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

May 2, 2024

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

Dear Mr. Petrie

RE: Transmittal of the Waste Handling Plan for the Demolition of the Alpha-2 Complex Located at the Y-12 National Security Complex, Oak Ridge, Tennessee (DOE/OR/01-2877&D2)

The Tennessee Department of Environment and Conservation (TDEC), Division of Remediation-Oak Ridge Office, received the above referenced submittal on April 2, 2024. The document has been reviewed pursuant to the Federal Facility Agreement (FFA) for the Oak Ridge Reservation (ORR).

The U.S. Department of Energy (DOE) has characterized the above-grade portions of Alpha-2 and satisfied the intent of the Waste Handling Plan (WHP) to support development of a waste profile for the Environmental Management Waste Management Facility (EMWMF) as described in the FFA Appendix I-14. TDEC has no additional comments on this WHP, and DOE should consider the WHP approved.

Moving forward, TDEC's overall interest is protection of the environment during and after implementation of this removal action. As documented in TDEC's comments on the *Addendum to the Removal Action Work Plan for the Y-12 Facilities Deactivation/Demolition Project* (DOE/OR/01-2479&D1/A13/R2) and discussed in numerous project team meetings, TDEC has specific interests regarding planning for waste management, adding additional FFA scope within the Alpha-2 basement as described in the WHP, and ensuring this remedial action does not hinder future soil remedial actions at the Alpha-2 site.

Planning for Mercury Waste Management

The introduction of this WHP states that the document defines the management of wastes from the Alpha-2 Complex to be disposed in the EMWMF, ORR Landfill (ORRL), Nevada Nuclear Security Site (NNSS), or another appropriate offsite disposal facility. Mercury is a primary contaminant of concern that should be considered during remediation within the Upper East Fork Poplar Creek (UEFPC) area. The ORR FFA Appendix D stipulates that approximately 95,000 pounds of mercury were lost in Alpha-2 during active operations. Though existing Alpha-2 above-grade characterization data has not identified significant concentrations of mercury, the fact that the Alpha-2 processes lost such large quantities of mercury makes it prudent to have adequate planning and a robust mercury waste management strategy in place should mercury waste be encountered during demolition.

DOE is proposing liquid mercury be treated as an anomalous waste for this action with plans to separate visible liquid mercury for storage. Procedures for segregating and temporary storing/staging of mercury-containing debris are not clearly described in either the Removal Action Work Plan or WHP; instead, DOE maintains mercury-contaminated debris is not expected to be encountered or generated during the removal action of the above-grade structure. DOE must continue developing plans to manage demolition debris which might contain liquid mercury. TDEC's interests include protectively managing "unexpected" mercury-contaminated waste. Appropriate planning for that possibility before demolition decreases the likelihood work will have to stop while controls are implemented or contingency actions are developed. Such delays increase the potential for releases to the environment. TDEC requests to be notified as anomalous mercury waste is generated during implementation of the removal action.

During the initial review of the *Addendum to the Removal Action Work Plan for the Y--12 Facilities Deactivation/Demolition Project* (DOE/OR/01-2479&D1/A13/R2), TDEC requested DOE develop a plan for management of mercury-contaminated waste. This same issue was later identified in the review of the D1 version of this WHP. Considering the tons of mercury lost from the Alpha-2 processes, it remains TDEC's interest that DOE develop a mercury management strategy document. This document, at a minimum, would include specific protocols for inspections, storage/staging, and transportation along with contingency plans that may be implemented for large debris if visible liquid mercury is encountered during demolition and/or disposal in Bear Creek Valley. Again, it is TDEC's interest that the demolition of Alpha-2 be completed efficiently while being protective of the environment. Although the demolition of Alpha-2 is being conducted as a removal action, TDEC requests DOE continue to involve TDEC in project planning and execution.

Additional FFA Scope from Alpha-2 Basement Piping

This WHP does not cover the entire scope of demolition work associated with the Alpha-2 Complex, specifically the basement/subsurface structure remain to be addressed. The WHP commits to providing an additional (or revised) WHP that will address specific items within the subsurface portion of the complex. TDEC requests an FFA milestone be established for submittal of that document, along with other applicable Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) documents (e.g., Removal Action Work Plan, Phased Construction Completion Report, etc.) associated with the subsurface demolition scope of work. In addition, a subsurface demolition Data Quality Assessment is still needed to evaluate the characterization results for the subsurface structure, components, and controlled low-strength material (CLSM).

Implication of Removal Action on Future Soil Remedial Actions Beneath Alpha-2

Successful D&D completion of the Alpha-2 Complex requires turning off the basement sump. Cessation of groundwater suppression as part of this removal action has a direct impact on the implementation of the remedial action commitments in the Phase I and Phase II UEFPC Interim Record of Decisions (RODs). As the basement is filled with CLSM and the basement sump is turned off, the mercury-contaminated soils beneath and adjacent to the Alpha-2 Complex will become a saturated source for mercury releases to the environment.

