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July 7, 1995

Project Number 1703

Ms. Deborah Carlson and
Mr. Todd Bober
Northern Division, Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
Lester, Pennsylvania 19113

Reference: CLEAN Contract No. N62472-90-D-1298
Contract Task Order No. 0173

Subject: Draft Responses to RIDEM Comments to the Draft Addenda for Ecological Risk Assessment at Navy Sites, Naval Education & Training Center, Newport Rhode Island

Dear Ms. Carlson:

Enclosed are draft responses to the RIDEM comments which were received on June 6, 1995.

These responses reflect the issues raised at the EAB meeting held June 28. I have prepared draft minutes to that meeting, but we are trying to resolve two final technical points before we deliver them to you. These points are the usability of the MFO test in surrogate fish species and the performance of AVS SEM tests on elutriate samples.

If you have any questions or comments regarding this material, please do not hesitate to contact me.

Very truly yours,

Stephen S. Parker
Project Manager

SSP/gmd

Enclosures

c: B. Wheeler, NETC Newport (w/enc.)
J. Quinn, URI GSO (w/enc.)
J. Trepanowski/M. Turco, HNUS (w/enc.)
File 1703-3.2 (w/o enc.)

1619

RESPONSE TO COMMENTS
DRAFT WORK PLAN ADDENDA B AND C
FOR THE OFFSHORE ECOLOGICAL RISK ASSESSMENT FOR DERECKTOR SHIPYARD AND THE OLD FIREFIGHTER TRAINING AREA
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DATED MAY 15, 1995

Comment No. 1:

Addendum B, Section 2.2.1, Contaminants of Concern: Page 10, Paragraph 2.
Addendum B, Section 2.2.1, Contaminants of Concern: Page 13, Paragraph 1.

"Using a hazard quotient (HQ) approach, chemical concentrations in onshore groundwater and surface soil will be compared with appropriately conservative biological benchmark for those media to identify contaminants elevated above levels presumed to be protective of biological systems."

Due to the disposal and nature of waste at the site, contaminants in the subsurface should be included in the above. The Division recommends modifying the above as follows:

Using a hazard quotient (HQ) approach, chemical concentrations in onshore groundwater, surface soil and subsurface soils will be compared with appropriately conservative biological benchmark for those media to identify contaminants elevated above levels presumed to be protective of biological systems.

Response:

The recommended change to include the use of subsurface soil data in the identification of Contaminants of Concern (CoCs) will not be made. For the Derecktor Shipyard site, no plausible direct exposure pathway exists under existing conditions by which target receptors may be exposed to subsurface soil contaminants. In contrast, groundwater data is used to identify contaminants because the release of contaminants from subsurface soils through seep water to receptor species is a plausible exposure pathway. Similarly, surface soil contaminants are used as they may reach target receptors via erosion (runoff) and thus represent a plausible exposure pathway.

Comment No. 2:

Addendum B, Sewage Pathogen Analysis: Page 17, Paragraph 2/Table 2-6.
Addendum C, Sewage Pathogen Analysis: Page 20, Paragraph I/Table 3-6.

This section of the Work Plan proposes the use of sewage pathogens to fill in data gaps.

The report should indicate how the proposed pathogens can be used for an ecological risk assessment. This justification for the use of the pathogens should address a number of issues such as, links to food chain models, etc. In addition, it should be noted that even for human health risk, only total and fecal coliform have health standards for shellfish. Furthermore, there is a question as to how the other indicators will be used, even in a human health risk scenario.

The report should also indicate how the source of the indicators will be determined. All of these indicators are found in typical storm water runoff due to warm blooded animal fecal waste being washed of impervious surfaces, etc. Unless the Navy can demonstrate a clear gradient from the CSO release site at Goat Island for Total and Fecal coliform, there is a possibility that it may be from runoff the Navy site. Furthermore waste water treatment outfalls are an unlikely source of Total and Fecal Coliform due to chlorine disinfection, but is likely source for high levels of Clostridium spores. However the latter also occurs in runoff, so one must be cautious in interpretation.

