STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Environmental Management
DIVISION OF SITE REMEDIATION
291 Promenade Street
Providence, R.I. 02908-5767

11 December 1996

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: Consolidated Response to EPA/RIDEM Comments on RI/FS/PP
Site 09 - Allen Harbor Landfill
Naval Construction Battalion Center
Davisville, Rhode Island
Submitted 4 November 1996, Dated 31 October 1996

Dear Mr. Otis;

The Rhode Island Department of Environmental Management (RIDEM) Office of Waste Management has reviewed the above referenced document. Comments are attached.

RIDEM looks forward to working with the Navy and EPA to reach final resolution of an acceptable alternative for this site. 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

Attachment:

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

letter1.rwg/richg

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Comment For:

Consolidated Response to EPA/RIDEM Comments on RI/FS/PP Site 09 - Allen Harbor Landfill

Submitted 4 November 1996, Dated 31 October 1996

1. **Page 1, Section 1.1 Background; Bullet 1.**

   Groundwater flow through the landfill poses a threat to the Harbor:

   It should be noted that based on past military disposal practices the dumping of barrels, mostly waste chemicals, in landfills and other areas was a common practice. One such barrel was found during the remedial investigations conducted at this site which would lead one to conclude that there is a high probability of additional barrels in the landfill. (Reference comment 43 of 15 October 1996 letter to Philip Otis from Richard Gottlieb on Draft Final Feasibility Study - Site 09).

2. **Page 1 & 2, Section 1.1 Background; Last Sentence Page 1, First Sentence Page 2.**

   In fact, both EPA and RIDEM have instructed the Navy not to mention any other alternative in the introduction of the Proposed Plan (PP)[3].

   Please be advised that RIDEM was not instructing the Navy not to mention other alternatives in the Proposed Plan. RIDEM is concerned because the Navy is both selecting and criticizing the preferred alternative within the same document and essentially proposing the non-selected alternative which will only serve to confuse the public and therefore does not help the environmental process. Moreover, the Navy was evaluating the alternatives within the Proposed Plan when such an evaluation is appropriate within the Feasibility Study. RIDEM instructed the Navy to select the alternative they felt was appropriate within the Proposed Plan (Reference 16 October 1996 letter to Al Haring from Warren Angell).

3. **Page 3, Section 1.3, Need For remedy Re-evaluation; Paragraph 3, Last Sentence.**

   Please explain specifically what "redundant" data the Navy would be collecting during the design phase of this project, i.e. what data the Navy would be collecting that we already have.

4. **Page 4, Section 2.1, New Information Findings; Item 3, First Bullet.**

Since this section is entitled "New Information Findings" at least explain in general what the existing site limitations are. It should also be noted how these site limitations can be overcome.

5. **Page 5, Section 2.2, Summary of Consolidated Response Conclusions; Item 3, Bullet 1.**

An impermeable RCRA C cap restricts response flexibility to manage future releases.

Please explain in detail how the RCRA C cap restricts one's response ability to manage future releases. Moreover, if future releases do occur it would imply that the selected remedy is not working as intended.

6. **Page 5, Section 2.2, Summary of Consolidated Response Conclusions; Item 3, Bullet 2.**

Elimination of freshwater infiltration by an impermeable RCRA C cap would increase the salinity and the associated corrosion potential within the saturated and capillary zones of the landfill.

Comment #3 of RIDEM's 1 November 1995 letter regarding the Draft Phase III RI asked about the impact to salinity with the placement of an impermeable cap. On 8 December 1995 the Navy responded that this issue is not for the RI but would be addressed in the FS. EA Engineering performed modeling which showed that salinity had no appreciable change as a result of the RCRA C cap. Therefore, please state what modeling Newfields has done to show that salinity is significantly different as a result of capping.

7. **Page 5, Section 2.2, Summary of Consolidated Response Conclusions; Item 4.**

This item states that it is inappropriate to consider vertical barriers due to non-existing risk. It is presumed the author is referring to risk from groundwater. Without the geologic information from Allen Harbor which has yet to be obtained and subsequent remodeling please explain how it can be determined that there is non-existing risk from groundwater.

