



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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October 28, 1999

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

RE: Responses to Comments on the Draft Final Ecological Risk Assessment, Naval Station
Newport, Newport, Rhode Island

Dear Mr. Shafer,

The Department of Environmental Management Office of Waste Management has reviewed the responses to comments on the Ecological Risk Assessment for the Old Fire Fighting Training Area dated 2 August 1999. Attached are comments generated as a result of this review. If the Navy has any questions concerning the above, please contact this Office at (401) 222-2797, ext. 7111.

Sincerely,

A handwritten signature in cursive script that reads "Paul Kulpa".

Paul Kulpa, Project Manager
Office of Waste Management

cc: Warren S. Angell, DEM OWM
Richard Gottlieb, DEM OWM
Christopher Deacutis, DEM OWR
Robert Richardson, DEM OWR
Kymberlee Keckler, EPA Region I
Melissa Griffen, NETC

offera.com

**Comments on the
Draft Old Fire Fighter Training Area
Marine Ecological Risk Assessment Report**

1. General Comment

Throughout the report comparisons to the background station are made. Therefore the report should include a discussion of background station. This discussion should note, amongst other things, whether there are any potential sources of contamination at this background station, whether the observed concentration of contaminants at the background station are within the values expected for an unimpacted area, etc. The report should also include a comparison of the reference station used for OFFTA with the ones employed for Derecktor Shipyard and McAllister Point Landfill.

Evaluation

In correspondence dated, 7 April 1999 the Office questioned the validity of the background sampling stations and requested that the Navy provide additional information concerning these stations as well as a comparison to other background sample stations. The latter was provided in correspondence dated 2 June 1999. During subsequent meetings the Office clearly stated that the reference stations were not acceptable and the Navy could either utilize data from existing reference stations/sources or collect additional information. This position was again reiterate in correspondence dated 8 September 1999. Use of information from existing reference stations from other sites or from existing unimpacted non reference stations from this or other sites would allow for the finalization of the Ecological Risk Assessment without increasing the cost of the project or delaying schedule. The Navy has proposed collecting information from alternate reference stations while at the same time proceeding forward with Feasibility Study and the Preliminary Remediation Goals document. Although it is the Office position that utilizing existing data would be more cost and time effect, this alternative is acceptable to the State. However, until this information is obtained the Ecological Risk Assessment cannot be finalized. Should the Navy elect this alternative, the Office recommends that information from the additional stations be collected in a timely manner so as avoid possible extensive revisions not only in the Ecological Risk Assessment report, but also in the Feasibility Study and the Preliminary Remediation Goals document.

2. General Comment

Please indicate whether all of the contaminants detected in the soil and the groundwater samples were analyzed for in the sediment and tissues samples collected for the Ecological Risk Assessment.

Evaluation

The Office requested that the Navy indicate in the report whether all of the contaminants detected in the soil and groundwater were analyzed for in the sediment. The Navy has indicated that should RIDEM be interested in those detected analytes that are not common to the two (offshore vs. onshore), the State should obtain the list of analytes from the onshore studies and compare them to the offshore studies. The Ecological Risk Assessment is a public document and information of this nature should be included in the report.

3. General Comment

It is known that free product was detected at the site. In addition, it is known that petroleum products contain a wide range of compounds, many of which are not detected in standard VOC/SVOC runs. Therefore, as this is a public document the report should state why a simple TPH analysis was not performed on the sediment samples.

Evaluation

The Navy has revised the report as follows:

Total Petroleum Hydrocarbon (TPH) was detected in the onshore soils and groundwater at the site. TPH is typically measured in soil and groundwater to meet regulatory requests, since there are cleanup criteria enforced by RIDEM that apply to TPH in groundwater and soil. In addition, there is no toxicity information that can be used to characterize risk to ecological receptors from TPH.

The Navy has indicated the TPH will be evaluated during the PRG process, therefore statements concerning the lack of toxicity information should be deleted and the report should be modified as follows:

Total Petroleum Hydrocarbon (TPH) was detected in the onshore soils and groundwater at the site. TPH is typically measured in soil and groundwater to meet regulatory requests, since there are cleanup criteria enforced by RIDEM that apply to TPH in groundwater and soil.

7. Section 3.3, Contaminants of Concern, Page 3-16, Paragraph 2.

The bench marks employed for determining contaminants of concern are equivalent to those employed in the draft Ecological Risk Assessment for Dereecktor Shipyard dated July 1996. Please indicate whether any other benchmark from other states or other Regions, have been developed since that time. It is the Office's understanding that Region IV and New Jersey are developing or have developed sediment-screening values. These values should be incorporated into the report. The Office

recommends investigating whether the other coastal states or Regions have developed standards.