Response:

This issue was raised again at the Ecorisk Advisory Board meeting held on June 28 1995. At that meeting it became clear that the RIDEM was opposed to the use of pathogen analysis to supplement data on community structure in the study area.

Due to this opposition, It was agreed that the proposed pathogens will be analyzed in the tissues of deployed mussels, and not in the other biota, sediment and other water samples collected. BOD/COD and SOD (sediment oxygen demand) will be measured from sediment - water interface to provide indications of the stress to the system from oxygen availability.

Addendum B will be revised to reflect these changes. Addendum C will not be revised as a result of this comment until the site-specific issues can be discussed at future EAB meetings.

Comment No. 3:

Addendum B, Section 4.1.1, Sediment Sampling Plan: Page 18, Paragraph 3.

This section of the report discusses sediment sampling locations.

It is unclear from the information presented how the proposed sampling stations related to the "dead zone" filmed several years ago. It would be critical to ensure that at least one surface and deep core sample be collected from the "dead zone" to characterize the area.

Response:

Two samples, including 1 core, from the "dead zone" were analyzed in 1994 and found to contain low to moderate levels of contaminants (Stations 1 and 10; Quinn et al., 1994). This zone is the area between proposed stations 4 and 5 in Figure B4-1. Nevertheless, two additional sample stations will be included in this zone. One station will be a surface sample only, and the second station will include a core station, which will include surface, mid and depth samples (total of 4 additional samples at two stations).

Addendum B will be revised to reflect these changes.

Comment No. 4:

Addendum B, Section 4.1.1, Sediment Sampling Plan: Page 18, Paragraph 3.
Addendum C, Section 4.1.1, Sediment Sampling Plan: Page 21, Paragraph 2.

"The site is proximate to the Jamestown sewage treatment plant outfall, and thus is an ideal reference site for assessing contaminant impacts in the absence of Navy activities."

The Work Plan indicates that the Jamestown site will be used to determine impacts unrelated to Navy activities. The report should indicate whether contaminants from the Jamestown site enter Coddington Cove. In addition, please be advised that it is not appropriate to use the results from the outfall site to diminish the impact associated with the Navy site.

Response:

At this point in time it is not possible to unequivocally say that contaminants from the Jamestown site do not enter Coddington Cove. The results of the physical oceanography survey of Coddington Cove will allow us to assess the magnitude and direction of contaminant fluxes within the study area. The Addenda will be revised to include this point.

Comment No. 5:

Addendum B, Section 4.1.1, Sediment Sampling Plan: Page 18, Paragraph 3.
Addendum C, Section 4.1.1, Sediment Sampling Plan: Page 21, Paragraph 2.

"A second reference site, Castle Hill Cove, has been selected as a baseline unimpacted site with similar characteristics as Coddington Cove, but lacks significant industrial development or nutrient loading."

Please be advised that a permitted sewerage outfall existed at the site approximately three years ago. In addition the site was used by the Coast Guard and there is the potential that contaminants from the Coast Guard Operation is present at the site. Finally please provide a map showing the proposed sample location.

Response:

Unimpacted cove sites that contain a fine-grained sediment fraction are not readily available as reference sites in the lower East Passage of Narragansett Bay. The Navy is aware of the sewage outfall and Coast Guard activities. The Navy views Castle Hill Cove as not a perfect reference site, but better than other alternatives. Therefore, the Navy will use it and interpret the results conservatively in light of the previously mentioned potential limitations. The addenda will be revised to include these points.

Comment No. 6:

Addendum B, Section 4.1.1, Sediment Sampling Plan: Page 19, Paragraph 1.
Addendum C, Section 4.1.1, Sediment Sampling Plan: Page 21, Paragraph 4.

"At all stations, surficial sediment (0-2 cm) of an undisturbed grab sample is sampled."