8. **Page 8, Section 3.3, Supporting Evidence; Whole Paragraph.**

This paragraph refers to the infrared photography done by URI which concludes that the amount of groundwater discharge from Allen Harbor Landfill is an insignificant component of the total freshwater flux into the harbor. These photographs were taken in September 1995 which typically represents low water tables and therefore may not show all groundwater flow paths, particularly during the high water table season. This should also be pointed out in the report.

9. **Page 10, Section 4.2.1, Characteristics of the Site; Bullet 1.**

This bullet notes that the landfill leachate has not posed a quantifiable risk to the harbor sediment and surface water, even after over 40 years. Please note in this bullet that the State of Rhode Island found it necessary during the 1980's to close Allen Harbor to shellfishing for health reasons in part due to the releases from Allen Harbor Landfill.

10. Page 10, Section 4.2.1, Characteristics of the Site; Bullet 2.

This bullet states that leachate production is due to the aggressiveness of the environment in terms of corrosion potential. Since leachate is the amount of water passing through the fill material please explain how the aggressiveness of the leachate will determine how much is produced.

11. Page 10, Section 4.2.1, Characteristics of the Site; Bullet 3.

This bullet states that by placing a RCRA C cap over the landfill the salinity of the water will increase which in turn will increase the corrosion potential of buried drums. This bullet should also note that 75% of the waste is currently above the water table. In addition, the Navy's modeling of the cap shows that the water table would drop approximately an additional 14 inches. The waste which is already in the watertable will eventually corrode if it has not already done so. The intent of the RCRA C cap is to protect the 75% + of waste that is not within the water table. Therefore, even if the salinity were to increase the impact should be minimal.

12. Page 11, Section 4.2.2, Nature of the Release or Threatened Release from the Site; Paragraph 1, Sentence 1.

The ecological risk assessment has shown "moderate" risk to marine organisms, human consumption of shellfish from the harbor shows risk (though the total contaminate load is not entirely from the landfill), the infrared photography, while helpful, only delineates groundwater upwelling during the low water table and does not show high water table upwelling patterns, and the modelling effort requires geological information from under the harbor to validate the model. It is agreed that a good portion of the contamination from the landfill is from surface runoff and soil erosion though it is also felt that groundwater still plays an important part in the total contaminate load. Therefore, the results of the geostatistical analysis do not seem to correlate with past studies that have been done.

In addition, the model factors in the difference of distance between the paired data. No mention is made if the geostatistical model factors in geological information. Please state if this is factored in and how it is accounted for in the separation distance between the paired data.

13. Page 12, Section 4.2.3, Nature and Purpose of Requirement; Paragraph 1, Last Sentence.

Since it is not known what technology would be used to isolate and remediate a future

release it is not known at this time whether the RCRA C cap would impede remedial efforts. Moreover, the RCRA C cap could help to contain the extent of any future release. These issues should also be added to this sentence.

14. **Page 13, Section 4.4, Rhode Island Rules and Regulations for Solid Waste Management Facilities Requirements;**
Paragraph 1, Sentence 1.

Please explain the term "focused dynamic management technologies".

15. **Page 13, Section 4.4, Rhode Island Rules and Regulations for Solid Waste Management Facilities Requirements;**
Paragraph 1, Sentence 2.

An impermeable RCRA C cap limits implementation of such technologies without providing any quantifiable reduction or elimination of future release potential.

Just the fact that the RCRA C cap greatly reduces infiltration through the waste material reduces future release potential. Therefore, this sentence should be removed from the text.

16. Page 13, Section 4.4, Rhode Island Rules and Regulations for Solid Waste Management Facilities Requirements;
Paragraph 1, Last Sentence.

In fact, as detailed in Section 4.2 above, the impermeable RCRA C cap may increase the potential for adverse consequences, counter to the requirements of the Rhode Island regulations.

This sentence should be removed based on comments 9 thru 13, above.

17. **Page 13, Section 5.1, Release Management;**
Paragraph 1.

This paragraph notes that the major concerns associated with a future release would be detection and subsequent identification and isolation of the source. It is then stated that a RCRA C cap does not address these issues. Of course it doesn't, a cap is not designed to detect or identify materials and along that line of logic neither does a soil cap. That is what the implemented monitoring plan is for. This paragraph should be removed from the text.

18. **Pages 13, Section 5.1, Release Management;**
Paragraph 2.