As discussed in TDEC's comment letter on the D1 WHP, TDEC is concerned that actions taken to complete the demolition of the Alpha-2 Complex (turning the basement sump off, saturating the soils, and filling the basement with CLSM) will impact commitments in the UEFPC Phase I Interim ROD and the UEFPC Phase II Interim ROD to remove or remediate mercury-contaminated soils

beneath and adjacent to Alpha-2 facility that are considered principal threat waste. TDEC does not agree with DOE's response to TDEC's specific comment #4 on the WHP, and it is TDEC's position that the soils are principal threat waste requiring treatment as DOE implements remediation under the Interim RODs in the UEFPC watershed.

The UEFPC Phase II Interim ROD discusses FFA parties' agreement to not pursue remediation of contaminated soils beneath the water table. In TDEC's comment letter on the D1 WHP, TDEC asked if DOE would interpret that condition to mean the soils under Alpha-2 would no longer require remediation, but that question has not been addressed. TDEC expects remediation of these soils during a near-term future action even if the soils have become temporarily saturated. Furthermore, TDEC expects Appendix E milestones be added to the FFA for a work plan and completion report documenting remediation of these soils. DOE's current plan to delay remediation and allow the shallow groundwater to saturate this source of mercury for an extended time is not acceptable, and TDEC recommends the soils be excavated soon after the above-grade facility is demolished. In accordance with 40 CFR 300.415, a removal action must not interfere with implementation of a remedial action. Additionally, due to the limited availability of undeveloped land at Y-12, active operators at the Y-12 facility will likely be interested in this slab/property for additional use or construction. The mercury in the basement of Alpha-2 should be remediated as soon as possible to allow for efficient beneficial reuse. Similarly, prior to filling the basement with CLSM, DOE should ensure appropriate characterization of the basement soils has occurred to support remediation of these soils. Characterization of those soils will be more challenging when several feet of fill is pumped into the basement.

Additional interests that TDEC requests to be considered include:

- Building 9201-2 Transformer and Capacitor Storage Area is identified as a CERCLA Area in Appendix C of the FFA, but this WHP does not include any information about the area. TDEC understands the slab portion of the storage area will be included in the soil/slab/subsurface structure remediation scope of work. Please ensure the slab is included in the future WHP for subsurface structures, including being evaluated in the Data Quality Assurance process for subsurface structures. Furthermore, if this slab is to be disturbed during post-demolition excavation of the CLSM-encased piping, the portion of the slab to be disturbed should be appropriately characterized.

- As discussed during project team meetings, DOE should determine if a mercury vapor analyzer can be used to identify anomalous waste. If so, an appropriate trigger level should be developed with the FFA parties to identify potential anomalies.

- DOE must ensure all storage of waste is being conducted in accordance with the applicable or relevant and appropriate requirements (ARARs) identified in the Y-12 D&D Action Memorandum, Table B.1. Of particular interest is the temporary storage of bulk PCB-remediation waste or PCB bulk product waste.

- Though not included in any of the current FFA documents, DOE has proposed to the FFA parties that groundwater monitoring data for mercury in the vicinity of Alpha-2 will be compared to the Maximum Contaminant Level (MCL) of 2 ppb. If that level is exceeded, corrective action discussion will be triggered. TDEC requests monthly updates for all monitoring proposed for the project.

- DOE must ensure the temporary storage of mercury-bearing debris includes controls necessary to prevent the spread of mercury to the environment and prevent cross-contamination of other demolition waste.

In summary, TDEC approves this WHP and is committed to working with DOE to better define and plan for the implementation of this removal action. Past D&D activities of mercury process facilities (e.g., COLEX removal action) did not fully consider potential impacts from mercury resulting in detrimental levels of mercury being released to the environment. DOE should utilize any lessons learned from previous mercury projects and the TDEC Consent Order and Assessment Case Number DOR19-0005 to reduce the potential for a repeat of that situation. In addition, the FFA parties must ensure the implementation of this action does not inhibit future remedial actions to address the source of mercury contamination in the basement of Alpha-2.

Review of this document meets the review cycle protocol of 30 days. Questions or comments concerning the contents of this letter should be directed to Angel Perkey at the above address or by phone at (865) 985-6851.

Sincerely

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

ec: Cathy Amoroso – EPA
Samantha Urquhart-Foster – EPA
Jon Richards – EPA
Sam Scheffler – DOE
Erin Sutton – DOE
Brian Henry – DOE
Morgan Carden – DOE
Chloe Ashley – NNSA
Mark Shirley – NNSA
Jane Nations – CNS
Michelle Kunz - CNS
Tanya Salamacha – UCOR
Sid Garland – UCOR
Doug Hanahan – UCOR
ORSSAB
OREM Mailroom
Colby Morgan – TDEC
Chris Thompson – TDEC
Pat Flood – TDEC
Steven Stout – TDEC

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

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