



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

20 January 2004

Mr. Fred Evans, Remedial Project Manager
US Department of the Navy
Engineering Field Activity Northeast
Naval Facilities Engineering Command
10 Industrial Highway
Lester, PA 19113-2090

RE: Navy Second Responses to RIDEM Comments
QAPP for Additional Sediment Sampling and Characterization
For Phase II Remedial Investigation IR Program Site 16
(Former Creosote Dip Tank and Fire Fighting Training Area)
Naval Construction Battalion Center
Davisville, Rhode Island
Submitted 21 November 2003, Dated 21 November 2003

Dear Mr. Evans;

The Rhode Island Department of Environmental Management, Office of Waste Management (RIDEM) has reviewed the above referenced responses and comments are presented below:

1. Page 5-1, Section 5.2, Previous Investigations; Based on three sediment and three seep water samples taken during the Phase I screening ecological risk assessment the Navy is proposing to limit this investigation to eight inorganics, ten PAH, nine pesticides/PCB, and one VOC. Not enough samples have been taken to start screening out potential contaminants of concern. Of particular interest to RIDEM is VOC in the sediment as this can have an adverse impact on shellfish. Given the historic use of pesticides by the military arsenic should also be quantified. In accordance with Section 8.01 of the RIDEM Remediation Regulations contaminants of concern cannot be screen out until it is shown that each contaminate of concern individually and cumulatively does not pose a risk. Therefore, RIDEM requires that the full suite of compounds be sampled for.

Response— The text from which this comment is extracted represents a summary of the findings of the previous investigation. As stated in the paragraph following this listing “Consequently, these are the analyte types that will need to be further investigated in the sediment adjacent to Site 16 in Allen Harbor.”

The key words are “analyte types.” This study will be characterizing the full TAL list, as well as the complete TCL pesticide, PCBs, and VOC lists. Finally, the PAHs will be analyzed using selected ion monitoring (SIM) to allow for lower detection limits. Further, selected samples will be characterized for PAH fingerprinting. The full suite of compounds within each of these analyte types will be sampled and analyzed for. These include the analytes noted to be of particular interest to RIDEM: VOC (complete TCL list), pesticides, and arsenic.

RIDEM Comment -- Please confirm that the Navy will be conducting the full suite of VOCs, SVOCs, pesticides, PCBs, and metals including arsenic.

2nd Navy Response: Yes, as shown in Table 7-1 of the QAPP, the full suite of TAL metals (including arsenic), TCL VOC, pesticides, PCB, and PAH from the SVOC suite will be analyzed as a part of this study.

RIDEM 2nd Comment: Response is acceptable.

2. Table 7-1; The project action limits for aluminum and iron are stated as 18,000 and 22,000 mg/kg, respectively. Section 8.07(D) of the RIDEM Remediation Regulations does not allow for the concentration of any hazardous substance in soil to exceed 10,000 mg/kg. Therefore, the project action limits for these analytes must be reduced to at most 10,000 mg/kg.

Response— The project action limits (PALs) established in the QAPP are for sediment, not soil; therefore, the requirements of Section 8.07(D) of the RIDEM Remediation Regulations does not apply to this investigation.

Also, aluminum and iron are two of the most common inorganic elements in soils, rocks, and sediment on Earth. RIDEM uses the 410 CFR Part 300.5 for definitions; accordingly, the definition of a pollutant or contaminant is “any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.” The PALs that were established for these elements are based on published sources documenting some type of toxic effect at a given concentration. Below these concentrations, it is not expected that they will cause a negative effect. Consequently, neither aluminum nor iron qualifies as a “hazardous substance” below 18,000 mg/kg or 22,000 mg/kg, respectively, and Section 8.07(D) does not apply.

The Navy believes the assigned PALs are appropriate for these two elements in sediment.

RIDEM 2nd Comment -- Please provide copies of the documentation in support of the proposed PALs.

2nd Navy Response: The site where these citations can be found is at <http://response.restoration.noaa.gov/cpr/sediment/squirt/squirt.pdf>. Examination of this document (a compilation of sediment toxicity values for marine and freshwater benthic organisms) shows that both of these proposed screening values are based on AETs based on *Neanthes* bioassays. In fact, the AET for iron is not 22,000 mg/kg, but rather 220,000 mg/kg. This was an error in moving the decimal when converting from percent (22 percent in the SQUIRT table) to mg/kg. No other toxicity data are available for these two common elements.