Justification is requested for the proposed sampling depth. Surficial sediment samples should be collected from the zone of bioturbidation. Therefore, the Division recommends collecting samples from a depth of at least 0-20 cm. In addition, the Division recommends that the results of the geophysical/hydrological study be used to determine if samples should be collected from greater depths.

Response:

This issue was raised again at the Ecorisk meeting held June 28, 1995. At that meeting the Navy restated the problems with collecting surface samples to a depth of 20 cm. However, the regulatory representatives agreed that because the zone of bioturbation can be 0-20 cm (particularly in soft sediments), this interval be used as a surface interval for the Derecktor Shipyard/Coddington Cove study area.

In addition, the Navy proposed performing deep core sample collection (to a depth of 10 feet) at 15 stations to determine the vertical extent of contamination and ground-truth the geophysical survey effort.

Addendum B will be revised to reflect these changes. Addendum C will not be revised as a result of this comment until the site-specific issues can be discussed at future EAB meetings.

Comment No. 7:

Addendum B, Section 4.1.1, Sediment Sampling Plan: Page 19, Paragraph 1.
Addendum C, Section 4.1.1, Sediment Sampling Plan: Page 21, Paragraph 4.

"At all stations, surficial sediment (0-2 cm) of an undisturbed grab sample is sampled."

The Work Plan proposes performing biotoxicity test on surficial sediment samples. The Division recommends collecting at least one sample from the deep core from areas considered heavily contaminated. This test should be done on a highly contaminated core.

Response:

This issue was raised again at the Ecorisk meeting held June 28, 1995. Because the surface sample interval was changed to 0-20 cm (see comment 6, above), and thus the toxicity tests will be performed on sediment from that interval, the issue was considered resolved for the Derecktor Shipyard/Coddington Cove study.

Addendum B will be revised to reflect these changes. Addendum C will not be revised as a result of this comment until the site-specific issues can be discussed at future EAB meetings.

Comment No. 8:

Addendum B, Section 4.1.1, Sediment Sampling Plan: Page 19, Paragraph 1.
Addendum C, Section 4.1.1, Sediment Sampling Plan: Page 21, Paragraph 2.

This section of the report discusses the proposed locations of sediments samples. The plan indicates that sediment samples will be used to alleviate data gaps or investigate known areas of contamination.

A number of studies have been performed at this site. These studies have been conducted by Derecktor Shipyard, the Navy Base and the Northern Division. All of these reports have not been made available to the public. In addition there has not been a comprehensive report which combines the information from all of these studies. Based upon the discussions in this section of the report it appears that the results of these studies were utilized in the selection of the sediment sample locations. The Division requests that this information be included in the Work Plan to allow for proper review of the proposed sample locations. The Division is not requesting or anticipating the ***need*** *to include an elaborate report in the Work Plan. The Division simply recommends utilizing figures and/or tables which depict contaminant distribution at the site.*

Response:

Results of onshore investigations will be used in development of the CoC list for the offshore work plan. Original data and proposed CoCs presented at the EAB meeting June 28, 1995 will be included in the revised work plan. The pertinent results of the GSO/URI Study of Coddington Cove (Quinn et al., 1994) that were used to select the station locations were included in Addendum "B" as Figure B2-1 and Table B2-1. In addition, a copy of that report was sent to DEM on June 16, 1995. The corresponding results for Old Fire Fighter Training Area were included in Addendum "C" as Figure C2-1 and Table C2-1 (Battelle Ocean Sciences, 1994, as reported in TRC, 1994). Figures B2-1 and C2-1 will be properly referenced in the addenda.

Comment No. 9:

Addendum B, Section 4.1.2, Biota Sampling Plan: Page 20, Paragraph 2.
Addendum C, Section 4.1.2, Biota Sampling Plan: Page 22, Paragraph 3.

This section of the report indicates that mussel deployments will be used at the site.

