



## Department of Energy

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

March 6, 2023

Ms. Samantha Urquhart-Foster  
Superfund and Emergency Response Division  
U.S. Environmental Protection Agency  
Region 4  
Atlanta Federal Center  
61 Forsyth Street  
Atlanta, Georgia 30303-8960

Mr. Randy C. Young  
State of Tennessee  
Department of Environment and Conservation  
Division of Remediation – Oak Ridge  
761 Emory Valley Road  
Oak Ridge, Tennessee 37830-7072

Dear Ms. Urquhart-Foster and Mr. Young:

**TRANSMITTAL OF U.S. ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE D1 PHASE 3 (BORROW AREAS) CHARACTERIZATION REPORT FOR THE ENVIRONMENTAL MANAGEMENT DISPOSAL FACILITY, OAK RIDGE, TENNESSEE (DOE/OR/01-2832&D1)**

The purpose of this letter is to provide response to U.S. Environmental Protection Agency comments on the *Phase 3 (Borrow Areas) Characterization Report for the Environmental Management Disposal Facility, Oak Ridge, Tennessee* (DOE/OR/01-2832&D1). The Tennessee Department of Environment and Conservation previously approved the document.

The *Federal Facility Agreement for the Oak Ridge Reservation*, Section XXI B.2, *General Process for RI/FS and RD/RA Documents*, states, “D1 secondary documents are issued by the DOE subject to review and comment by EPA and TDEC. Although the DOE will respond to comments received, the D1 secondary documents may be finalized in the context of the corresponding primary documents.”

Therefore, this letter and the copy of the enclosed responses to comments are provided in response to the comments received on the D1. The Environmental Management Disposal Facility Landfill Remedial Design Report/Remedial Action Work Plan will be the primary document that will address and/or utilize the information contained in this subject document.

Ms. Urquhart-Foster/Mr. Young

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March 6, 2023

**TRANSMITTAL OF U.S. ENVIRONMENTAL PROTECTION AGENCY COMMENTS  
ON THE D1 PHASE 3 (BORROWS AREA) CHARACTERIZATION REPORT FOR THE  
ENVIRONMENTAL MANAGEMENT DISPOSAL FACILITY, OAK RIDGE, TENNESSEE  
(DOE/OR/01-2832&D1)**

If you have any questions or if we can be of further assistance, please contact Dennis Mayton at (865) 293-6052.

Sincerely,

**Brian Henry** Digitally signed by Brian Henry  
Date: 2023.03.03 10:30:16  
-05'00'

Brian T. Henry  
Portfolio Federal Project Director

**Roger B. Petrie** Digitally signed by Roger B. Petrie  
Date: 2023.02.24 16:42:47 -05'00'

Roger B. Petrie  
Federal Facility Agreement Project Manager

Enclosure

cc w/enclosure:

Jana Dawson, EPA Region 4  
Carl Froede, EPA Region 4  
SSAB  
Brad Stephenson, TDEC, Oak Ridge  
Rhonda Butler, Value Added Solutions

cc w/o enclosure:

Mark Maki, Pro2Serve  
Sid Garland, UCOR  
Jennifer Linton, UCOR  
Annette Primrose, UCOR  
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Dennis Mayton, EM-921  
Erin Sutton, EM-94  
Laura Wilkerson, EM-90

<b>Document Number:</b> DOE/OR/01-2832&D1	<b>Document Title:</b> <i>Phase 3 (Borrow Areas) Characterization Report for the Environmental Management Disposal Facility, Oak Ridge, Tennessee</i>		
<b>Name of Reviewer:</b> Carl Froede		<b>Organization:</b> EPA	<b>Date Comments Transmitted:</b> 12-1-2022

Comment No.	Sect/ Page	Comment	Response
<b>GENERAL COMMENTS</b>			
1		The Report does not evaluate the potential for environmental contamination at the three borrow pit areas since no samples were analyzed for chemical parameters. In addition, it does not provide historical land use background information for each area, which may provide insight about potential contaminant sources. The Report should include a summary of previous environmental investigations at the three borrow areas, and if none have been conducted then explain how these areas will be evaluated for potential environmental impacts.	<p>Clarification provided. The work summarized in the characterization report was to provide for the collection of site-specific geotechnical data for use by the design engineers during the future final design of the EMDF. The report is a secondary document under the FFA protocols and was not intended to provide an extensive background history for the borrow areas.</p> <p>The Central Borrow Area (CBA) and Borrow Area 7B are undisturbed sites in forested locations away from any industrial areas associated with the Oak Ridge National Lab, Y-12 National Weapons Complex, the Spallation Neutron Source, or any waste disposal sites located further east in Bear Creek Valley. There is no evidence of prior ground disturbance in these areas other than old logging roads. The phase 1 archaeological surveys of the CBA and Borrow Area 7b revealed no homestead sites within the proposed limits of disturbance. The Uranium Production Facility (UPF) spoil area location is where wet or unsuitable soils from the UPF project were stored. DOE has no plans to reuse material from the UPF spoil area as part of the current EMDF construction. If used in the future, a separate evaluation will be completed prior to use.</p>
2		The Report provides a brief discussion of geologic background for each potential borrow pit and provides results of the geotechnical sampling results; however, the groundwater depth at each potential borrow pit, which is critical for determining the suitability for borrow pit operations, is not discussed. Please include a discussion of seasonal-related groundwater depth at each potential borrow pit.	Clarification provided. The boring logs for boreholes drilled at the CBA and Borrow Area 7b document that saturated conditions were not encountered except in three instances where excavations are not anticipated to reach the saturated soils. These borrow sites are on ridge tops or side slopes where shallow groundwater is not a problem for the operation of a borrow pit.