RIDEM 3rd Comment: Response is acceptable.

- 3 Page 8-2, Reference Sample Locations; Please explain the basis for the reference locations chosen in terms of similarity to the site under study, representativeness of background concentrations, tidal influence, depth of water, depositional characteristics, etc. In the case of Little Allen Harbor being easily accessible does not justify its use as a background location. Little Allen Harbor could be more contaminated than Allen Harbor.

Response— Reference sample locations were chosen on the basis of relative depth and use patterns found in these areas. There is a marina adjacent to the Site 16 shoreline, and this is consistent with circumstances found in both Little Allen Harbor and Wickford Cove. The primary reason for Little Allen Harbor being selected as a reference area is the presence of marinas and other potential sources of contaminants, such as storm drain outfalls and parking lot runoff. Prudence Coggeshall Cove is included because it is at the same latitude as Allen Harbor, is of similar depth, and reflects Providence River input into Narragansett Bay.

RIDEM 2nd Comment -- Little Allen Harbor is located on the former military base and as such may have been contaminated by past military activities including potential contamination associated with IR Site 16. Wickford Cove is an active marina and is therefore most likely unacceptable as a background location.

Coggeshall Cove due to its location receives higher concentrations of contaminants than Allen Harbor would since it is directly in the discharge path of the Providence River. In addition, as part of the Narragansett Bay Estuarine Sanctuary, permission would be required by RIDEM prior to taking any samples in this area. Again,

RIDEM would suggest using the northeastern side of Jamestown as a background location.

Navy 2nd Response: One of the purposes of this study is to compare the signatures of contaminants in reference sediments with those detected in sediment adjacent to Site 16. Because there is an active marina near Site 16, it is appropriate that a marina, not influenced by Site 16, be included as a reference location. Consequently, it is appropriate to maintain Wickford Cove as a reference location because it includes an active marina. Similarly, the use of Coggeshall Cove is appropriate as a reference location because it would include contaminants characteristic of those entering Narragansett Bay from the Providence River. It is likely that some of these contaminants will find their way into Allen Harbor, and therefore it is necessary to be able to isolate the signature of this source. The Navy will delete the proposed Little Allen Harbor reference location, and replace it with the northeastern side of Jamestown.

RIDEM 3rd Comment: Wickford Cove as a harbor is much more active than Allen Harbor. It would be like comparing the traffic on a highway to that of a side street. In addition, there are marine manufacturing facilities associated with Wickford Cove which do not exist at Allen Harbor. The manufacturing activities would lead to higher levels of contaminants among other things. A possible alternative would be Fishing Cove which is inside the jetty adjacent to Wickford Cove. Fishing Cove has similar characteristics to Allen Harbor. Another possibility would be West Ferry in Jamestown. West Ferry is also similar in characteristic to Allen Harbor.

It has been established that, in general, the further north one is in Narragansett Bay the higher the pollutant load. With this in mind RIDEM would want to see the results of any sampling in Coggeshall Cove prior to accepting them as a reference or background location. Please note that permission would be required from RIDEM Fish & Wildlife Division to perform sampling in this area as it is a protected estuarine sanctuary.

RIDEM staff will be available to aid in the selection of sampling locations. Please contact Dr. Christopher Deacutis at (401) 222-3961 ext 7270 to set up a mutually acceptable time.

4. Page 8-2, Reference Sample Locations; It is stated that 5 sediment samples will be taken from each reference location. Please state where within these reference locations the samples will be taken from. In addition, for each sample location a

shallow (0-1') and deep (1' – 4') sample will be required to understand the spatial relationship of contamination relative to the site under investigation. Exact depth for shallow and deep can be determined by taking a core and sampling the dirtiest portion of the core.

