



THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 230



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DEPARTMENT OF THE ARMY 230
MOBILE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2288
MOBILE, ALABAMA 36628-0001

File:
C.G. 541. 460. D

received
10 April 97

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REPLY TO
ATTENTION OF:

CESAM-EN-GH (200)

7 April 1997

MEMORANDUM FOR COMMANDER, Defense Distribution Depot Memphis, ATTN
DDMT- DE (Mr. Glen Kaden), 2163 Airways Blvd.
Memphis, TN 38114-5210

SUBJECT: Response to Comments on Draft Baseline Risk Assessment for Golf Course
Impoundments

1. Enclosed are the response to comments received on the subject project. As requested in your letter of 27 March 1997, our plan is to provide the final document within two weeks of receipt of any modifications that the BCT Project Team might require.

2. Should you have any questions, please contact Mr. Ellis Pope at (334) 690-3077 or myself at (334) 690-2709.

FOR THE COMMANDER:

Encl

MICHAEL H. THOMPSON
Chief, Hazardous/Toxic Waste and Environmental
Support Section

RADIAN
INTERNATIONAL LLC

1093 Commerce Park Drive
Suite 100
Oak Ridge, TN 37830-8029
(423) 483-9870 (Main)
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March 24, 1997

U.S. Army Corps of Engineers
Attn: CESAM-EN-GH (Mr. Robert P. Beacham)
109 Saint Joseph Street
P.O. Box 2288
Mobile, AL 36628-0001

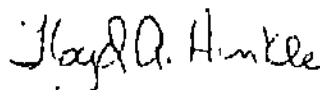
Subject: Responses to Comments Draft Baseline Risk Assessment for Golf Course Impoundments
at the Defense Depot, Memphis, Tennessee

Dear Mr. Beacham:

Radian has received comments from Defense Depot, Memphis, Tennessee (DDMT), Defense Distribution Region East (DDRE), the Tennessee Division of Superfund (TDSF), and EPA Region 4 on the draft "Baseline Risk Assessment for Golf Course Impoundments at the Defense Depot, Memphis, Tennessee." Radian's responses to those comments are attached.

Please call Patrice Cole at (423)220-8165 if you have any further questions or comments in this regard.

Sincerely,



Lloyd A. Hinkle
Program Manager

LAH:esm

Attachment

c: Kurt Braun, CESAM-PM-SP
Patrice Cole, Radian

RESPONSES TO DDMT COMMENTS
Lake Danielson and Golf Course Pond Risk Assessment
March 21, 1997

- Comment:** The title of the facility is the Defense Distribution Depot Memphis. Please change this throughout the document including on the cover.
- Response:** This change will be made.
- Comment:** This document should have a brief Executive Summary that describes the document including the conclusions and recommendations.
- Response:** An Executive Summary will be added.
- Comment:** Page 1-4, first paragraph. Please delete "limited to" in the second sentence of this paragraph. Also delete the last sentence of this paragraph. That sentence is not required, and doesn't aid the purpose of this document.
- Response:** These changes will be made.
- Comment:** Page 2-3, first complete paragraph. Please delete the "or" after the second comma in this sentence. Add a fourth clause to the end of the sentence that states the possible "no further action" alternative. Then the following sentence, which concerns what justifies a no further action decision, will be easily understood.
- Response:** The second sentence in the indicated paragraph is intended to describe the types of approaches that can be taken to reduce the risk associated with exposure to any contaminated area. Risk is present everywhere, in varying magnitudes; therefore, risk management can be employed to reduce risk even when the magnitude of risk is estimated to be very low. "No action" is not a risk management activity. The last sentence explains that "no action" might be appropriate where risk is low and/or risk management costs are very high. No change will be made.
- Comment:** Page 3-2, figure 2-1. There are some mistakes with the golf course map. Please examine the designations for the 7th and 8th holes of the course.
- Response:** The figure will be corrected.
- Comment:** Page 3-3, second complete paragraph. It is not clear from this document whether or not the fish tissue analysis done in 1986 by USAEHA was edible portion or total fish sample results. When I reviewed the 1986 USAEHA report there was only one work, "filleted," that indicated edible portions were analyzed. To base the conclusions of the baseline risk assessment on the analyses of four catfish samples from over ten years ago, which we're still

not sure were actually edible portion, seems very tenuous. This is an especially tenuous relationship when the main risk that was indicated by the Baseline Risk Assessment is from fish consumption.

