and physical state of wastes or hazardous materials) and other relevant features (for example, paved or unpaved areas and workplace locations)
- Sampling of off-site, as well as on-site wetlands (and other sensitive environments) to determine whether LACV-30 Site operations have affected these areas.

2. **Section 1.2, Site Description**

- Add a clear description of current and past operations, National Pollutant Discharge Elimination System (NPDES) permits, known or potential source areas, pertinent site

features, and targets (for example, wetlands and other sensitive environments, fisheries and workers).

- Provide descriptions of site conditions and previous investigations in the Final SI Report. These descriptions currently are presented only in the "Final Chemical Data Acquisition Plan" (CDAP).
- Move the description of drainage at the LACV-30 Site to the beginning of the report to more fully orient the reader before presenting sampling and analytical sections. In particular, discuss drainage in the direction of Seashore State Park.
- Improve the quality of Figure 1-1.
- Improve the quality of Figure 1-2 and identify significant features (for example, state park wetlands, upgradient or nearby source areas at Ft. Story, adjacent fisheries, and the nearest drinking water well).
- Reorient Figure 1-3 (as well as subsequent site maps) -- map is upside-down.
- On Figure 1-3, specify PN-43 and PN-49 areas, the various waste management features, such as above-ground storage tanks and the auto craft shop, and the drainage canal cited in the text.

3. Section 1.2.1, Topography

- Include and refer to a site map or figure to clarify the text. Figure 1 in Geohydrologic Study No. 38-26-0828-88, Sanitary Landfill Investigation, Fort Story, Virginia, October 1987 provides an example.
- Describe how does the canal mentioned in Section 1.2 affects drainage from the LACV-30 Site into Seashore State Park wetland areas.
- Identify what floodplain the LAVC-30 Site is located in.

4. Section 1.3.4, Field Investigation and Appendix A

- Mention locations of borings used for background soil information.
- Figure 1-4 is comprehensive and difficult to decipher, and it does not illustrate important wetland areas.
- Add media- or pathway-specific sampling location maps (perhaps in Section 2.0) to supplement Figure 1.4 (see previous comment).
- Add quality assurance and quality control (QA/QC) samples and background samples to complete the sampling rationale (Appendix A). Including a sampling rationale in the report is extremely beneficial and is recommended in the Environmental Protection Agency (EPA) Interim Guidance for Performing Site Inspections Under CERCLA.

5. Section 1.3.5, Quality Control Summary Report

- Data quality objectives (DQO) for the investigation are mentioned; those objectives should be specified to clarify the purpose of this investigation.
- Add a brief discussion of QA/QC samples.

6. **Section 2.0, Summary of Field Investigation Activities**

- The discussion of split samples does not make clear how many or which samples were submitted for external quality assurance analyses.
- Add both a monitoring well/borehole sampling location map and a surface water/sediment sampling location map, as recommended in comments for Section 1.3.4.
- Add an Investigation Derived Waste (IDW) Management Plan.

7. **Section 2.1.1, Soil Boring Construction Procedures and Appendix C**

- Drilling Logs (Appendix C)

Soil borings appear to be advanced in accordance with generally accepted engineering practices. Soil descriptions are generally good. However the following inadequacies were noted.

- A description of the moisture content of in situ soils was not indicated on all logs.
- Ground-water observations were not included on some of the test boring logs. If no ground water was encountered, it should be so stated in the logs.
- Organic vapor meter (OVM) measurements were not recorded on some drill logs. Also, the OVM background levels (ambient conditions) should be indicated on the logs.
- Elevated OVM measurements were detected at boring 1404, but neither the background levels nor the unit of measure is provided. This information is essential to properly interpret the OVM measurements.

8. **Section 2.1.2, Soil Sampling Procedures**

- The report does not make clear why soil samples collected at three different depths (0-1.5 feet, 5 feet, and 10 feet) were composited in this manner. This type of collection could lead to dilution of "hot spots" and to false negative results.
- Collection procedures for sampling for volatile organic compounds (VOC) seem appropriate for most screening purposes. However, for Hazard Ranking System (HRS) scoring purposes, only soil samples collected within 2 feet of ground surface can be used to evaluate the soil exposure pathway; half of the VOC analyses were performed on soil samples collected at depths greater than 2 feet.
- The location of work areas in relation to soil sampling locations is not provided in the report. Also the number of workers at the LACV-30 Site who may be potentially exposed to surficial contamination should be stated.