This paragraph states that because a groundwater risk pathway has not been made complete a RCRA C cap will not offer any more protection that a more permeable cap. Please note that RIDEM has stated in the past that even if groundwater is found not to cause a risk a RCRA C cap is still required due to the potential of a future release. RCRA

C caps have been required at other landfills in the state with the same set of circumstances.

19. Page 14, Section 5.1, Release Management; Paragraph 1, Sentence 2.

Given the age of the buried drums, elimination of infiltration after decades of potential corrosion is unlikely to reduce the rate of corrosion.

Since it is the moisture that causes the corrosion to occur it would seem that by removing or greatly reducing the amount of infiltration into the landfill would reduce the corrosion rate. In addition it should be noted that during the remedial investigation phase of this study a drum with product was found indicating that there may be more drums in the landfill coupled with documented past military disposal practices.

20. Page 14, Section 5.1, Release Management; Paragraph 1, Sentence 2.

This sentence states that construction of an impermeable cap will increase groundwater capillary zone salinity which will produce higher corrosion rates. Currently, with the exception of a few feet inward from the shoreline the water under Allen Harbor landfill is considered fresh water. Please state how much higher the salinity would be with the cap in place. Please note that EA Engineering's analysis demonstrated no appreciable change in salinity under the landfill as a result of the RCRA C cap.

21. Page 14, Section 5.1, Release Management; Paragraph 3, Sentence 1.

Identification and remediation of the release source would require breaching the impermeable RCRA C cap at numerous locations in order to determine the precise location of the source.

Assuming that a reasonable monitoring plan is in place it would seem that a general location of any source could be determined thereby minimizing the number of locations that the cap would have to be breached. It should also be noted that this same method would be utilized on a soil cap, therefore the amount of breaching of the cap would be similar irrespective of the type of cap employed. While it is acknowledged that it would be more expensive to breach a RCRA C cap than a soil cap it is anticipated that the RCRA C cap would need to be breached much less than a soil cap due to the reduction of infiltration corroding buried drums.

22. Page 14, Section 5.2, Consolidated Response Conclusion 3; Paragraph 1, Bullet 2.

Elimination of freshwater infiltration by an impermeable cap RCRA C cap would increase the salinity and the associated corrosion potential within the saturated and capillary zones of the Landfill.

Based on modeling performed by EA Engineering it has been shown that with the exception of a few feet along the shore the salinity is not appreciably affected. Please explain the modeling that Newfields has done which shows that salinity is a concern. In addition, please state what modeling has been done to show the rise of the capillary zone above the existing conditions i.e., is a greater percentage of the waste within both the saturated and capillary zones. In addition the modeling performed by EA Engineering indicated that the groundwater level would drop by approximately 14 inches with the RCRA C cap. It is assumed then that the capillary zone would also drop by an appropriate amount.

23. Page 15, Section 6.1, Contingency Plan Rationale; Paragraph 4, Sentence 2.

Construction of a vertical wall will not contribute to the effective management of future releases, which is contrary to Rhode Island statutory requirements.

It is the State's understanding that a sheetpile or slurry wall would be built with the intent of containing contamination below ground surface, including contamination within the groundwater. If this is found to be necessary then please explain why this would be contrary to Rhode Island statutory requirements.

24. Page A-1, Section 1.2, Study Objective; Item I.

This item states that EPA and RIDEM have stated that groundwater flow from the landfill poses a threat to Allen Harbor. Please revise this item to indicate that RIDEM has not stated that groundwater flow poses a threat. RIDEM has requested that the Navy conduct further testing of Allen Harbor to determine if groundwater poses a threat to the harbor. RIDEM would require groundwater containment in the absence of testing to be on the conservative side.

25. Page A-15, Section 5.3, Quantitative Assessment of Data Adequacy & 5.4 Results; Formula for Determining Adequacy & Paragraph 1 of Section 5.4.

This section states that when using the adequacy formula setting p equal to 0.5 provides the worst case scenario. The example that is used is for a + or - 10% accuracy which yields a need for 25 samples. It should be noted p = proportion of measured values above a given threshold. If p were to equal 0.1 instead of 0.5 (i.e. only 10% of values exceed given threshold) then the accuracy becomes + or - 6% for the same 25 samples. This implies less exceedences gives a more accurate result which does not seem to make sense. Please explain.