Response: The word "filleted" would certainly indicate that edible portions of the fish collected were analyzed for pesticide contamination. The uncertainty analysis section of the risk assessment report addresses the "tenuous" nature of the conclusions that are drawn on the basis of a few samples collected 10 years ago. That is why the conclusions and recommendations section suggests collecting additional fish tissue samples for pesticide analysis rather than recommending remediation of the contaminated sediment.

Comment: Page 3-3, Section 3.1 title. Please reference the RI as the 1990 RI.

Response: This change will be made.

Comment: Page 3-4, both the first two paragraphs. Would it be appropriate to show the data in tabular form? The levels detected could be easily compared to background levels, and tables would also allow for the presentation of the Risk Based Concentration (RBC) screening values. This data discussion could be simplified if these three items (our site data, background, and RBCs) were presented across one row of a table.

Response: The site sediment data are presented in Table 3-1. RBCs are not available for sediment. The reference for background concentrations is given as a range of values summarized for all three chemicals, rather than an individual background value for each chemical. Thus, it would be awkward to try to fit the background reference into Table 3-1, which gives individual concentration values for each chemical.

Comment: Page 3-5, Table 3-1. Are the not detected symbols (-) missing from the row of 4,4 DDT results?

Response: Yes, they are. "Not detected" symbols will be added to the last row of Table 3-1.

Comment: Page 4-2 and page 4-4. Please move the paragraph (page 4-4, third paragraph) about why a male youth was selected as the appropriate receptor population to the beginning of page 4-2. This will explain why a "Boy" is the focus of the exposure scenario discussion before the actual discussion. Replace all references to boys and girls with male youths and female youths, respectively. This eliminates any possibility of the perception of insulting language, yet fully describes the scenarios we are evaluating.

Response: "Boys" and "girls" will be replaced with "male youths" and "female youths," respectively. However, the referenced paragraph will not be moved as suggested, since it addresses both the exposure scenario described on page 4-2 (swimming) and the exposure scenario described on page 4-4 (fishing). Explaining part of the rationale for the fishing scenario before the scenario is described might confuse the reader.

Comment: Page 4-5, first complete paragraph on page, third sentence. Please change "form" to "from."

Response: This change will be made.

- Comment: Page 6-1, third (last) paragraph, second sentence. Please cite the NCP as 40 CFR 300.430(e)(2)(I)(A)(2). The lower end of the risk range demonstrated is incorrect. The 1E-07 should be 1E-06.
- Response: The citation for the NCP will be added; however, the lower end of risk remediation goals put forth in the NCP is 1E-07, so that change will not be made. (See, for example, page 8-25 of Risk Assessment Guidance for Superfund).
- Comment: Page 8-1, second paragraph. The document mentions that sources of uncertainty for the golf course fish sampling are: the maximum concentrations used due to limited quantities of samples, the age of the sampling results, and the current number and species types of fish in the ponds. Please add to the list of uncertainty sources the assumption that the samples taken in 1986 were edible portions. It should be mentioned that this assumption provides a conservative or higher risk bias.
- Response: This change will be made.
- Comment: Page 9-1, first paragraph, fourth sentence. The assumptions listed that resulted in the 3 in 100,000 risk of getting cancer does not include the assumption that the historical data from fish sampling is edible portion sampling. Please refer to comment 12.
- Response: This change will be made.

