



AK RIDGE RESERVATION

Environmental Management

April 1, 1997

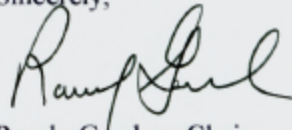
Mr. Rod Nelson
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RE: DOE's Proposed Plan for Clinch River/Poplar Creek
Operable Unit dated October 16, 1996

Recently, there was an opportunity for public comment on DOE's Proposed Plan for the Clinch River/Poplar Creek Operable Unit dated October 16, 1996. The Oak Ridge Reservation Environmental Management Site Specific Advisory Board (ORREMSSAB) provided the enclosed comments during this opportunity. Since this proposed plan has modest but long term effects on the areas around the Clinch River, we felt that you might be interested in these comments.

The ORREMSSAB is a citizens panel providing advice and recommendations to the Department of Energy on its Oak Ridge environmental programs.

Sincerely,



Randy Gordon, Chair

RG/sb

Enclosure

Proposed Plan for the Clinch River/Poplar Creek Operable Unit
Oak Ridge, Tennessee (Issued October 16, 1996)

Comments/Recommendations from the
Oak Ridge Reservation Environmental Management
Site Specific Advisory Board
February 4, 1997

The Oak Ridge Reservation Environmental Management Site Specific Advisory Board (ORREMSSAB) appreciates the opportunity to comment on the Proposed Plan for the Clinch River/Poplar Creek Operable Unit ("the Plan"). The Plan is based on the Remedial Investigation/Feasibility Study for the Clinch River/Poplar Creek Operable Unit (RI/FS) which appears to have been a thorough study. We have noted some aspects of the Plan and the RI/FS that we believe should be modified or clarified by the DOE. These recommendations are summarized below.

1.0 Near-Shore Sediment

In the Plan, only sediments in the main channel of the Clinch River or main creek bed of the Poplar Creek are noted to present potential risk to human health. Nothing is said in the Plan about how the preferred alternative protects the public from contamination of near-shore sediments. A reader could conclude that no significant levels of contaminants were found to be present in near-shore sediments. For instance, Tables E-35 through E-37 (Appendix E, RI/FS) clearly show that a number of contaminants exceed the acceptable non-carcinogenic hazard index of 1.0 for several reaches of the Clinch River and Poplar Creek. The carcinogenic risk level of 10^{-4} (1 part in 10,000) is also exceeded when risks are added across pathways for some subreaches.

There is no indication in the Plan why these risk levels are acceptable. An alternative to reduce these risks should be favored unless there is valid reason to discount these high levels. Either some institutional control to inhibit human contact with near-shore sediment in the less safe reaches must be devised and shown effective, or the most seriously contaminated near-shore areas that are accessible should be treated in a manner similar to Alternative 3 or 4.

The RI/FS indicates that many of the high risk levels are within the reservation along Poplar Creek and are therefore under institutional control preventing residential use. Since such control is important, **the ORREMSSAB recommends that this control be listed in the preferred alternative.** Such controls must also seek to prevent sediment contact by fisherman who may access Poplar Creek by boat and wade in shallow portions.

Also, some of the Clinch River reaches with unacceptable risk levels are outside the ORR and the ORREMSSAB is concerned that risks from exposure to contaminants in near-shore sediment in recreational areas are not well characterized. In the RI/FS, data for near-shore sediment were analyzed by subreach and the presence of recreational areas was not emphasized. Samples collected were surface "grab" samples that extended only to about 10 cm in depth.