The report should indicate the proposed depth of the mussel deployment, that is how many centimeters above the sediment. The Division recommends placing the deployments in intimate contact with the sediment. If mussels are not suited for this test the Division recommends utilizing clams, oysters, or other suitable bivalves.

Response:

Deployed mussels as a measurement endpoint are intended to characterize water column conditions. The Navy proposes mussel deployments to be 1 meter above bottom so as to allow exposure to resuspended sediments but not allow direct contact with bedded sediment. Other target species (i.e. Mercenaria) are proposed for assessment of the bedded sediment exposure pathway.

Comment No. 10:

Addendum B, Section 4.1.3 Geophysical/Hydrographic sampling plan: Page 20, Paragraph 5.
Addendum C, Section 4.1.3 Geophysical/Hydrographic sampling plan: Page 23, Paragraph 3.

This section of the report outlines the geophysical/hydrographic investigations to be conducted at the site.

The report should indicate that the results of these studies will be used in conjunction with other information to fine tune sediment sample locations.

Response:

The report at present implies that the results of surveys will be used to fine tune the sediment sample locations in Addendum "B", Section 3.3 and Addendum "C", Section 3.3. We plan to insert the following sentence at the end of the paragraphs describing the hydrographic and geophysical surveys in the Section 3.3 of each addendum:

"The results of the survey will be used to fine tune sediment sample locations."

Comment No. 11:

Addendum B, Section 4.1.3 Geophysical/Hydrographic sampling plan: Page 20, Paragraph 5.

The Work Plan has delineated the proposed location of the transects.

The Work Plan has not proposed placing a transect in the area in between the piers (area of proposed station 7). Considering the past uses of this area, a transect should be performed.

Response:

The Navy agrees with this point and a transect between the piers has been added to the hydrographic survey. The geophysical survey is designed to achieve complete coverage of Coddington Cove. Figure B4-2 has been modified to reflect the added transect.

In addition, a hydrographic transect will be added in the "dead zone" to provide information on the circulation patterns in this area. Addendum B will be modified to describe these additions.

Comment No. 12:

Addendum B, Section 4.2.1, Chemical Analysis: Page 22, Paragraph 1.
Addendum C, Section 4.2.1, Chemical Analysis: Page 24, Paragraph 1.

This section of the report discusses the chemical analysis to be performed at the site.

Due to the nature of the contaminants at the site the Division recommends analyzing sediment samples for ***TPH.***

Response:

Samples will not be analyzed for TPH as previously discussed in the January 17, 1995, response to RI DEM comments on the NETC Work Plan:

"The Navy does not agree with adding TPH analysis to the list of analytical tests to be performed. The Navy cannot technically justify allocating funds for performing TPH analysis which, due to the lack of TPH toxicological benchmarks, yields data that have no scientific value to support human health or ecological risk-based clean-up goals. In addition, toxicity testing will act as an indicator if there are other contaminants present which were not detected under the SVOC analysis. If RI DEM feels the SVOC scan is limited and is aware of another chemical of concern which should be added to the list of target analytes, the Navy requests the analyte(s) be proposed for inclusion. This approach is more acceptable to the Navy rather than performing the TPH analysis which as a class of chemicals is poorly and inconsistently defined."

Comment No. 13:

Addendum B, Section 4.2.3, Biological Assays: Page 23, Paragraph 2.
Addendum C, Section 4.2.3, Biological Assays: Page 25, Paragraph 7.

"All surface grab samples will be evaluated for bulk sediment and pore water toxicity using the amphipod 10 day acute test and the sea urchin fertilization test respectively."

As discussed previously the Division feels that toxicity test should be performed on deep cores. Therefore, this section of the report should be modified accordingly.

Response:

As described in response #7 (above) the surface sample target depth interval for the Derecktor Shipyard/Coddington Cove study area has been increased to 0-20 cm. This change resolved the concern stated above. This change will be reflected in Addendum B. Addendum C will not be revised as a result of this comment until the site-specific issues can be discussed at future EAB meetings.