Comment No.	Sect/ Page	Comment	Response
3		The text should discuss whether any debris was found in any of the test pits. Please revise the text to include this information.	Clarification provided. As expected, no debris of anthropological origin was found in any of the test pits. Photographic records in the appendix of the report show the completed excavations and the UCOR geotechnical field technician observing the work confirmed the absence of debris in all test pits.
<b>SPECIFIC COMMENTS</b>			
1	Sect. 2.1 pg 5	<p><b>Geotechnical Boreholes</b></p> <p>The text provides a summary of the number of borings advanced and the total depths; however, the text should also discuss how soil cuttings were managed. Please revise the text to discuss the management of soil cuttings.</p>	Clarification provided. Soil cuttings were dispersed in the immediate vicinity of the borehole.
2	Sect. 2.4 pg 5	<p><b>Split-Spoon Sampling</b></p> <p>The text summarizes the number of samples collected and which analysis were conducted; however, no details regarding the sample locations is provided. Such details are important to ensure that the appropriate number of samples were collected for the appropriate analysis. For completeness, please provide a table that includes the sample identifier (ID), sample location, and analyses that were performed at each location.</p>	Clarification provided. See the tables following these responses to comments that summarize the types of laboratory testing performed on soil samples from both boreholes and test pits. All laboratory data reports are organized by the type of test and presented in attachment B to the geotechnical report.
3	Appendix A	<p><b>Logs and Photos for Geotechnical Boreholes and Test Pits, Page A3 to A108</b></p> <p>The boring logs identify sample depth and sample identification; however, the analysis for each sample is not provided. Please include the analyses associated with each sample or include a summary table with this information.</p>	Clarification provided. The laboratory analysis associated with each sample, collected in either a borehole or test pit, are noted in the sample descriptions of the test reports. These results are logically ordered in attachment B to the report. See response to specific comment 2.

**Information provided for Specific Comment 2**

**Borehole Samples**

Site	Location ID	Moisture Content ASTM D2216	Atterberg Limits ASTM D4318	Particle Size Distribution		Unit Weight (Density) ASTM D7263	Hydraulic Conductivity (Permeability) ASTM D5084	Direct Shear ASTM D3080
				w/o Hydrometer ASTM D6913	w/ Hydrometer ASTM D6913 and D7928			
UPF Spoils Area	EBH-36	X	X					
	EBH-37	X	X		X			
Site 7b Borrow Area	EBH-38	X	X					
	EBH-39	X		X				
	EBH-40	X	X	X				
	EBH-41	X	X	X				
	EBH-42	X	X	X	X			
	EBH-43	X	X		X			
	EBH-44	X	X					
	EBH-45	X	X		X			
Central Borrow Area	EBH-48	X	X	X		X	X	X
	EBH-51	X	X		X	X	X	
	EBH-53	X	X		X		X	
	EBH-54	X	X		X		X	

ASTM = American Society for Testing and Materials  
 EBH = exploratory borehole  
 UPF = Uranium Processing Facility

**Information provided for Specific Comment 2 (cont.)**

**Test Pit Samples**

Site	Location ID	Moisture Content ASTM D2216	Atterberg Limits ASTM D4318	Particle Size Distribution		Standard Proctor Compaction ASTM D698	Soil Specific Gravity ASTM D854	Unit Weight (Density) ASTM D7263	Hydraulic Conductivity (Permeability) ASTM D5084	Triaxial Consolidated Undrained Shear ASTM D4767
				w/o Hydrometer ASTM D6913	w/ Hydrometer ASTM D6913 and D7928					
UPF Spoils Area	ETP-18	X	X	X						
	ETP-19	X	X			X				
	ETP-20	X								
	ETP-21	X	X	X						
	ETP-22	X	X	X		X				
	ETP-23	X								
Site 7b Borrow Area	ETP-24	X	X		X	X	X		X	X
	ETP-25	X	X			X				
	ETP-26	X	X		X	X			X	
	ETP-27		X			X			X	X
	ETP-28	X	X	X		X			X	
	ETP-29		X			X	X		X	
	ETP-30		X			X			X	X
	ETP-31	X	X		X	X			X	X
	ETP-32	X	X	X		X				X
	ETP-33	X	X	X		X			X	
	ETP-34	X	X	X		X				X
	ETP-35		X			X			X	
Central Borrow Area	ETP-36	X	X		X	X	X		X	
	ETP-37	X	X							
	ETP-39	X	X			X	X		X	X
	ETP-40	X	X							

**Information provided for Specific Comment 2 (cont.)**

**Test Pit Samples (cont.)**

Site	Location ID	Moisture Content ASTM D2216	Atterberg Limits ASTM D4318	Particle Size Distribution		Standard Proctor Compaction ASTM D698	Soil Specific Gravity ASTM D854	Unit Weight (Density) ASTM D7263	Hydraulic Conductivity (Permeability) ASTM D5084	Triaxial Consolidated Undrained Shear ASTM D4767
				w/o Hydrometer ASTM D6913	w/ Hydrometer ASTM D6913 and D7928					
Central Borrow Area (cont.)	ETP-43	X	X							
	ETP-44		X			X			X	
	ETP-46	X	X			X				
	ETP-47	X	X			X			X	X
	ETP-48	X	X							
	ETP-49	X	X			X			X	
	ETP-50									
	ETP-51		X		X		X		X	
	ETP-52	X	X			X	X		X	

ASTM = American Society for Testing and Materials  
 ETP = exploratory test pit  
 UPF = Uranium Processing Facility