STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Remediation, Oak Ridge Office
761 Emory Valley Road
Oak Ridge, Tennessee 37830

November 21, 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

Re: TDEC Comment Letter for Melton Valley/Bethel Valley Exit Pathway Phase 1 Remedial Investigation Completion Report for the U.S. Department of Energy Oak Ridge Site, Oak Ridge, Tennessee (DOE/OR/01-2953&D1)

Dear Mr. Petrie

The Tennessee Department of Environment and Conservation (TDEC), Division of Remediation-Oak Ridge Office (DoR-OR), received the U.S. Department of Energy (DOE) letter transmitting the above referenced document on August 21, 2023. The document has been reviewed pursuant to the Federal Facility Agreement (FFA) for the Oak Ridge Reservation (ORR). Comments relevant to the review of this document are included.

If you have questions or comments concerning the contents of this letter, please reach out to Eileen Marcillo at eileen.marcillo@tn.gov or (865) 985-2397.

Sincerely

Randy C Young
Digitally signed by Randy C Young
Date: 2023.11.20 22:30:20 -05'00'

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

ec: Jim Daffron, DOE
Sam Scheffler, DOE
Carl Froede, EPA
Samantha Urquhart-Foster, EPA
Edward Arnold, UCOR
Sid Garland, UCOR
Tanya Salamacha, UCOR
Emily Sukanek, UCOR
Colby Morgan, TDEC
Heather Lutz, TDEC
ORSSAB
OREM Mailroom

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

GENERAL COMMENTS

Comment 1

The document mentions several times that more complex decisions (e.g., groundwater) are being deferred until source terms are remediated under the current interim record of decision (IROD). These interim records of decision (RODs) specify conducting soil remedial actions (RAs) to soil screening levels (SSLs) that were calculated using arbitrary industrial groundwater levels. The final soils ROD will need to reevaluate source areas to maximum contaminant level (MCL)-based SSLs and further soil RAs will likely be necessary to fully remove soils that are a threat to groundwater. DOE should weigh the advantages of conducting soil characterization and/or remedial actions using MCL-based groundwater SSLs at the Oak Ridge National Laboratory (ORNL) sooner. Advantages to applying this approach include shorter timeframe and reduced costs associated with groundwater clean-up.

Comment 2

The statement "*No imminent threat to human health or the environment was observed based on the BVEP Phase I data screening results*" is used to explain why a comprehensive assessment of applicable or relevant and appropriate requirements (ARARs), human health risk assessment, and ecological risk assessment are being deferred until the full-scale remedial investigation. Please provide an explanation on how it was determined that no imminent threat to human health or the environment exists.

SPECIFIC COMMENTS

Comment 1: Section 1.3 Purpose and Scope of Phase I Report, first paragraph, page 1-3

Please revise the first sentence to state "*The overall MVBVEP Project objective is to determine whether there are site-related contaminants in groundwater at three selected areas adjacent to the DOE ORR property boundary at ORNL".*

Comment 2: Section 1.5.4 Status of Comprehensive Environmental Response, Compensation, and Liability Act of 1980 Actions in Bethel Valley, second paragraph, page 1-11

This paragraph discusses soil remedial actions that have been conducted to date. As discussed in the general comment, it should be made clear that these soil RAs did not remove all soils that are considered a threat to groundwater. The IROD specifies conducting soil RAs to SSLs that were calculated using arbitrary industrial groundwater levels. The final soils ROD will need to reevaluate source areas to MCL-based SSLs and further soil RAs will likely be necessary to fully remove soils that are a threat to groundwater. Please revise this paragraph so that it is clear that further soil characterization and/or remedial actions may be necessary for protection to groundwater.

Comment 3: Section 1.5.4 Status of Comprehensive Environmental Response, Compensation, and Liability Act of 1980 Actions in Bethel Valley, third paragraph, last sentence, page 1-11

Please revise the last sentence to also state that the selected RAs identified in the Bethel Valley (BV) IROD are expected to reduce the release of contaminants from BV source areas into groundwater. As written, it suggests only surface water is impacted.

Comment 4: Section 2.2.1 Human Health Screening Levels, bullet list, page 2-2
The Federal and State list of analytes that have MCLs are not identical and/or the MCLs may differ (e.g., lead and nickel). Groundwater analytical results should also be compared against TDEC's General Water Quality Criteria Rule Chapter 0400-40-03-.03 and TDEC's Drinking Water MCLs Chapter 0400-45-01-.06 and 0400-45-01-.25 to capture any analytes that do not have a Federal MCL or where State criteria are more stringent.