Evaluation

The Navy has stated that they are unaware of any values from EPA Region IV or the State of New Jersey and request full references from the State of Rhode Island concerning these values. Please be advised that Region IV values have been available since 1995, the State of New Jersey has had values since 1991, (these values were updated in 1998).

The Navy also notes that their contractor had requested a copy of the values from the DEM and this Office had failed to provide the requested material. Consequently, the Navy does not intend to modify the report at this time. The State of Rhode Island is not a clearinghouse for documents produce by EPA Region IV and the State of New Jersey. The State had obtained the information by simply contacting the Region IV and the State of New Jersey and requesting a copy of the sediment values. The information is also readily available on the Internet and is easily downloaded. Therefore, the Office does not understand the Navy's position that since the State did not provide the requested information it will not be included in the report.

8. Section 4.1, Sources and Exposures Pathways of CoCs, Page 4-3, Paragraph 2.

This section of the report states that the concentration of organic contaminants in aquatic organisms is based upon lipid content of the organisms and not due to other factors such as biomagnification. That is the external surface of the respiratory systems of water borne organisms facilitate the transfer of lipid soluble contaminants and thus biomagnification is not present. This would seem to imply that respiratory systems of aquatic organisms have a detoxification function, and as such contaminants absorbed by the organism, through ingestion, respiration or dermal content is removed via the respiratory system. Since biomagnification is known to exist in the aquatic environment, please indicate whether any other studies other than the 1977 reference support his position.

Evaluation

The State requested additional literature sources in support of the Navy's position that lipid contact not biomagnification is important in determining the concentrations of contaminants in organisms. The Navy has noted that the results for cunner samples taken at OFFTA support this position and have include an additional study performed by the authors of the report. The Office requested that the Navy confirm whether these two studies are the only one available in support of this position.

The Navy has stated that they area unaware of any studies in support of Rhode Island implied meaning to the mode of biomagnificaton. The Office reiterates its comments, that is whether there

are any other literature sources in support of the Navy's position that lipid content and not biomagnification is important in determining the concentrations of contaminants in organisms.

**10. Section 4.1, Sources and Exposures Pathways of CoCs,
Page 4-4, Paragraph 1.**

This section of the report states combusted forms of PAHs are more highly particle bound than what is suggested by their chemical structure. Please provide the basis for this statement.

Evaluation

The Navy has noted that based upon observations at McAllister Point and Dredge Shipyard bioaccumulation is less for PAHs than that which would be expected for other organic chemical classes. However, the Navy is unaware of any studies that examine combusted PAH bioavailability. The report should therefore note that the Navy's speculation concerning the behavior of PAHs is based upon one study and observations made at the other NETC sites.

**16. Section 4.3.1.2, Porewater,
Page 4-16, Paragraph 2.**

This section of the report states that mercury values were not used due to insufficient sample volume. As discussed in previous correspondence the mercury values are valid and should be treated as such in this report.

Evaluation

The Navy has noted that the mercury found in the samples is not site related. Please be advised that mercury was detected in groundwater at the site in concentrations exceeding MCLs. In addition, depending upon the source of the oil it may also be found in petroleum products. Therefore, the Office reiterates its concern with respect to the mercury data. In order to ascertain whether the mercury results will affect the overall risk assessment, the Office recommends including the mercury data in the risk assessment. In this manner the effect of the mercury data on the overall risk assessment can be gauged.

**20. Section 4.3.2.4, Tissue Residues,
Page 4-28, Whole Section.**

It is not clear from this section of the report whether tissue samples analyzed for mercury, from all the species collected, including cunner were included in this section of the report. As stated in previous correspondence, the Office considers all of the tissue samples analyzed for mercury as valid and should be considered such in the report.

Evaluation

The States comment was not addressed. The Office simply requested if mercury samples from all species, including cunner were included in the report (the State is aware that samples from the other species was included in the report). Therefore, the State reiterates its comment. Was tissues samples for mercury from all species collected, including cunner, included in the report, i.e. was the mercury results from cunner excluded and were there any results from clams, mussel, lobsters etc, which were excluded from the report.

The Navy has indicated that all tissue samples that were collected were analyzed for mercury and were included in the report. A review of the information in Appendix 4 of the Old FireFighter Trainer Area Technical Support Document indicated that the mercury values for cunner were rejected. Please explain.