RESPONSES TO DDRE COMMENTS
Lake Danielson and Golf Course Pond Risk Assessment
March 21, 1997

- Comment:** Page 1-1, third paragraph, second sentence. Is the sentence about the City of Memphis expressing interest in obtaining the golf course necessary? If the sentence is not necessary, please remove the sentence.
- Response:** Unless any other commenters feel that the sentence is necessary, it will be removed.
- Comment:** Page 1-3, figure 1-2. Please use a better picture that indicates the Depot boundaries and more buildings.
- Response:** The figure is intended to locate the golf course and the golf course impoundments relative to other areas of the Depot. The Depot boundary is indicated by the outline (edge) of the site layout. Adding other buildings to the figure would clutter it and make it difficult to locate the golf course and impoundments. No change will be made.
- Comment:** Page 3-3, paragraph 1, line 3. "Lake Danielson, and perhaps the Golf Course Pond, were used in the 1950s to test the operation of boats and small landing craft." Please verify this statement or remove it from the document.
- Response:** Depot personnel were interviewed to obtain information regarding past uses and practices involving the impoundments. It would be very difficult to obtain verifiable documentation of this statement, and such documentation would not contribute anything to the risk assessment. Unless other commenters feel that the statement should be included, it will be removed from the document.
- Comment:** Additionally, the sentence which reads, "One incident in 1976 was associated with pesticide runoff into the Lake (Law Environmental, 1990)" must be verified. If the 1990 Law Environmental Remedial Investigation does not support this comment, delete it. Please cite in the Baseline Risk Assessment the section and page number of the reference if it can be found in the Law report. All references should be handled in this manner.
- Response:** It is not standard practice to obtain separate documentation of a statement referenced from another source that is cited in the document. Furthermore, it is not standard practice to cite the section and page number when referencing another source. The suggested changes will not be made.
- Comment:** Page 4-1, paragraph 2, line 4. Please replace the sentence, "The golf course is likely to remain in its current use under the ownership of the City of Memphis" with the following: "After the Depot closes, it is anticipated that the golf course will be reused for like use."
- Response:** This change will be made.
- Comment:** The document generally refers to a lack of data and a high level of uncertainty associated with the use of existing data. While I tend to believe all risk assessors will always state the need for more or better information, in this case I believe these statements are warranted. The main risk posed by the contaminants which is cited by the document is through the ingestion

of fish. We're placing much of the weight of the conclusions on just four fish samples that are over ten years old.

An example of the document citing the inadequacy of the existing data is page 8-1, paragraph 2, lines 1,2,7,10, and 11. The terms used in this section are "small number of sediment samples collected," "source of uncertainty," "the uncertainty that the highest concentrations actually occurring," "fish currently living in the impoundments are unknown, so the potential for someone to catch and eat fish from the golf course impoundments is unknown for the present and future."

I believe that this problem with data quality and quantity make the conclusions of this document tenuous at best. More field work needs to be done to support the conclusions.

Response:

This comment reflects the overall conclusion of the document, which is that more data should be collected (especially with regard to current fish tissue contaminant concentrations) before making a decision regarding remediation of contaminated sediments in the impoundments.

RESPONSES TO TENNESSEE DIVISION OF SUPERFUND COMMENTS
Lake Danielson and Golf Course Pond Risk Assessment
March 21, 1997

- Comment:** The document is clear and logical although brief. It appears to adequately address the issue of whether contamination of the Depot Golf Course ponds poses an unacceptable risk. The Division concurs with the recommendations expressed in Section 9.0.
- Comment:** Figure 3-1, page 3-2. Please add an explanation of the golf hole symbols to the legend. Please show the location of lake and pond overflow points as well as discharge locations.
- Response:** These changes will be made.
- Comment:** Section 9.0, page 9-2, third sentence. The word "fore" is used instead of "for."
- Response:** This change will be made.