Comment 5: Figure 3.2. BV surface geology and general water table contours, page 3-5
- Please revise the legend to explain what the stippled pattern is on the figure.
- Please confirm if the Edison Member should be Eidson Member and revise globally.

Comment 6: Section 3.7 Bethel Valley Source Areas, page 3-17
The discussion for each Bethel Valley plumes area should include a statement regarding the extent of the plumes in each area. As an example, refer to the last sentence of the BV-2 Corehole 8 plume text.

Comment 7: Figure 3.6 SWSA 3 area geology and piezometric surface map, page 3-20
Please consider using similar units when discussing the groundwater tracer velocities for the SWSA 3 area. The figure references the tracer velocities in meter/day and the text references the tracer velocities in feet/day.

Comment 8: Section 4.2 Surface Water Quarterly Monitoring Results, last paragraph, page 4-4
It is difficult to discern if the quarters are based on calendar year or fiscal year. Please specify in the text and in the footnotes in Table 4.2 (page 4-5) what months fall within each quarter.

Comment 9: Table 4.5, Table 4.6, and Table 4.7, pages 4-14 and 4-15
Please add a column to each of these tables and indicate the geologic formation for each Westbay System zone interval.

Comment 10: Figure 4.3 Gamma log, caliper results, and Westbay System sample zones for wells 4683 and 4684, page 4-17
The surficial geology map (Figure 3.2) shows Well 4684 being installed within the Moccasin formation. Please note the Moccasin and Witten formation contact on the geophysical log for Well 4684.

Comment 11: Table 4.9 BVEP Westbay System head measurements, page 4-21
Please confirm the head value at 4684-04 in February 2022 is not an erroneous value. Consider including charts for each well illustrating the head measurements to support the vertical gradient discussion included on page 4-20.

Comment 12: Table 4.10 BVEP Westbay System field parameters
- Please provide a discussion on why several wells had high dissolved oxygen measured but the redox measurements suggest a highly reducing environment (e.g., 4683-02, Q1).
- Some of the field parameters are presented as a range, please provide an explanation as to why a range is presented and not a single number.

Comment 13: Table 4.11 BVEP summary statistics for groundwater (unfiltered), page 4-27
Please revise the lead MCL to reflect the more stringent State MCL of 0.005 milligrams per liter (mg/L) and include the State MCL for nickel (0.1 mg/L).

Comment 14: Section 5 Fate and Transport of Contaminants, first paragraph, page 5-1
The first paragraph focuses solely on contaminant migration in groundwater discharging to surface water bodies and omits any discussion on deeper groundwater contaminant transport. Groundwater contamination has been observed at significant depths and data suggests contaminant transport in these deeper zones. Please revise this section to include a discussion of the deeper groundwater flow contaminant pathway.

Comment 15: Section 10.1 Conclusions, page 10-1

- One of the objectives of the MVBVEP Project as stated in the Phase 1 Melton Valley/Bethel Valley Exit Pathway (MVBVEP) Remedial Investigation Work Plan (DOE /OR/01-2756&D2) is to "*site new wells and surface water sampling locations near the ORR boundary that will be used to assess potential offsite groundwater contaminant pathways*". The conclusion section discusses the presence of contaminants in the newly installed wells but does not provide any discussion of potential offsite groundwater contaminant pathways. This section should be revised to acknowledge that due to the presence of ORR-related contaminants in groundwater at the DOE boundary there is a potential for offsite migration of contaminants and then further state why this is not a concern (e.g., detected concentrations were below risk-based levels).

Comment 16: Section 10.1 Conclusions, page 10-1

- Section 1.4 indicates that the objective of this MVBVEP Project is to "determine whether there are site-related contaminants in groundwater at the boundary". This conclusion section should include discussion answering this determination. As written, the conclusion section solely focuses on comparing contaminants to screening levels and notes them as potential "anthropogenic sources", which is quite ambiguous. While the comparison of data to screening values is appreciated, this alone does not answer the objective of the project. Rather than determining if a contaminant is from an anthropogenic source or not, please add text clarifying which contaminants were detected that are site related.

Comment 17: Section 10.2 Recommendations, page 10-2
Please indicate which Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) document will document this recommended monitoring in addition to what document will present the results of these data.

Comment 18: Appendix B Boring Logs, page B-1
Please add the well number to the boring log. For example, the first boring log is labeled Witten-1 (page B-3) and the reader must reference the text to discern what well number is associated with this boring log.