9. **Section 2.2, Ground-Water Investigation Program**

- Ground-water samples were not analyzed for PCBs; however, waste oils undoubtedly were present at the LACV-30 Maintenance Site.
- Analyses of ground-water samples for both dissolved and total metals is appropriate since sample results are compared with drinking-water standards. EPA's Draft Site Inspection Guidance recommends that both filtered and unfiltered water samples be collected at

drinking-water wells if analysis for metals is to be done.

10. **Section 2.2.1, Monitoring Well Construction Procedures and Appendix C**

● Well Construction Diagrams (Appendix C)

Generally, the monitoring wells (MW) are constructed in accordance with engineering practices. However, the well construction diagrams appear to be incomplete.

- MW 1401 No filter pack material listed
 No backfill material listed
- MW 1402 No filter pack material listed
 No backfill material listed
 No water level-summary data provided
- MW 1403 No backfill material listed
- MW 1404 Size of filter material not listed
 No backfill material listed
 No development information provided
 No protective casing information provided

11. **Section 2.2.2, Monitoring Well Development Procedures and Appendix C**

● Well Development Sheets (Appendix C)

Generally, the wells appear to be well-developed and stable. However, MW 1404 shows a downward temperature curve, possibly indicating that temperature was not stabilized. This downward curve may reflect infrequent testing of parameters during the well development process and may not be indicative of a problem in well development.

12. **Section 2.2.3, Permeability Tests and Appendix C**

- Tests show a sudden or quick recovery, indicating a highly transmissive formation. Procedures are consistent with established practices, and results are well presented.

13. **Section 2.2.5, Groundwater Sampling Procedures and Appendix C**

● Sampling Logs

Wells appear to have been purged properly before sampling (wells appear stable).

14. **Section 2.3, Sediment Sampling Program**

- Sediments within a 5- to 6-foot radius were composited for sample collection. Suggestions and comments include:
 - Mixing of sediment samples for compositing prevents use of these samples for analysis of volatiles. Although this report provides no operational history of the LACV-30 Site, solvents undoubtedly were used; VOC analyses of sediment samples would have been informative.
 - Collecting grab samples, rather than composites, at wetland outfall locations may have detected the presence of greater concentrations of hazardous substances.

- Designating a field duplicate and a laboratory QA/QC sample from the same sample location is a good practice. These QA/QC sample results sometimes can be used to differentiate sample handling errors from laboratory errors.
- Why weren't sediment samples collected in the wetlands at Seashore State Park?

15. **Section 2.4, Surface Water Sampling Program**

- Include and refer to a sediment/surface water sampling location map, as recommended in comments for Section 1.3.4.
- As with ground-water samples, analyses of surface-water samples for both dissolved and total metals are appropriate since sample results are compared with drinking-water standards. EPA's Draft Site Inspection Guidance recommends collecting both filtered and unfiltered water samples at drinking-water intakes if analysis for metals is done.
- If possible, sample the outfall into the wetlands, as well as surface waters in the wetland near the point of discharge.
- Is the hospital lake used for recreational fishing? Are sensitive environments present in or contiguous with that lake?

16. **Section 3.0, Analytical Program Summary**

- Add a brief summary of QA/QC sample results.

17. **Section 3.1, Analytical Methods**

- Clarify whether method reporting limits (MRL) used in this report are equivalent to method detection limits (MDL) defined in the revised HRS. Are sample quantitation limits (SQL), also defined in the revised HRS, available?
- Include QA/QC sample results, along with field sample results, in Appendix D. Note that qualified data, with qualifiers defined, should also be included.
- Tables in this section are informative and well presented.

18. **Section 4.1.2, DDE Trigger Level**

- The draft SI report states that levels of DDD, DDT, and DDE found at the LACV-30 Site are not unusual, considering that pesticides were used extensively throughout the facility. Therefore, no trigger levels were established for these substances (that is, they were not thought to be a concern). Suggestions and comments include:
 - Do not discount the presence of DDT and its metabolites at the site or at other sites within Ft. Story. These substances are toxic to both human and environmental populations; they are persistent and tend to bioaccumulate. Note that there is an extensive wetland area downgradient.
 - Health- and ecological-based benchmarks for DDT and its metabolites are provided in EPA's Superfund Chemical Data Matrix (SCDM) and are used in HRS site evaluations.
 - Consider including EPA's SCDM benchmark concentrations when determining trigger levels.