Navy 1st Response -- The purpose of collecting sediment samples from the three reference areas is for comparison to data for samples collected from Allen Harbor adjacent to Site 16. These comparisons relate not only to bulk sediment concentrations of PAHs, pesticides, PCBs, metals, and VOCs, but also to PAH environmental forensics to see if there are similarities in PAH patterns. No deep core samples are planned for this sampling effort, and all samples, whether located in Allen Harbor or in the reference areas, are to be collected using a Ponar or Van Veen sediment sampler that collects approximately the first 6–9 inches of sediment depth. This depth represents the depth to which the majority of benthic organisms live and to which receptors such as the raccoon are exposed. Core sampling is inconsistent with the goals of the sampling approach which, as stated in Section 7.1, is to "...determine if there is the potential for unacceptable ecological risk in sediments, and, if unacceptable risk is indicated, if it is primarily related to Site 16 activities or non-Site activities."

RIDEM 2nd Comment -- The Navy has stated that sampling will be limited to the bioturbation level. Shallow and deep samples are normally collected in order to obtain information concerning the relationship of contamination relative to the site under investigation. Please collect shallow and deep samples as originally requested. In addition, once background locations are agreed to please provide the locations of the background samples.

Navy 2nd Response -- As stated in Section 6.1 (Project Overview) of the QAPP, the purpose of this screening level study is to focus on the collection of additional sediment data to characterize potential ecological risks and develop the proper decision-making framework for proceeding with the appropriate risk management decision for the site. Consistent with this goal, sediment collection is limited to the bioturbation depth of sediment. Collection of sediment cores below the depth to which organisms live or may be exposed is inconsistent with the study goal. Should the results of the SLERA show that further work is necessary, collection of core samples would be considered as part of an overall Data Quality Objectives Process for any follow-on activities.

As stated in the 2nd Navy Response to Comment 3, the three reference locations will include Wickford Cove, Coggeshall Cove, and now, the northeastern side of Jamestown. Specific sample locations for these reference sample locations will be made based on what the sampling crew finds at each of these sites. Selection of sample locations at this time would be premature and inappropriate. Sample locations will be made based on a comparison by the field crew of those circumstances found in Allen Harbor, and attempting to match, to the best extent

possible, those locations in the reference locations. These sample locations will be documented by GPS and illustrated on a map in the report of this study.

RIDEM 3rd Comment -- It is an accepted fact that storms affect the stratification of sediments. One storm can change a depositional area into a scour area and vise-a-verse. Motorboats also affect the distribution of sediments. RIDEM has a set of undated photos of a boat in 35' of water at Naval Education and Training Center which clearly shows the impact the boat has on the sediments. If one only samples in the 6-9" range, conclusions drawn about the data will be suspect because there is no way the ascertain whether the sediments are newly deposited, newly exposed or part of a depositional or scour area.

Sediment studies conducted at Naval Education and Training Center have always included samples in the three to four foot depth range. This level of penetration seems to satisfy stakeholders concerns regarding conclusions drawn on the data. RIDEM again reiterates that samples should be taken from the shallow (0-1') and deep (1-4') strata.

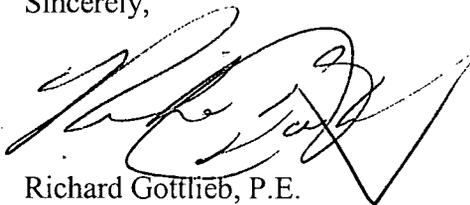
5. Page 16-1, Section 16 (Assessments and Response Actions), Paragraph 2; Please note that under its State authority RIDEM can issue a cease and desist order if it is found that work being performed is inconsistent with RIDEM Rules and Regulations or is adversely affecting the environment.

Response— Comment noted. Field Standard Operating Procedures will be provided under separate cover. Also, the following will be added to the end of the second paragraph on page 16-1: "All fieldwork will be performed in accordance with applicable federal and state regulations."

RIDEM Comment -- Response acceptable.

RIDEM looks forward to working with the Navy and USEPA on the completion of these documents. If you have any questions or require additional information please call me at (401) 222-2797 ext. 7138 or e-mail me at rgottlie@dem.state.ri.us.

Sincerely,



Richard Gottlieb, P.E.
Principal Engineer

Cc: M. DeStefano, DEM OWM
C. Dr. Deacutis, DEM OWR
C. Williams, EPA Region 1
S. King, RIEDC
S. Licardi, ToNK
J. Shultz, EA Eng.