



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Remediation - Oak Ridge
761 Emory Valley Road
Oak Ridge, Tennessee 37830



May 24, 2023

Mr. Roger Petrie
Federal Facility Agreement Manager
Oak Ridge Office of Environmental Management
U.S. Department of Energy
Post Office Box 2001
Oak Ridge, Tennessee 37831

TDEC Comment Letter: 2023 Remediation Effectiveness Report for the U.S. Department of Energy Oak Ridge Site, Oak Ridge Tennessee (DOE/OR/01-2938&D1)

Dear Mr. Petrie

The Tennessee Department of Environment and Conservation (TDEC), Division of Remediation-Oak Ridge Office has reviewed the above referenced document pursuant to the Federal Facility Agreement (FFA) for the Oak Ridge Reservation. This letter meets the FFA review cycle protocol of 90 days for the subject document. The following comments are relevant to that review.

Executive Summary

1. **General**

Please edit this section as needed to reflect any changes made in other sections as a result of the following comments.

Section 1.0 Introduction

2. **Page 1-7, Figure 1.3**

Please add the Main Plant Area Final Groundwater ROD for ETPP to this table under the future ROD column.

3. **Page 1-7, Figure 1.3**

The ETPP row states that Groundwater and LUCs are the media included in the future Zone 1 Groundwater Plumes ROD. As the K-720 Ash Pile is now being addressed under this future ROD, please revise the media to include soil.

Section 2.0 ORNL - MV

4. **Page 2-8, first bullet**

The cause for the exceedance of the target groundwater level has been identified at two of the three wells, and an ongoing hydraulic evaluation is being conducted to evaluate solutions for these two wells. Please provide a discussion on what actions are planned to evaluate solutions at well 4545 so this well will meet the performance goal.

5. **Page 2-67, first two paragraphs**

How many sunfish filets were collected for mercury, PCBs, metals, and Cs-137 analyses? In addition to the mean concentrations for each of these contaminants, please provide the range (max/min) of concentrations measured.

6. **Page 2-67, third paragraph**

Please provide some context for the addition of dioxins and furans in this RER. Did new information trigger an expanded analysis?

7. **Page 2-67, third paragraph**

Is there any understanding of why TEQs for fish have increased in the past two years?

Section 3.0 ORNL - BV

8. **Page 3-15, Figure 3.2 and Page 3-19, Table 3.4**

Bearden Creek sampling location is illustrated on Figure 3.2 but not included in Table 3.4. Should the performance monitoring requirements for this location be included on Table 3.4?

9. **Page 3-26, second paragraph**

Are the soils and/or sediments sampled to ascertain whether the decrease in Cs-137 concentrations is due to diminishing loading to WOC or to adsorption to the particles?

10. **Page 3-27, first paragraph**

Regarding the statement that Figure 3.4 suggests ungauged Sr-90 is from groundwater, are the correlations strong enough to no longer refer to the loading solely as "ungauged" and rather describe it as "ungauged groundwater contribution"?

11. **Page 3-38 and Page 3-41, Table 3.10**

The text states that Sr-90 concentrations in groundwater samples collected from well 4411 represent contaminant concentrations for water sent to the PWTC. Table 3.10 presents monthly Sr-90 concentrations for the Corehole 8 groundwater collection system which are orders of magnitude lower than the Sr-90 concentration at well 4411. Please provide clarification on what influents contribute to the Corehole 8 groundwater collection system and whether this includes all the influents that comprise the Corehole 8 extraction system?

12. **Page 3-61**

How many sunfish filets were collected for mercury and PCBs analyses? In addition to the mean concentrations for each of these contaminants, please provide the range (max/min) of concentrations measured.

13. **Page 3-68, Table 3.15**

The *Property Record Restrictions* for groundwater suggests that no property restrictions for groundwater have been recorded. Please confirm that the deeds for the four parcels in BV that have transferred for private-sector development (Page 3-71) include a restriction on groundwater use.

14. **Page 3-68, Table 3.15**

Please confirm superscripts *a* and *b* are referenced correctly.