21. Section 5.0, Toxicity Evaluations, Page 5-50, Whole Section

This section of the report discusses the different toxicity test performed on the sediments and water samples. As these are standardized test the report should include a table that lists the typical cut off values inherent in these test. In addition, the report should include a discussion of the standard interpretation of these values.

Evaluation

The Navy has stated that the exact relationship between the toxicity of a sample and the extent of risk is not known therefore arbitrary cutoff values were selected. Accordingly, the Navy has assigned a low risk to samples in which forty percent of the organisms die with respect to the control and fifty percent had development problems with respect to the control. As the former is close to a LC 50 the Office does not agree with the assignment of a low risk to this value.

The Navy has noted that with limited toxicity was observed at the site with respect to amphipod survival and only one sample exhibited larval development problems at less than 60 % pore water concentration. A review of the information for the elutriate test reveal that a number of sample exhibited larval development problems. Therefore, the Office reiterates it concern with respect to the cutoff values used in the assessment.

28. Section 5.3.1.2, Benthic Community Assessment Protocols Page 5-62, Whole Section

This section of the report includes a discussion of the different indexes that were used to analyze the data. The significance of the values obtained from these indices has not been included for all the assessment, which were conducted. As an

illustration, the Shannon Weiner Diversity Index was performed at the site. However, the significance of the values obtained the critical values and the limitations of the analysis was not discussed in the report. Please modify the report accordingly.

Evaluation

Different biological indexes may have inherent limitations, which would produce false positives or negatives and therefore restrict their application. The Office has requested that the Navy note these limitations in order to avoid inappropriate use of the indexes, which would generate erroneous results. The Navy has stated that reviewing the weakness of the indexes is beyond the scope of this program. The Office cannot approve of a potential misapplication of indexes and therefore reiterates its comment.

**30. Section 5.3.1.2, Infaunal Community Assessment Results, Benthic Community Assessment.
Page 5-66, Paragraph 2.**

Ranges were calculated using an arbitrary division system dividing the benchmark values into ranges.

The above states that an "arbitrary division system" was used to segregate the various matrixes and determine the final ranking, low, intermediate or high. This would by definition translate into an arbitrary ranking system. One of the results of this approach is that a sample with only fifty percent of the matrix of the reference station is ranked as a low risk. In essence a sampling locations with half of the number of individuals or diversity may be given a low risk. Therefore, the ranking system should revised and the arbitrary division should be replaced by one reflective of risk.

Evaluation

The Navy has indicated that the Office agreed to the quartile method for evaluating the data. The Office is questioning the cutoff values used in the quartiles, not the quartiles method itself. Therefore, the Office reiterates its comment.

38. Table 6.02, Indicator specific and Overall Weight of Evidence Ranking for Effects Concentrations.

Bedded/Resuspended Sediment Toxicity. This section of the report provides cut off values for assign low and intermediate risk based upon survival or development rates. The report is a public document and therefore justification should be provided

for the different cutoff values. As an illustration, as presented a low risk value is assigned for a sampling site in which forty percent of the organisms died.

Evaluation

As of this writing the Office has not received a copy of the requested information. Upon receipt of said information the Office will complete its evaluation of the Navy's response.

42. Table 6.6-3, Overall summary of exposure and Effects-based Weights of Evidence.

This table assigns a low overall risk to areas, which have intermediate risk for one weights of evidence summary and a low risk for the other weights of evidence summary. Using this scheme a sampling site with intermediate risk for bedded sediment, resuspended sediments and bioconcentration would be assign a low risk if sediment toxicity, field effects and tissue effects are low. The Office recommends that an overall intermediate risk be assigned if two or more individual exposure effects in either summary are intermediate, i.e. if two or more exposure effects in one weights of evidence summary are intermediate and the other weights of summary overall assessment is low the station would be assigned an intermediate value.

Evaluation

The Navy has assigned an intermediate risk if both chemical exposure and biological effect have an intermediate rank. The Office position was that an intermediate risk would be applied if either not both had an intermediate value. The same approach should be employed for demarcating high-risk stations. Please modify the table accordingly.

43. Table 6.6-3, Overall summary of exposure and Effects-based Weights of Evidence.

Please explain the following difference between the draft and draft final versions of this table:

Evaluation

The Navy has noted that stations 14 and 15 changed due to the fact that the mercury rankings for both were changed. Please elaborate.