



State of Rhode Island and Providence Plantations  
**D partm nt of Environm ntal Manag m nt**  
**Divisi n fWast Manag ment**  
291 Promenade Street  
Providence, R.I. 02908

30 April 1997

Mr. Philip Otis, P.E., Remedial Project Manager  
US Department of the Navy, Northern Division  
Code 18, Mail Stop #82  
10 Industrial Highway  
Lester, PA 19113-2090

RE: Response to RIDEM Comments on the  
Consolidated Response to Comments on the RI/FS/PP for  
Allen Harbor Landfill (Site 09)  
NCBC Davisville, Rhode Island  
Submitted 28 April 1997, Dated 23 April 1997

Dear Mr. Otis;

The Rhode Island Department of Environmental Management (RIDEM) Office of Waste Management has reviewed the above referenced response to our 27 February 1997 comments. The initial report was dated 31 October 1996 and RIDEM comments were initially transmitted to the Navy on 11 December 1996. The Navy responded on 31 January 1997 which generated the 27 February 1997 RIDEM comments noted above. The purpose of the Consolidated Response report was to demonstrate that a soil cap is preferable to a RCRA cap. Two of the highlighted reasons were that saline conditions under the landfill would increase as a result of impermeable cap placement and capillary action would increase by 10 to 15 feet as a result of the increase of salinity of the water beneath the cap.

In an effort to fairly evaluate the information provided to RIDEM additional information was requested to better understand the above noted claims. In both the 11 December 1996 and 27 February 1997 comments RIDEM requested that calculations be provided that demonstrate the increase in salinity of water underneath the impermeable cap and the additional increase in saturated waste as a result of an increase in the height of water as a result of capillary action. This information was requested to better understand the rationale for the Navy's statements in this report in light of the contradictory findings of previous modeling efforts.

The response received to this request is *"The Consolidated Response did not perform any modeling to predict the rate of increase in the salinity to the aquifer. The document simply stated a fact based on the principle of conservation of mass which supersedes the results of any mathematical approximation or modeling."* While the principle of conservation of mass would indicate an increase in salinity it does not state what that increase would be. That is

where the mathematical approximation comes in. Previous modeling indicated that the increase was minimal. The Consolidated Response report implies that it is significant without any modeling to back up the statement. RIDEM is simply trying to determine if there is going to be a minimal or significant increase in salinity as it may affect the design of the selected remedy. The same argument holds true for the evaluation of the statement that capillary action will place 10 to 15 ft more of waste in the saturated zone since no calculations were provided to demonstrate this. Therefore, in addition to the principles noted in the report the mathematical approximations are also important in the decision making process. Hopefully, the Navy does not base the design of our national defense systems on principles alone.

Also of concern to RIDEM is that the Navy seems to be stating that the previous modeling done for this issue is flawed because it assumed a no flow boundary due to a hydraulic ridge in the interior of the landfill, yet the specific question posed by RIDEM in 1995 is how is salinity affected by the placement of an impermeable cap on the surface of the Allen Harbor Landfill which obviously would have included the interior portions of the landfill. Is the Navy now implying that this modeling effort is no longer valid?

Since it seems clear that the Navy has no intentions of providing the calculations that RIDEM has requested in two rounds of comments and that the Navy is calling into question previous work that it has done the State is left with no alternative but to be very conservative in both the remedy selection and its design. If you have any questions or require additional information please call me at (401) 277-3872 ext. 7138.

Sincerely,



Richard Gottlieb, P.E.  
Principal Sanitary Engineer

cc: W. Angell, DEM OWM  
C. Williams, EPA Region 1  
H. Cohen, RIEDC  
M. Cohen, ToNK  
W. Davis, CSO NCBC

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