



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1

1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

June 18, 2003

John C. Drobinski, P.G., LSP
Environmental Resources Management
399 Boylston Street, 6th Floor
Boston, Massachusetts 02116

Re: Risk-Based Disposal Approval Application
Former Raytheon Facility
430 Boston Post Road
Wayland, Massachusetts

Dear Mr. Drobinski:

This is written in response to your December 23, 2002 Application for a Risk-Based Disposal Approval (Application) for the former Raytheon Facility, located at 430 Boston Post Road, Wayland, Massachusetts (the Site). This Application was prepared and submitted by ERM on behalf of the Raytheon Company (Raytheon) to support a risk-based cleanup and disposal plan for PCB-contaminated materials on the Site under 40 CFR §761.61(c).

Additional documents were submitted in support of the Application, and include:

- Phase I. Initial Site Investigation, May 1996
- Phase II, Comprehensive Site Assessment, Vol I, November 28, 2001
- Phase II, Comprehensive Site Assessment, Vol II - Appendix A-E, November 27, 2001
- Phase II, Comprehensive Site Assessment, Vol III - Appendix F-G, November 27, 2001
- Phase II, Comprehensive Site Assessment, Vol IV - Appendix H, November 27, 2001
- Phase II, Comprehensive Site Assessment, Vol V - Appendix H, November 27, 2001
- Phase II, Comprehensive Site Assessment, Vol VI - Appendix I-J, November 27, 2001
- Phase III. Remedial Action Plan, November 28, 2001
- Phase IV. Remedy Implementation Plan, Vol 1, December 30, 2002
- Phase IV. Remedy Implementation Plan, Vol 2 - Appendix A-F, December 30, 2002
- Phase IV. Remedy Implementation Plan, Vol 3 - Appendix F-L, December 30, 2002
- Response to Public Comment, December 19, 2002
- Environmental Risk Characterization of the Wetlands Adjacent to the Former Raytheon Facility, Wayland, Massachusetts November 09, 2001
- Information Supplement - Application for Risk-Based Disposal Approval, April 3, 2003
- Second Information Supplement - Application for Risk-Based Disposal Approval, May 8, 2003

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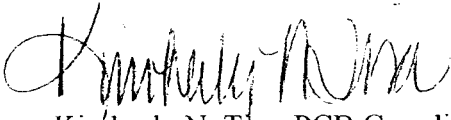
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The above documents with the December 23, 2002 Application shall be considered "the Application". EPA has conducted a review of the Human Health and Ecological Risk Assessments which were submitted in support of Raytheon's Application; preliminary comments on these assessments are attached. Please be aware that upon completion of EPA's review, additional comments may be forthcoming.

Should you have any questions, please feel free to contact me at (617) 918-1527.

Sincerely,

A handwritten signature in black ink, appearing to read "Kimberly N. Tisa". The signature is fluid and cursive, with the first name being the most prominent.

Kimberly N. Tisa, PCB Coordinator
Office of Ecosystem Protection

cc: E. Madera, Raytheon Company
J. McTigue, ERM
R. Leary, ERM

GENERAL COMMENT on GROUNDWATER PATHWAY DATA

1. With respect to PCBs, the Application focuses on remediation of the wetland. As justification, the Application describes that Raytheon has conducted removal of PCB-contaminated soils on the upland areas and has remediated all soils to less than 1 part per million (< 1ppm) PCBs and has removed and/or cleaned all drainage piping and collection basins. Further, the Application indicates that no PCB contamination was found in the groundwater.
 - a. While the data is provided for the soils and drainage system, sufficient information was not provided for the groundwater.
 - i. Phase II, Vol. I, Table 6 - indicates that PCB samples were collected from MW-1, MW-7, MW-10, and MW-TP-3. Table 8b summarizes the results from MW-1, MW-7, and MW-10; however, no information was provided on MW-TP-3. With respect to MW-1, MW-7, and MW-10, the data is reported as below the detection limit. No information was provided on what the detection limit was for these samples. Further, none of the samples in question were found in Phase II, Appendix G.

Since the SQLs take into account sample characteristics, sample preparation, and analytical adjustments, they are the most relevant quantitation limits for evaluating non-detected chemicals.

The EPCs should be recalculated using one-half of the SQLs as the proxy concentrations for non-detectable sample results.

- To verify the Exposure Point Concentration (EPC), I performed the D'Agostino test (>50 samples) on the sediment data (using 0.5*MDL for the non-detects, as shown in submitted Table 1a of the *Second Information Supplement*) to test for normality or lognormality. Based on the test, the data collected for the sediment in the Surrounding Area is neither normal nor lognormal. In such instances, the EPC should be based on the maximum concentration (from Table 1b of the *Second Information Supplement*: Aroclor 1254 - 6.56 mg/kg and Aroclor 1260 - 5.98 mg/kg). Since the non-detects should be substituted by one-half of the SQL (discussed above), the results of the D'Agostino test may differ if the SQL is used instead of the MDL. When the sampling data are revised using the SQLs, the D'Agostino test (or similar statistical test) should be performed and results of the test should be discussed and presented as part of the Risk-Based Disposal Application.

The dioxin and furan sampling data (as 2,3,7,8-TCDD equivalent) were tested for normality using the Shapiro-Wilk Test (sampling population < 50). The results indicate that the data distribution is neither normal nor lognormal. Thus, as with the PCB data, the maximum detected concentration should be used as the EPC for 2,3,7,8-TCDD equivalent (dioxins/furans).