Section 4.0 Y-12 - BCV

15. **BCV General**

Throughout this section, Zone 2 is still noted with a recreational land use designation. Per the EMDF ROD (DOE/OR/01-2794&D2/R2, page 1-3), Zone 2 land use was changed to "DOE-controlled industrial." Recognizing this change does not affect the cleanup goals set for remedies in the BCV Phase I ROD (per the EMDF ROD), TDEC requests this be explained for clarification.

16. **Pages 4-26 and 4-33, Tables 4.7 and 4.9**

Some of the uranium flux values for NT-3 do not match between these two tables. Recognizing some of this is rounding, please verify the accuracy of these columns in each table.

17. **Page 4-30, first paragraph**

Was there an action taken to reduce nitrate concentrations that resulted in a decrease starting in FY 2011? If not, can something else be attributed to this decrease?

18. **Page 4-36, Table 4.11**

Please confirm that the sample zone bottom elevation for well GW-712 is 328.17.

19. **Pages 4-45 through 4-49**

How many fish were collected for mercury, PCBs, nickel, cadmium, and uranium analyses? In addition to the mean concentrations for each of these contaminants, please provide the range (max/min) of concentrations measured.

Section 5.0 Y-12 – UEFPC

20. **Page 5-21, Figure 5.3**

To make the data more legible, please revise the “Mercury Discharge Rate” graph with a range up to 15 grams/day and a footnote about the one sample in exceedance of 20 grams/day?

21. **Page 5-35**

Is DOE currently monitoring ecological and human health risk associated with uranium metal migration in biota?

22. **Page 5-35, Figure 5.9**

Redbreast sunfish have not been sampled from EFK 23.4 for the past several years. Please explain why and any potential implications to the findings.

23. **Page 5-38, Figure 5.12**

Please discuss the decrease in fish species richness at EFK 13.8, which is beginning to correlate to richness levels at EFK 23.4 which has higher contaminant impacts. If flooding events are suspected to be the cause, is it expected that increased annual rainfall trends and increased contaminant flux events will negatively impact species richness in EFPC?

24. **Page 5-40, line 12**

Given that BFK 7.6 is no longer “ideal habitat for invertebrate colonization,” is another monitoring site being considered?

Section 6.0 Y-12 – Chestnut Ridge

25. **Page 6-21, Section 6.5.1.1, second paragraph**

Regarding the last sentence, does this mean there were no maintenance requirements needed in FY 2022? If so, please note this.

Section 7.0 – ETPP

26. **ETTP General**

Please revise references to the two RODs at ETPP that address soil, buried waste, and subsurface structures to explicitly reference soils (e.g., Zone 1 Interim Soils ROD or Zone 2 Soils ROD). This language has been adopted in CERCLA documents addressing other media at ETPP, and the distinction will provide clarity to the reader.

27. **Page 7-13, Figure 7.1 and Page 7-22, Table 7.2**

Figure 7.1 identifies the end use for the K-720 Fly Ash Pile as controlled recreational use to 10 ft, while Table 7.2 provides land use controls to 0 ft. Please confirm the end use and associated depth and revise the document accordingly.

28. **Page 7-32, Table 7.4, second row**

It states water is treated for hexavalent chromium prior to discharge to Mitchell Branch. Please clarify if the CWTS treated water is being discharged to Mitchell Branch or the Clinch River, as stated in Section 7.4.4.1.2.

29. **Page 7-43, Section 7.4.2.1.2**

The text on page 7-43 states that 10 bluegill comprised each of the 6 whole-body composites analyzed for PCBs in the K-1007-P1 Holding Pond. OREIS indicates there were 11 bluegill for one of the composites. This discrepancy could have an impact on the values in the last three columns of Table 7.8. Please review the data in OREIS and revise the text and Table 7.8 as needed.

30. **Page 7-46, Table 7.8**

- a. The table indicates that smallmouth buffalo fillets from the K-720 Slough had a sample size $n=2$. OREIS provides data for only 1 smallmouth buffalo. Please review the data in OREIS and revise the text and Table 7.8 as needed.
- b. Footnote *a* lists three Aroclors used for PCB analyses, while OREIS provides information for only two Aroclors in the K-1007-P1 Holding Pond (Aroclor-1248 is not included in the analytical suite). Please review the data in OREIS and revise the footnote as needed.