Comment No. 14:

Addendum B, Section 4.2.3, Biological Assays: Page 23, Paragraph 4.
Addendum C, Section 4.2.3, Biological Assays: Page 26, Paragraph 2.

This section of the report discusses the diversity analysis to be conducted at the site. The information available in tables B/C 4-2 would seem to indicate that these analysis will be conducted on near shore and far shore samples. Please confirm. If this is not the case, the Division recommends conducting diversity analysis on near and far shore samples.

Response:

Text will be included in Sections 4.2.3 of Addenda B and C to indicate that diversity analysis will be conducted on both near shore and far shore sampling stations, as indicated in Tables B4-2 and C4-2.

Comment No. 15:

Addendum B, Figure B4-1: Proposed URI/SAIC Sampling Locations.
Addendum C, Figure C4-1: Proposed URI/SAIC Sampling Locations.

This figure depicts the location of the samples to be collected from the sites.

Due to the scale of the figures the Division recommends including a table which delineates the distance of the samples from the shore.

Response:

At present, the sampling locations are approximate pending the results of the hydrographic and geophysical surveys. These surveys will be used to fine tune the final locations. Figures in the respective ecological risk assessment reports will reflect the final locations after this fine tuning occurs. The final location of the stations will be as close as possible to the center of the large symbols used in the figures. Also, please notice that graphic scales in feet are presented in each figure.

Comment No. 16:

Addendum C, Table C2-1: Organic Contaminants in Surface Sediment of Coasters Harbor.

Please provide the measurement units for this table.

Response:

The concentration units for Table C2-1 are ug/Kg dry weight. The table will be revised accordingly.

Comment No. 17:

Addendum B,, Table B2-4: Exposure point measurement for Derecktor Shipyard.
Addendum C, Table C2-4: Exposure point measurement for Old Firefighter Training Area.

The table should include a footnote which will delineate which pathogens indicators will be measure or quantified.

Response:

The table will be revised accordingly.

Comment No. 18:

Addendum C, Figure C4-1: Proposed URI/SAIC Sampling Locations.

The area encompassed by this figure is to large too provide useful information concerning the locations of the samples with respect to the site. The Division recommends providing a figure with a coverage which is similar in area to C2-

Response:

At present site locations are approximate pending the results of the hydrographic and geophysical surveys. Once final decisions on station locations have been made, then a more detailed figure will be prepared.

Comment No. 19:

Addendum C, Figure C4-2: Proposed URI/SAIC Sampling Locations.

This figure delineates the proposed transects locations.

The Navy may want to consider placing a transect along the side or close to the causeway bridge as it may provide important information.

Response:

We will do an additional transect line on the north side of the causeway bridge in order to better constrain the local circulation and flushing in this area of the harbor. Figure C4-2 has been modified to reflect the location of this new transect line.

REFERENCES

Battelle Ocean Sciences, 1994. Final Report, Off-Shore Investigation of the Site 01–McAllister Point Landfill, Site 02–Melville North Landfill, Site 09–Old Fire Fighting Training Area at the Naval Education and Training Center (NETC), Newport, Rhode Island, Assessment of Chemical Contamination, Prepared for the Naval Education and Training Center, Newport, RI, July 21, 1994.

Quinn, J.G., J.W. King, R.W. Cairns, P.F. Gangemi, and T.L. Wade, 1994. Draft Final Report, Chemical Contaminants in Marine Sediments from the Former Derecktor Shipyard Site at Coddington Cove, Newport, RI, Phase II, Prepared for the Naval Education and Training Center, Newport, RI, December 2, 1994.

TRC Environmental Corporation (TRC), 1994. Draft Final Old Fire Fighting Training Area Remedial Investigation Report, Prepared for Northern Division, Naval Facilities Engineering Command, Lester, Pennsylvania, August.