



State of New Jersey

Department of Environmental Protection

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Governor

Bradley M. Campbell
Commissioner

MEMORANDUM

TO: Robert Marcolina, Case Manager, BCM

THROUGH: Linda Cullen Unit Supervisor, ETRA *LJC 4/28/04*

FROM: Nancy Hamill, Research Scientist, ETRA *NEM 4/28/04*

SUBJECT: Naval Weapons Center Earle, Colts Neck, NJ: Review of Technical Memorandum, Sediment Sampling Summary – 2003 Sampling Events, Site 13 Defense Property Disposal Office (DPDO) Yard (document undated)

The referenced document was prepared by Tetra Tech NUS, Inc. and reviewed by ETRA in accordance with NJAC 7:26E and other State and Federal Guidances. The following comments are offered for your consideration.

Background Summary

This Technical Memorandum describes results from a 2003 sediment sampling investigation conducted at "Site 13" to better delineate PCB and silver contamination in support of pre-design activities. It is proposed that soils in two areas, a landfill washout area and an isolated western ditch location, will be excavated due to elevated PCB and silver concentrations; excavated soils will be consolidated under the low permeability landfill cover system. Soils in the forested wetlands impacted by the landfill washout exceed target cleanup goals of 1.0 mg/kg for PCBs (based on a OSWER Directive 9355.4-01 for protection of human health) and 3.7mg/kg for silver (Long et al. ER-M). These clean-up goals were presented in the *Pre-Design Investigation Sediment Sampling at Site 13 DPDO Yard* ("QAPP," TtNUS, 2003). However, this area will not be excavated because it was determined the remaining contamination is not likely to cause significant ecological risk, and adverse effects from loss of a mature forested wetland outweighs any benefit of excavation.

Comments

1. ETRA's overriding comment is the ecological risk assessment process, pursuant to N.J.A.C. 7:26E, has not been followed. A baseline ecological evaluation, BEE, (comparable to EPA's Screening Level Ecological Risk Assessment, SLERA, USEPA 1997) should have been conducted. This should have been followed by a full

ecological risk assessment with clearly defined assessment and measurement endpoints, prior to the development of clean-up numbers; site-specific tests conducted during the risk assessment should have been used to calculate risk-based preliminary remediation goals. However, cleanup numbers were determined without going through this process (see comment 2 below).

More information must be provided regarding site history and whether full TCL analysis has been performed. While text on p.1 indicates 2003 samples were analyzed for TAL metals and PCBs, no information is provided regarding the potential presence of other site-related contaminants; if historic data are available they must be included. More information must be provided regarding plant and wildlife species observed or expected. Classification of wetlands by resource value pursuant to N.J.A.C.7:7A-2.4 and Cowardin classification must be described. The NJ Natural Heritage Program (609-984-0097) must be consulted regarding presence of threatened or endangered species; listed species information is critical for risk-management decision-making. This information should be provided in a revised Technical Memorandum.

2. The cleanup numbers used for the wetland were not developed from site-specific data, but rather are screening criteria: 1.0 mg/kg for PCBs (based on a OSWER Directive 9355.4-01 for protection of human health) and 3.7 mg/kg for silver (Long et al., ER-M). These clean-up goals were presented in the *Pre-Design Investigation Sediment Sampling at Site 13 DPDO Yard* ("QAPP," TtNUS, 2003). These screening criteria are not those routinely used by NJDEP and USEPA Region II BTAG, and adequate justification was not provided. For example, text on p. 7 states although the 1.0 mg/kg PCB "cleanup level is based on human health rather than ecological risks, it has been previously used for PCB remedial actions." No other information, specific examples, or confirmation that remedial actions were in ecological area of concern were provided. Because the wetland is seasonally saturated, it is appropriate to include both sediment and soil screening criteria. ETRA recommends the ecological soil screening criteria from ORNL (1997) for wetland soils and contiguous uplands, and effects range-low sediment screening criteria from NJDEP (1998), which are from Long et al., 1995. Therefore, **the appropriate soil screens for silver and total PCBs are 2 mg/kg and 0.371 mg/kg, respectively; the appropriate sediment screens for silver and total PCBs are 1.0 mg/kg and 0.07 mg/kg, respectively.** The Technical Memorandum should be revised to incorporate these values. While conservative screening numbers can be used as remedial goals, more realistic site-specific risk-based remedial goals should have been determined based on exposure models using biota tissue residue data and/or soils/sediment toxicity tests.
3. The decision not to remediate the forested wetlands, based on the risk-benefit analysis and contention that residual contamination is protective of ecological receptors, must be better supported. This can be accomplished via more conservative exposure modeling (see comment 4 below) or preferably by collection of site-specific data to realistically evaluate site-specific bioavailability and toxicity (e.g., tissue residue, sediment/soil toxicity testing). While it may be appropriate to forego excavation in wetlands at this site, there is precedence for manual excavation of "hot spots" in

sensitive wetlands, and this alternative must be evaluated if unacceptable risk is determined. The remaining concentrations (i.e., excluding "hot spot" data) could be reevaluated for protectiveness.

4. (p.8) It is stated that the food chain models, used to evaluate whether remaining silver and PCBs levels are protective of ecological receptors, use conservative assumptions; however, it is generally recognized that "conservative" indicates use of maximum contaminant concentrations, minimum body weight, maximum ingestion rate, maximum biotransfer factor, etc., and inclusion of incidental soil ingestion. Since this was not the approach used, either the models should be re-run with conservative assumptions, or the term "conservative" should be stricken from the document.

ETRA Recommendations

The Technical Memorandum should be revised pursuant to the above comments. The consultant must determine an approach to more accurately evaluate ecological risk in wetlands; if the decision remains not to remediate the wetlands, better support for leaving contamination in place must be provided. Manual "hot spot" removal should be evaluated. It would be appropriate to conduct a focused risk evaluation to determine site-specific bioavailability and toxicity for silver and PCBs.

Please contact me if you have any questions at 3-1353.

References

- N.J. Department of environmental Protection. November, 1998. *Guidance for sediment quality evaluations.*
- U.S. Department of Energy. August 1997. Efroymsen, R.A., Suter, G.W. II., Sample, B.E., and Jones, D.S. Preliminary remediation goals for ecological endpoints. Oak ridge National Laboratory. ES/ER/TM-162/R2.
- U.S. Department of the Interior, Fish and Wildlife Service. Cowardin, L.M., Carter, V., Golet, F.C., and Laroe, E.T. 1992. Classification of wetlands and deepwater habitats of the United States.
- U.S. Environmental Protection Agency. June, 1997. *Ecological risk assessment guidance for Superfund, process for designing and conducting ecological risk assessments.* EPA 540-R-97-006. Office of Solid Waste and Emergency Response. Washington, DC.