RESPONSES TO EPA REGION 4 COMMENTS
Lake Danielson and Golf Course Pond Risk Assessment
March 21, 1997

Comment: Given the fact that chlorinated pesticides are present, an assessment endpoint such as eggshell thinning in piscivorous birds should have been chosen. Nowhere is this discussed.

Response: Radian contacted Mr. Dann Spariosu of EPA Region 4 in October 1996 to elicit his concerns for the golf course impoundments before the risk assessment was conducted. The purpose of contacting Mr. Spariosu was to ensure that the risk assessment would address all media, receptors, and exposure pathways of concern to EPA Region 4. At that time, Mr. Spariosu stated that fishing and fish ingestion by humans was the only pathway of concern for the golf course impoundments. Radian pointed out that the contaminants of concern at the golf course impoundments are known to cause eggshell thinning in piscivorous birds, but Mr. Spariosu replied that quantification of ecological risk was not warranted, because the area is "not significant or high quality wildlife habitat."

Comment: The region 4 sediment screening values should have been used rather than the Hull and Suter numbers. The Suter numbers are derived from literature value [sic] and the authors have not provided details of their calculations.

Response: The risk assessment report will be modified to compare sediment contaminant data from the golf course impoundments to the EPA Region 4 sediment screening values. The maximum detected concentrations of contaminants in the golf course impoundments' sediment are below EPA Region 4 sediment screening values for those contaminants.

Comment: The text mentions removal of fish from the lake. This may be appropriate, but the procedure for ecological risk assessment presented in the region 4 guidance should be followed.

Response: The suggestion that fish could be removed from the lake was made in the context of the human health risk assessment, since removal of the fish would eliminate the link between sediment contamination and human exposure. With regard to the ecological risk assessment, the procedure presented in Region 4 guidance will be followed. The latest Region 4 guidance (Office of Technical Services, Supplemental Guidance to RAGS: Region 4 Bulletins, March 19, 1997) states that a Preliminary (ecological) Risk Evaluation (PRE) consists of five steps: 1) Ecological Screening Value Comparison, 2) Preliminary Problem Formulation, 3) Preliminary Ecological Effects Evaluation, 4) Preliminary Exposure Estimate, and 5) Preliminary Risk Calculation. The guidance also states that, "The last four steps are conducted only if comparisons of site analytical data with EPA Region 4 ecological screening values indicate a need for further ecological risk evaluation." Since none of the contaminants exceed Region 4 sediment screening values, no further ecological risk evaluation will be conducted.

Comment: How was the epc for fish tissue determined? There was only one indication that it might be based on sampling. This occurs on page 8-1 in the uncertainty analysis. This is highly suspect. The fact that very little data was presented in this risk assessment causes me to question its value.

Response: Radian assumes that the commenter's use of the undefined acronym "epc" refers to the exposure point concentration for fish ingestion. The second paragraph on page 3-3 of the draft risk assessment report states, "Fish tissue samples were collected from Lake Danielson and the Golf Course Pond and analyzed for pesticides in 1986. Chlordane, dichlorodiphenyltrichloroethane (DDT), dichlorodiphenyldichloroethane (DDD), and dichlorodiphenyldichloroethene (DDE) were detected in both sediment and fish tissue samples [U.S. Army Environmental Hygiene Agency (AEHA) 1986]." The second paragraph on page 4-4 of the draft risk assessment report states, "The catfish tissue pesticide data from the 1986 investigation by AEHA were used as the representative exposure concentrations in fish." The actual pesticide concentrations in fish tissue that were used to quantify risk are presented in the spreadsheet in Appendix A of the draft risk assessment report. All available data were described in the draft risk assessment report and were used in conducting the risk assessment.

Comment: The way the risk assessment was organized suggests that the writer was trying to hide something.

Response: The risk assessment report was organized in strict adherence to EPA's Risk Assessment Guidance for Superfund. Without any specific statement of the elements that the commenter finds questionable, Radian is unable to respond to this spurious comment.

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