



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1
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BOSTON, MASSACHUSETTS 02114-2023

June 5, 2000

Mark Evans, Remedial Project Manager
U.S. Department of the Navy
Naval Facilities Engineering Command
Northern Division
10 Industrial Highway
Code 1823, Mail Stop 82
Lester, PA 19113-2090

Re: Additional Comments on the Final (100%) Design Submission for the Goss Cove
Landfill at the Naval Submarine Base - New London in Groton, Connecticut

Dear Mr. Evans:

As a follow-up to our meeting on May 24, 2000, EPA has follow-up comments related to the "Final (100%) Design Submission for Goss Cove Landfill, Naval Submarine Base, New London, Groton, Connecticut, dated April 2000." This document presents a Basis of Design, Environmental Permits Report, Geotechnical Field Investigation Report, Specifications, and Plans for the remedial design for the Goss Cove Landfill. The selected remedial design includes an engineered control cap, institutional controls, groundwater monitoring, and five-year reviews. In addition, an old existing storm sewer that passes through the landfill will be abandoned in place and replaced with a box culvert sewer.

For this design, the Navy has evaluated both extreme frost penetration and average frost penetration and has based the cap design on the average frost penetration. EPA commented during the meeting that the average frost penetration design was not considered adequate protection for the cap and that the extreme design conditions would be more appropriate. In response, the Navy asked whether it might be most appropriate to select a compromise between the extreme and average conditions. In response to this suggestion, EPA has further reviewed the frost design in context with the entire design. It is our opinion that designing for the average frost conditions is not likely to provide adequate membrane protection when considered in conjunction with the likely impacts of subsidence and differential settlement. However, because the settlement analysis has not yet been completed, it is inappropriate to select a frost design condition. Once the settlement analysis is available, the frost penetration design should be reevaluated in consideration of traffic loading, subsidence, and differential settlement. These items will need to be reviewed and comments adequately addressed before the design package can be considered complete.

The April 2000 design submittal indicated that the membrane would be installed over portions of the landfill subject to settlement as well as over the new box culvert which would be supported

on piles. EPA commented on the potential for membrane failure at each side of the culvert using that installation scenario. In reply, the Navy suggested that it might be feasible to wrap the membrane beneath the culvert to avoid stressing the membrane. This installation feature has other attractive features; such as easier access to the culvert for servicing, elimination of culvert wing walls, and minimization of groundwater infiltration into the culvert. A potential problem is that this change would require the membrane to be installed below the groundwater elevation. If this problem can be adequately addressed, EPA could accept a design that has the membrane installed beneath the culvert. However, securing the membrane to the sides of the pile caps is not adequate to prevent groundwater infiltration through the membrane. Installation of the membrane between the culvert and the pile cap, perhaps using slip liners and other appropriate membrane protection features, may be feasible. The Navy must provide adequate details before this installation configuration can be approved and construction can commence.

I look forward to working with you and the Connecticut Department of Environmental Protection to protect the environment of the Naval Submarine Base. Please do not hesitate to contact me at (617) 918-1385 should you have any questions or wish to arrange a meeting.

Sincerely,



Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

cc: Mark Lewis, CTDEP, Hartford, CT
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