For instance, the Kingston City Park is located in subreach 4.04. This subreach begins at the Park and extends for 1.5 miles to the mouth of the Clinch River. According to Table C-1 (Appendix C of the RI/FS), 25 near-shore sediment grab samples were collected in subreach 4.04. These data were used to obtain one representative concentration that was used to calculate risk for subreach 4.04. However, only two samples were collected from the Kingston City Park area, and it is not clear whether any samples were taken from the swimming area. Risks were not calculated for the Kingston City Park itself. Therefore, **the ORREMSSAB recommends that** core samples be collected at 50 ft. to 100 ft. intervals at known recreational areas along the Clinch River prior to the Record of Decision. Based on the habits of recreational swimmers, samples should be collected from the floodline to a summer water depth of 7 ft. Samples should be collected throughout the sediment column to a depth of at least 12 inches when possible. These data should be analyzed for the contaminants evaluated in the RI/FS and carcinogenic and noncarcinogenic risk should be calculated for each recreational area.

In the risk assessment contained in the RI/FS, the risk from exposure to contaminants while swimming is discussed. This scenario includes wading, but dermal contact with near-shore sediment is not evaluated (page 5-21, RI/FS). People wading would certainly contact the sediment, both surface sediments and sediments below the surface. Although exposure to near-shore sediment while walking in the fall and winter when the water level in the reservoir is at its lowest is included in the "shoreline use scenario" (page 5-20, RI/FS), it is conceivable that a person could contact near-shore sediment under both the swimming and shoreline use scenarios, depending on the season. Because risks are additive, **the ORREMSSAB recommends that** exposure to near-shore sediment should be included in the swimming/wading scenario at recreational areas. Near-shore core sample data (as described in the previous paragraphs) are needed to assess this exposure scenario.

On pages 5-39 and 5-40 of the RI/FS, the importance of manganese as a major contributor to noncarcinogenic risk in near-shore sediments is noted and it is suggested that the K-700 area of the K-25 site is the source of manganese. However, page xxx of the RI/FS Executive Summary states that manganese is not site-related. **The ORREMSSAB recommends that** the Executive Summary be revised to address this inconsistency.

2.0 Channel Sediments

On p. 2- 8 of the RI/FS it says that sediments were dredged from the Clinch River between Grubb Island and Melton Hill Dam in 1952 and 1962 and dredged materials were placed on Grubb and Jones islands. Much of this stretch of the River is downstream and in close proximity to White Oak Creek and is likely to have been contaminated. Exposure to these materials was not addressed in the risk assessment and risk remediation of the islands is not included in the Plan. **The ORREMSSAB recommends that** remediation of the islands or controls on use thereof should be included in the Plan unless it is being addressed under another activity.

In a sediment study conducted for the Brashear Island area by the Environmental Sciences Division of ORNL (obtained from the Internet), it is stated that a new barge terminal at the K-770 area of the K-25 site is being considered and would greatly increase barge traffic. It further states

that this area may be a likely candidate for future bottom dredging operations to maintain legal hull clearances (this was confirmed in a meeting with Mr. Dan Levine). Brashear Island is located in subreach 4.01 and as shown in Tables E-55 through E-57 (Appendix E, RI/FS), risks calculated for a number of contaminants exceed 10^{-4} (for carcinogens) and 1.0 for non-carcinogens under the dredging scenario in this subreach. **The ORREMSSAB recommends that the Plan describes how the impact of dredging sediment in this subreach sediments will be addressed and include public input from downstream users.**

3.0 Surface Water

Surface water is not considered in the Plan except as it affects fish contamination and subsequent human consumption of contaminated fish. The conclusion that contamination from the ORR will always diminish seems unsure because materials on the reservation will be disturbed during remediation work. **The ORREMSSAB recommends that surface water monitoring be included in the monitoring program. Monitoring should include suspended sediment during flood and low flow conditions. The public should be alerted via regional and varied news media if contamination reaches unsafe levels. If increases of surface water contamination in Poplar Creek occur, the ORREMSSAB recommends that the statement "the whole flow of Poplar Creek could not be practically treated" be reviewed.**

The Plan states that none of the alternatives analyzed address remediation of surface water in the Clinch River or Poplar Creek although state ambient water quality criteria may be exceeded and that DOE is committed to addressing these violations through future actions and remediation of the ORR. However, there are three potable water intakes on the Clinch River within the operable unit and a municipal intake for Kingston that is located on the Tennessee River immediately upstream of its confluence with the Clinch River. As stated in the RI/FS on page 2-2, depending on flow conditions, effluents from the ORR could reach the Kingston municipal intake.