19. **Section 4.1.4, Statistical Evaluation of Background Soil Analytical Data**

- Trigger levels were developed for each analyte detected in the field samples. The report states that the derivation of trigger levels for metals was based on statistically significant background concentrations. Soil sampling results from 3 boring locations were used in the background calculations. Metal concentrations from soil samples taken from depths of 0 to 40 feet were averaged to provide a single background level for each metal of concern. Suggestions and comments on this methodology include:
 - Should borings SB-135 and SB-136 that are described as downgradient (and therefore within the path of possible contaminant migration) be used to establish background conditions for the LACV-30 Site? Is an upgradient sample available?
 - Should boring SB-135, which is located approximately 3 miles from the LACV-30 Site, be used to establish background conditions? Isn't this boring located near a landfill? Note the higher concentrations of lead and zinc in the 40 foot sample (Appendix E, Table E-1.)
 - Should the average of the sample and duplicate SB-135 results be used in the background determinations, rather than considering them two separate sample sets? Isn't this approach more appropriate in statistical work?
 - Background concentrations of metals and, therefore, trigger levels are based on samples collected from 0, 13-, 20-, and 40-foot depths and are being compared with soil composites taken from depths of 0 to 10 feet. Is this approach appropriate, considering the natural variation of concentrations of metals in different soil horizons?
 - These same trigger levels for metals in soil (based on 0 to 40-foot sampling depths) are being compared with levels of metals detected in surficial sediment samples. Is this comparison appropriate? Aren't sediment samples available to provide background levels?

20. **Section 4.2, Ground Water Trigger Levels**

- In establishing trigger levels, Virginia ground-water criteria should be used when those standards are more protective (that is, lower) than EPA Maximum Contaminant Levels (MCL). Note the large variation in ground-water standards for dissolved zinc stated Table 4-4.

21. **Section 4.3, Surface Water Trigger Levels**

- Add EPA Ambient Aquatic Life Advisory Concentrations (AALAC) as a reference for determining trigger levels. Both EPA Ambient Water Quality Criteria (AWQC), which is considered in the draft report, and AALAC are used in the revised HRS as ecological-based benchmarks.
- In Appendix D, Table D-11, the detection limits for cadmium, mercury, and lead are lower than the freshwater AWQL/AWQC benchmarks for those metals. Note that this trend was not investigated in other sample data tables.

22. **Section 5.0, Results of PA/SI Evaluation**

- This section of the report evaluates the significance of sampling results according to trigger levels. In many instances, the calculated levels appear high, as indicated by the comments

under Sections 4.1.2, 4.1.4, 4.2, and 4.3 on determinations of trigger levels.

23. **Section 5.2, Ground Water Flow Direction and Aquifer Characteristics**

- This report represents a "snap shot" in time. Conclusions about ground-water were based on a one-time water level measurement that was taken during a "dry" period. Suggestions and comments include:
 - Obtain more data and more measurements (quarterly or seasonal, at a minimum) to support these conclusions.
 - Investigate tidal fluctuations, seasonal changes, and other factors that the report states may have a great influence on the shallow water (water table) aquifer. Analytical data does show contamination and discharge of contaminated ground water into the wetlands is a consideration.

24. **Section 5.3.2, Site Ground Water**

- Some of the reported concentrations of metals in ground water samples presented in Appendix D, Table D-10 are below the stated detection limit. Are there different detection limits for total and dissolved metals?

25. **Section 5.3.3, Site Surface Water/Sediment**

- Results of sediment sampling should not be compared with trigger levels based on soil samplings. See comments under Section 4.1.4.

26. **Section 6.0, Conclusions and Recommendations**

- Although surface-water and sediment samples detected the presence of several metals at levels above trigger levels or at elevated levels, the draft report states that such contamination is not a significant environmental concern and does not recommend additional sampling of wetlands. The only course of action currently recommended for the LACV-30 Maintenance Facility Wetlands Area is ground water monitoring.

EPA believes that the apparent environmental concern for the LACV-30 site area is the degree and extent of contamination of contiguous wetlands and other nearby surface-water sensitive environments (habitats of endangered or threatened species). Several metals detected in wetlands were found at concentrations above ecological-based benchmarks. Because of the proximity of wetlands, the probably interconnection of ground water and surface water in the area, and the detection of contaminants in both ground water and surface water, EPA recommends that more extensive investigation of contamination in the wetlands be considered.

If you have any questions or comments regarding the above, please feel free to call me at (215) 597-7858,

Sincerely,



Robert Thomson, PE
Federal Facilities (3HW26)

cc: Erica Dameron (VDWM, Richmond)