

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

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May 9, 2025

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

Federal Facility Agreement Milestone Addition Request for the Environmental Management Disposal Facility: EMDF Waste Acceptance Criteria Compliance Plan D1

Dear Mr. Petrie

The Tennessee Department of Environment and Conservation (TDEC), Division of Remediation – Oak Ridge Office, received the subject request to add a milestone to the <u>Federal Facility Agreement (FFA)</u> for the Oak Ridge Reservation (ORR). The milestone sets a schedule for delivery of a draft (D1) Waste Acceptance Criteria (WAC) Compliance Plan for the Environmental Management Disposal Facility (EMDF), as required by page 2-61 of the <u>EMDF Record of Decision (ROD)</u>.

TDEC approves the milestone because a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Record of Decision (ROD) must demonstrate protectiveness of the selected remedy, which is foundational under <u>CERCLA</u> and the <u>National Contingency Plan (NCP)</u>. The EMDF ROD describes an agreement by the FFA parties to assess potential human health risks and demonstrate protectiveness using CERCLA methodology through evaluation of a supplemental release scenario.

Evaluation of the supplemental release scenario (bathtubbing scenario) is an integral component of the protectiveness demonstration for the EMDF onsite waste disposal remedy. The results will be documented in the WAC Compliance Plan to inform decisions regarding landfill inventory (mass) limits for individual chemicals and radionuclides, including but not limited to some that were not modeled in the Performance Assessment (ROD Table 2.5).

Specifically, the ROD states:

"The supplemental analysis will calculate potential cancer and non-cancer health risks under a hypothetical 'bathtubbing scenario.' This scenario assumes that rainfall infiltrates faster into the landfill through a degraded landfill cover than the resulting leachate moves out through the base liner. These conditions are assumed to cause leachate to pond within the landfill. Just like water spills from a bathtub that does not drain fast enough, the leachate is assumed to spill over the top of the base liner system. Some of the leachate is assumed to percolate into the ground, impacting groundwater without passing through the landfill liner, and the rest is assumed to flow into a nearby stream. Pathways of drinking water, crop/livestock consumption, and fish consumption (including bioaccumulation in fish) will be included in the model. The modeling will also examine the impacts at a 'point of compliance' at the location consistent with that used for RCRA landfills, which is at the waste management boundary.

The supplemental 'bathtubbing' analysis will be detailed in the WAC Compliance Plan and will be used to inform WAC/inventory limits which could apply to both radionuclides and non-radionuclide chemicals (including uranium being evaluated for its metal toxicity) anticipated in the projected waste inventory. The results of this supplemental modeling will be expressed in terms of the CERCLA risk range (i.e., 1×10⁻⁴ to 1×10⁻⁶. Results of the analysis will be summarized in a table in the WAC Compliance Plan to show how WAC for each relevant radionuclide (Table 2.5) and chemical are selected from candidate criteria, including ARARs [Applicable or Relevant and Appropriate Requirements], fish-based risk limits, water-based limits, etc. The chemicals will be described further in the WAC Compliance Plan and may include (but are not limited to) the following: uranium as metal, mercury, lead, antimony, beryllium, and chromium."

ROD language in the excerpt above states that the supplemental "bathtubbing" analysis will be detailed in the WAC Compliance Plan. Recently, the U.S. Department of Energy proposed submitting a separate report to document the supplemental release scenario and its results. In accordance with the agreement in the ROD, TDEC expects the supplemental analysis report to be included in the WAC Compliance Plan as an appendix or attachment.

Questions or comments concerning this correspondence should be directed to Brad Stephenson at the above address, by phone at 865-352-1235, or by email at <u>brad.stephenson@tn.gov</u>.

Sincerely

Randy Young Digitally signed by Randy Young Date: 2025.05.08 09:47:36 -04'00'

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

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