- According to the *Information Supplement*, the footprint of the area proposed for remediation was extended to include additional wetland locations within the area of readily apparent harm (ARAH) (Figure 2). A number of the surface water sampling locations previously considered to be in the Surrounding Area (SA) are now in the excavation area and, thus, are not currently included in the PCB surface water EPC for the SA. Table 2 (Appendix A) of the *Second Information Supplement* (May 8, 2003) presents the results from the five surface water samples from the SA. Only one of these five samples was analyzed for PCBs, which were found to be below the method detection limit. I was unable to find the laboratory results for this sample in Appendix I (Laboratory Analytical Results - Surface Water) of the Phase II Comprehensive Site Assessment and, thus, was unable to determine what the SQL was for the non-detect sample. Typically, for risk assessment purposes, the result for one sample does not provide sufficient data to eliminate an exposure pathway. However, at a minimum, a risk estimate should be made using one-half of the detection limit for the non-detected sample.

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I
OFFICE OF ENVIRONMENTAL MEASUREMENT & EVALUATION
11 TECHNOLOGY DR, N. CHELMSFORD, MA 01863

DATE: 3/13/03

SUBJ: Review of Ecological Risk Evaluation of wetlands adjacent to former Raytheon facility Wayland, Massachusetts

FROM: David McDonald (ECA)
New England Regional Laboratory

TO: Kim Tisa, USEPA, Region 1, OEP

At your request I have performed a review of the Ecological Risk Assessment(ERA) performed to assess present or potential impacts to the wetlands adjacent to the former Raytheon facility located on Rte 20 in Wayland, MA. Specifically I reviewed the document titled, Environmental Risk Characterization of The Wetlands Adjacent To The Former Raytheon Facility, Wayland, Massachusetts, dated November 9, 2001. As A result of my review I offer the following comments:

The ERA was performed mainly under the guidance of Massachusetts Contingency Plan (MCP) supporting document titled, Guidance for Disposal Site Risk Characterization, Method 3 Environmental Risk Characterization. The first step was the performance of a screening level risk assessment (SLERA) of the adjacent wetland area. As a result of that evaluation, a portion of the wetland under study was determined to be an "Area of Readily Apparent Harm"(ARAH). As such, under Method 3 guidance, this portion, having clearly sustained detrimental impacts requires no further study of risk potential for this particular portion of the study area. Furthermore, results of this SLERA dictated that further study of remaining study area was warranted. Subsequent risk evaluation i.e. Stage II, was performed separating the area ARAH from the area "outside of the ARAH". The Stage II assessment was performed on the area determined to be "outside of the ARAH". That is not to say that further evaluation was not performed including the "ARAH", but that a determination of further remediation as a result of the Stage II evaluation would be directed toward the area "outside of the ARAH"

The Stage II ERA was performed evaluating risk to invertebrate, vertebrate and plant species from exposure to surface water, sediment and wetland soils. The mechanisms of exposure evaluated included direct contact and uptake either directly e.g. plant species or through the food chain.

The ERA was performed, at least in part, using the Hazard Quotient (HQ) method. A comparison of site specific contaminant concentrations were compared to chronic threshold values. The exposure assessed was one based on "area-wide" exposure. I believe that this was an appropriate way to perform the assessment when examining risk to species which are mobile and whose activity patterns are likely to reflect equal use of the whole study area. Performance of this component of the assessment dictates the use of average contaminant concentrations. This was done for the assessment of risk to vertebrate species with exposures involving the COCs in wetland soils.

However, I will add that I do not believe that the assessment was adequately performed for vegetation in the study area. I recommend that the examination of potential "hot spot" exposures be included when considering impacts to sessile species. This would involve the use of maximum concentrations, comparing them to the benchmark identified. I believe that this would correspond to an exception to using average concentrations stated in the Method 3 guidance. When this is performed, comparing maximum exposure point concentrations found in Table 4-13 of the document under review, to benchmarks found in Table 10-4, HQs of 43 and 16 for Cr+3 and Cu, respectively would result. This should support for further consideration of remediation in those locations associated with these concentrations.

In addition, in the evaluation performed, I do not believe the use of concentrations found in the ARAH as denominators when calculating HQs is appropriate. This was performed as Measurement Endpoint C, Assessment Endpoint #2. When calculating an HQ value, as stated in the document, you are to be comparing site concentrations to values constituting some effect threshold. The concentrations corresponding to the area where stunted growth were found should not be considered a threshold value but rather a concentration that at some point exceeds an effects level.

Lastly, if this outfall is still discharging, I would draw attention to the pH levels of the effluent. The pH of the effluent during the October 2000 sampling was in the 4-5 range lower at the discharge higher as you move farther downstream. I would raise this in conjunction with information found on Page 7-15. This information discussed the lack of invertebrates found at the time of sampling and speculated a cause as either seasonality of habitat. While not actually seeing the physical characteristics of the substrate in the swale bed, I could suppose that because it has a meandering pattern running through a vegetated zone before discharging to the Sudbury River one would expect to see a substrate that was conducive to invertebrates. At pH levels in the ranges detected, the question I would ask is why not water quality conditions in the swale.

If you have a question or require clarification please feel free to contact me at (617) 918-8609 or by email at mcdonald.dave@epa.gov.