STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT
PERMITTING, ENFORCEMENT & REMEDIATION DIVISION
FEDERAL REMEDIATION PROGRAM

June 30, 1995

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

Re: State Comments regarding Area A Landfill Proposed Plan, Naval Submarine Base New London, Groton, Connecticut

Dear Mr. Evans:

The purpose of this letter is to transmit the formal comments of the State of Connecticut regarding the Proposed Plan for the Area A Landfill during the Public Comment Period, which ends on June 30, 1995. The Proposed Plan is dated May 1995 and was received for review by the Department on June 6, 1995. The Department has also reviewed the Fact Sheet entitled "U.S. Navy Announces Plan to Clean Up Contaminated Soil at the Area A Landfill", which was dated May 1995, and was issued together with the Proposed Plan.

The Department supports the preferred alternative of capping the landfill, installation of an up gradient ground water interception system, installation of a leachate collection system, if required, and continued ground water monitoring. We feel that capping of the landfill should be accomplished as soon as possible to reduce human health risks posed by direct contact with site contaminants, and to reduce the rate of leachate generation.

Our comments regarding each element of the proposed plan are outlined in detail below.

Capping

The Department has previously expressed concern that the proposed cap design may not include a sufficient thickness of cover material to provide frost protection to the geomembrane and geosynthetic liner. The Navy has stated in response to these concerns that according to the manufacturer, the liner is not subject to freeze-thaw damage. While the liner itself may not be subject to direct freeze-thaw damage, the freeze-thaw cycle may also cause stones above or below the liner to move up and down, and in addition, to eventually penetrate the liner.

The current design for plateau areas incudes a total of 21 inches of material overlying the liner, including a 3 inch layer of bituminous concrete pavement and a 6 inch thickness of sub base material. This thickness is considerably less than the average frost depth in this area, which is approximately 3 feet.

An additional consideration is the thermal expansion coefficient of the VLDPE liner material. If the liner is within the frost zone, it will be subject to greater seasonal temperature variations than if it were buried at a greater depth. Have the stresses associated with thermally induced expansion and contraction of the liner been considered in the design?

The manufacturer's specifications for some brands of VLDPE liners state that during installation, low ground pressure construction equipment shall be used until the liner is covered with at least a 3 foot thickness of cover material. This suggests that thicknesses of less than 3 feet of cover material will not provide sufficient protection from the stress induced by heavy equipment moving across the cap. Does this limitation apply to the material which will be used in this particular design? It is noted that according to the most recent version of the plans for the landfill cap, the crane test pad itself will include a 3 foot thickness of cover material above the liner.

The operating surface of the landfill will consist of an asphalt surface and base course underlain by a drainage layer/ sub base which is described on page 10 of the proposed plan as a non-compacted granular soil. Will a non-compacted soil provide adequate bearing capacity for the loads anticipated on top of this cap?

Ground Water Interception System

The proposed plan includes a shallow ground water interception system to reduce the amount of ground water which enters the landfill from up gradient. The State agrees that this is a desirable goal. One important question which must be addressed during design is whether a system which intercepts only overburden ground water will adequately intercept up gradient ground water flow. Overburden thickness in the area of the landfill is generally less than 10 feet, and several bedrock outcrops are present on the up gradient edge of the landfill. Since saturated thickness of the overburden is limited, it is likely that a significant portion of groundwater flow to the landfill moves through the bedrock aquifer.

It should also be noted that the selected remedy will be required to comply with all Applicable or Relevant and Appropriate Requirements (ARARs). Treatment of this discharge may be required, to comply with the substantive water discharge permit requirements.

Leachate Collection System

There is an apparent conflict between the Proposed Plan and the accompanying Fact Sheet regarding whether the leachate collection system will be installed. The Proposed Plan states on pages 10 to 11 that a leachate collection system will be installed. However, the Fact Sheet states on page 3 that the design will include a leachate collection system "if necessary". It is the State's understanding that the Navy intends to decide, based on pre-design studies, whether it will be necessary to install a leachate collection system. The State supports this approach. Any decision regarding the necessity of leachate collection must be by mutual agreement between the Navy, EPA, and the State, and must be based on data from an adequate ground water monitoring program. If a leachate collection system is installed at the Area A landfill, the Navy will still be

required to evaluate whether additional steps are needed to address contaminated ground water originating from the landfill

The exact meaning of the term "leachate" often causes confusion, which results in disagreement over the intended function of a leachate collection system. The proposed plan defines leachate simply as water within a landfill which has become contaminated by contact with the landfill contents. This definition would include both infiltrating precipitation, and water which enters the landfill from up gradient. The State agrees with this definition. The State generally requires that leachate collection systems be designed to capture all contaminated ground water emanating from a landfill.

Ground Water Monitoring

The State supports the Navy's position regarding ground water monitoring. Since the capping remedy is not intended to be the final remedy to address ground water contamination, it is important that an adequate ground water monitoring program be included in the interim action being selected at this time. While the cap and up gradient ground water interceptor system are expected to greatly reduce leachate generation, it is likely that some waste will remain below the water table, and leachate will continue to be generated. The ground water monitoring program must be designed to provide sufficient information to determine the effectiveness of the cap and up gradient ground water interceptor system in reducing the leachate generation rate. The information from the monitoring program must also be adequate to determine whether additional remedial actions to address ground water contamination are warranted.

If you have any questions regarding this letter, please contact me at (203) 424-3768.

Sincerely,

Mark R. Lewis

Mark R. Lewis
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Federal Remediation Program
Permitting, Enforcement & Remediation Division
Bureau of Water Management

cc: Ms. Kymberlee Keckler, US EPA New England Region, Federal Facilities Section
Mr. Andy Stackpole, NSBNL Environmental Department
Ms. Elsie Patton, CTDEP, Water Management Bureau, Assistant Director