31. **Page 7-75, Table 7.11**

Please double check the qualifier for the CWTS effluent sample ($130 \text{ J } \mu\text{g/L}$) collected in January 2022. It is unlikely this value was estimated (above MDL and below PQL) as it is 65 times the drinking water MCL of 2 ug/L .

32. **Page 7-97, Section 7.6**

The *Fiscal Year 2020 Phased Construction Completion Report for the Low Risk/Low Complexity and Predominantly Uncontaminated Facilities of the Remaining Facilities Demolition Project at the East Tennessee Technology Park, Oak Ridge, Tennessee* (DOE/OR/01-2870) identifies the following slabs as potentially contaminated: K-1004-J, K-1004-T, K-1006, K-1023, K-1200, and K-2500-H. Please verify the status of those slabs and identify provisional management requirements for any slabs remaining on site.

Section 8.0 – Other Sites

No comments

Section 9.0 – Offsite

33. **Page 9-8, second paragraph**

If the “significant changes” referenced are outside the scope of those described in Section 5 of the RER (Y-12 UEFPC) please elaborate. If not, please simply point to that section as a reference.

34. **Page 9-9, 9.3.2 LUCs**

Regarding the annual surveys verifying land use, has DOE observed this stretch of LEFPC being used as a camping area for the homeless? Has DOE evaluated the exposure risk to those under this type of land use?

35. **Page 9-10, Table 9.2**

This table notes that in 2000 a survey of anglers on CR/PC was conducted to assess the effectiveness of fish consumption advisory postings. TWRA has seen a drastic increase in fishing licenses in recent years, and TDEC’s roving creel survey data suggest there are a significant number of anglers in this area, some of whom consume the fish they catch. It seems prudent to reassess the effectiveness of the fish advisory postings based on current data and consider if changes to the LUC are warranted.

36. **Page 9-15, Section 9.4.1.2**

Please explain why this section does not include the findings for all analytes listed in Table 9.3. Specifically, missing data include Co-60 and K-40 for catfish; and TAL metals, methylmercury, K-40, Co-60, and dioxin/furans for bluegill sunfish.

37. **Page 9-16, Figure 9.6**

While TDEC recognizes the importance of long-term trends, the results presented in Figure 9.6 have for the most part remained in the 0.0 to 0.8 range for the past 20 years. Please provide a shorter-term figure or use a table to better illustrate the findings since PCB levels have decreased and the comparison value is 0.02 ug/g.

38. **Page 9-20, Section 9.5.1.2, second paragraph**

Please explain the conclusion that PCB concentrations are approaching the current target of 0.02 ug/g considering the increase from an average of 0.04 ug/g in FY21 to 0.11 ug/g in FY22.

Appendix A: Certification of Land Use Control Implementation

No Comments

Appendix B: Selected ORNL Groundwater Data

No Comments

Appendix C: Building D&D Post-Demolition Provisional Management Requirements

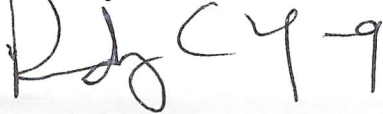
No Comments

Appendix D: Conversion Factors, Units, and Chemical and Radionuclide Names

No Comments

Questions or comments concerning the contents of this letter should be directed to Dana Casey by phone at (865) 310-0253 or by email at dana.casey@tn.gov.

Sincerely



Randy C. Young
FFA Project Manager
Division of Remediation - Oak Ridge Office

ec: Samantha Urquhart-Foster, EPA
Sam Scheffler, DOE
Edward Arnold, UCOR/RSI
Sid Garland, UCOR
Tanya Salamacha, UCOR
Colby Morgan, TDEC
ORSSAB
OREM Mailroom

xc: Amy Fitzgerald, ORRCA
Terry Frank, ORRCA
Wade Creswell, ORRCA
Amanda Daugherty, ORRCA

COPY