



## Department of Energy

Oak Ridge Office of Environmental Management  
P.O. Box 2001  
Oak Ridge, Tennessee 37831

February 4, 2021

Mr. David W. Salyers, P.E., Commissioner  
Tennessee Department of Environment and Conservation  
312 Rosa L. Parks Avenue  
Tennessee Tower, 2nd Floor  
Nashville, Tennessee 37243

Dear Mr. Salyers:

**RESPONSE TO THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND  
CONSERVATION LETTER REGARDING PERFORMANCE ASSESSMENT AND  
COMPOSITE ANALYSIS FOR THE PROPOSED ENVIRONMENTAL MANAGEMENT  
DISPOSAL FACILITY**

- References:
1. Letter from Randy C. Young to Dr. Justin Marble and Mrs. Sherri Ross, *Review of Performance Assessment and Composite Analysis for the Proposed Environmental Management Disposal Facility*, Oak Ridge, Tennessee, dated October 15, 2020
  2. *A Review of the Performance Assessment and Composite Analysis for the Proposed Environmental Management Disposal Facility, Oak Ridge, Tennessee*, NAC-0131\_R1, prepared for Tennessee Department of Environment and Conservation, Neptune and Company, Inc., dated October 12, 2020
  3. Email from Brad Stephenson to Dennis Mayton, *EMDF Draft WAC: TDEC Preliminary Review*, dated June 15, 2020

The U.S. Department of Energy (DOE) requires that proposed low-level waste disposal facilities be evaluated in detail concerning the expectation of that facility to meet performance objectives following closure, most notably those related to its long-term protectiveness of the public and environment. Results are documented in the Performance Assessment (PA) and Composite Analysis (CA) documents. A rigorous process under DOE Order (O) 435.1, *Radioactive Waste Management*, is followed where the PA and CA evaluations are subjected to an in-depth review by independent experts as well as Low-level Waste Disposal Facility Federal Review Group (LFRG) representatives. Upon approval by the LFRG, a preliminary Disposal Authorization Statement (DAS) is awarded allowing design and construction of the facility to begin. In order for the facility to begin operation and waste acceptance/placement, a second review and approval, or operational DAS, is required. The DOE O 435.1 process is iterative, is applied throughout the lifecycle of the facility, and – based on proposed changes along the way – may require a re-evaluation of the facility protectiveness at closure and ability to meet performance objectives.

DOE received comments from the Tennessee Department of Environment and Conservation (TDEC) on the PA and CA for the proposed Environmental Management Disposal Facility (EMDF) in the referenced letter and report (References 1 and 2). DOE takes seriously comments submitted on these documents, and has conducted a thorough review to determine if those comments indicate an inability of the proposed facility to meet performance objectives.

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DOE found that portions of all comments provided by TDEC labeled as “critical issues” in the report were previously identified by the LFRG independent review team and subsequently addressed adequately, per the review team, in the revised documents. Examples of issues identified by the LFRG review team that are noted as PA critical issues in the TDEC review include: 1) source release model assumptions including the timing and magnitude of cover degradation, radionuclide sorption coefficient, and inventory; 2) vadose zone transport model assumptions including radionuclide sorption coefficient and cover degradation; (3) fate and transport of radionuclides in the vadose zone and saturated zone including the role of fracture-matrix interaction in radionuclide transport to the point-of-compliance; and (4) water use and exposure routes at the point-of-compliance for the groundwater pathway.

Additionally, responses were provided by DOE previously and periodically in writing and verbally to similar TDEC comments received throughout the LFRG review process, which occurred over a period of two years and to which TDEC was invited to observe.

Waste Acceptance Criteria (WAC) are a tool used to ensure protectiveness of a land disposal facility during its operations. Since the EMDF is being proposed under the Comprehensive Environment Response, Compensation, and Liability Act (CERCLA) and the *Federal Facility Agreement for the Oak Ridge Reservation (FFA)*, TDEC is a partner in ensuring WAC are protective. TDEC submitted minor comments on the WAC in a letter on the PA and CA, dated October 15, 2020 (Reference 1). More extensive WAC comments were provided by TDEC in an earlier email and report (Reference 3) reviewing draft WAC language from the EMDF Record of Decision (ROD). All these WAC comments are being considered as DOE develops the ROD prior to the D1 milestone submittal. As the FFA partners work together to finalize the D2 ROD and subsequent WAC CERCLA documentation concerning compliance, those comments will also be considered. However, the CERCLA process is a separate regulatory path from the DOE O 435.1 process that ensures protectiveness through the PA and CA evaluations, and the development of the WAC will be addressed with the FFA parties outside of DOE O 435.1 efforts.

Based on the extensive LFRG-conducted review, and under further consideration of the comments provided by TDEC in References 1 and 2 correspondence, DOE has concluded that the current PA and CA provide reasonable assurance that EMDF will meet performance objectives/measures, and have indicated no hesitation in recommending approval of a Preliminary DAS for the proposed EMDF.

We look forward to continue working with TDEC and U.S. Environmental Protection Agency at both the project team level and the Emerging Issues Team to resolve details of all remaining issues within the CERCLA framework.

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If you have any questions concerning this letter or if we can be of further assistance, please contact Brian Henry at (865) 241-8340.

Sincerely,



John A. Mullis II  
Manager

cc:

Susan DePaoli, Pro2Serve  
SSAB  
Tanya Salamacha, UCOR  
John Patterson, UCOR  
[ETTPDMC@orec.doe.gov](mailto:ETTPDMC@orec.doe.gov)  
Glenn Adams, EPA Region 4  
Cathy Amoroso, EPA Region 4  
Carl Froede, EPA Region 4  
Connie Jones, EPA Region 4  
Carol Monell, EPA Region 4  
Jon Richards, EPA Region 4  
Pat Flood, TDEC, Nashville  
Steve Stout, TDEC, Nashville  
Greg Young, TDEC, Nashville  
Curt Myers, TDEC, Oak Ridge  
Brad Stephenson, TDEC, Oak Ridge  
Randy Young, TDEC, Oak Ridge  
Pat Halsey, EM-942  
Dennis Mayton, EM-921  
Roger Petrie, EM-942  
Laura Wilkerson, EM-90

**From:** [Patterson, Karla R \(CONTR\)](#)  
**To:** [David Salyers](#)  
**Cc:** [DOCSSP-EM](#); [ETTP DMC](#); [adams.glenn@epa.gov](mailto:adams.glenn@epa.gov); [Amoroso, Cathy](#); [Froede, Carl](#); [Jones, Connie](#); [carol.monell@epa.gov](mailto:carol.monell@epa.gov); [Steven Stout](#); [patrick.flood@tn.gov](mailto:patrick.flood@tn.gov); [gregory.young@tdec.gov](mailto:gregory.young@tdec.gov); [Brad Stephenson](#); [Randy Young](#); [Dana Casey](#); [Salamacha, Tanya L](#); [Butler, Rhonda R](#); [ORSSAB](#)  
**Subject:** [EXTERNAL] 8398 Final Response to the Tennessee Department of Environment and Conservation Letter Regarding Performance Assessment and Composite Analysis for the Proposed Environmental Management Disposal Facility  
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**Attachments:** [image001.png](#)  
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8398 Final Response to the Tennessee Department of Environment and Conservation Letter Regarding Performance Assessment and Composite Analysis for the Proposed Environmental Management Disposal Facility

**Karla Patterson**  
**Records Specialist | Management Solutions, LLC**  
Support Contractor for OREM (EM-94)  
Phone: 865.576.1957