Although the ORREMSSAB is aware that ambient water quality criteria are often more stringent than drinking water standards, because contaminant concentrations in surface water vary with changes in flow conditions and contributions from runoff, and remediation of the ORR is at least a decade away, **the ORREMSSAB recommends that sampling of potable water intakes be included in the monitoring program. If levels of contaminants are ever found to exceed standards, then continuous monitoring should be installed to allow corrective actions if the conditions should recur. Intakes should be monitored frequently and regularly for water soluble organics, inorganics, and radionuclides. If standards are exceeded, the affected community water authority should be alerted.**

In Table B-5 (Appendix B, RI/FS), metal concentrations in surface water are compared to ambient water quality criteria. One column in this summary table is labeled "maximum detection limit". It is unclear whether this column should read "minimum detection limit" or "maximum detected" and the reader is unable to conclusively compare the data to the ambient water quality criteria. **The ORREMSSAB recommends that clarity be provided in the RI/FS report.**

4.0 Consumption of Biota

It is known that people living in areas adjacent to the operable unit ingest turtle meat. Sampling of turtle tissue is not reported in the RI/FS or considered in the risk assessment. **The ORREMSSAB recommends that** this potential exposure scenario should be evaluated and the results included in the Plan. If it is determined that ingestion of turtle presents unacceptable risk, **the ORREMSSAB recommends that** advisories or other means to prevent turtle consumption be included in the monitoring program. (The question of turtle ingestion was addressed in an October 1996 Tennessee Department of Environment and Conservation report, so some data is available).

The Plan indicates that warning signs to discourage fish consumption are to be continued under the preferred alternative. However, no indication is given that the existing signs have actually controlled fish ingestion. If the assumption is untested, even by survey, **the ORREMSSAB recommends** institution of a program that would determine the effectiveness of warning signs be included in the monitoring program. There are also known areas, such as the Kingston City Park, where posting is inadequate. **The ORREMSSAB also recommends that** more complete information be provided to indicate the amounts of fish consumption that are deemed unsafe and the appropriate method for cleaning and preparing the fish for consumption. Advisories should also be provided that inform people that contact with sediment may be harmful in areas where near-shore sediments present unacceptable risks.

5.0 Irrigation

Risks associated with using Clinch River or Poplar Creek water for long-term irrigation that exceed 10^{-5} (for carcinogens) and 1.0 (for non-carcinogens) are documented in Tables E-46 through E-51 (Appendix E, RI). **The ORREMSSAB recommends that** plans to inhibit such usage be included in the monitoring program.

6.0 Monitoring Program

The monitoring program that would accompany the preferred alternative is mentioned in several places in the Plan but is never described. This is an essential component of the preferred alternative. The ORREMSSAB understands that the details of the monitoring program will be presented in a remedial action work plan; however, the major components of the anticipated monitoring program should at least be described generally in the Plan.

The ORREMSSAB also understands that it is welcome to participate in the data quality objectives (DQO) meetings in preparation for the remedial action work-plan. We appreciate the opportunity to do so and at that time will want to discuss in detail the recommendations concerning the monitoring program that were discussed in preceding sections.

7.0 Susceptibility of Children and Other Populations

On page p. 5-19 of the RI/FS it is stated that only adults were considered for exposure to carcinogens in the risk assessment because the end result would not be substantially different than if children were considered. It is generally accepted in the health sciences community that children may be more susceptible to the effects of carcinogens than adults. Therefore, **the ORREMSSAB recommends that** risk calculations for child exposures to carcinogens should be conducted and the RI/FS amended to include them. In addition, **the ORREMSSAB recommends that** the fact that children were not evaluated when considering exposure to carcinogens be included in the uncertainty analysis in the RI/FS. Discussion of increased susceptibility of children, as well as other populations such as pregnant women, should also be included in the uncertainty analysis.
