DOE-18-0299

I-22133-0045

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

July 6, 2018

Mr. John Michael Japp
DOE FFA Project Manager
P.O. Box 2001
Oak Ridge, Tennessee 37831-8540

Re: Proposed Plan for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Waste (DOE/OR/01-2695&D2)

Dear Mr. Japp

The Tennessee Department of Environment and Conservation (TDEC) – Division of Remediation (DoR) received the D2 Proposed Plan (Plan) on June 7, 2018. TDEC reviewed the Plan pursuant to the Federal Facility Agreement (FFA) for the Oak Ridge Reservation (ORR). The Plan presents the Onsite Disposal Alternative located at Central Bear Creek Valley (CBCV) as the preferred remedy for disposal of waste from the U.S. Department of Energy (DOE) – Oak Ridge Office of Environmental Management (OREM) ORR CERCLA cleanup program.

TDEC cannot support issuing the Plan to the public as currently written and invokes informal dispute under Section XXVI of the FFA for the ORR. The Plan does not accurately reflect the State of Tennessee's position because it implies State approval of onsite disposal alternatives, including OREM's Preferred Alternative. It also fails to adequately communicate several key State concerns with the Preferred Alternative. TDEC proposes the following dates to meet and resolve this dispute: July 10, July 16 (morning), or July 20 (afternoon).

TDEC's objective for this dispute is to ensure the Plan is consistent with 40 CFR 300.430(e)(9)(iii)(H). In accordance with that federal regulation, TDEC seeks to resolve the dispute with a Plan that precisely represents the State's position regarding onsite disposal alternatives. The Plan must also communicate the State's key concerns in a complete and transparent manner.

Supporting issuance of the Plan for public comment would not be the same as State approval of the Plan or the onsite alternatives. The State cannot approve any of the onsite alternatives until OREM demonstrates the alternatives meet CERCLA requirements including Threshold Criteria.

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The Plan relies on the fifth draft (D5) of the *Remedial Investigation/Feasibility Study [RI/FS] for Comprehensive Environmental Response, Compensation, and Liability Act Oak Ridge Reservation Waste Disposal Oak Ridge, Tennessee* (DOE/OR/01-2535&D5). Although neither TDEC nor the U.S. Environmental Protection Agency (EPA) could approve the RI/FS, the FFA parties agreed to resolve OREM's dispute over that report on December 7, 2017. The Dispute Resolution Agreement (DRA) documents that, subject to several terms and conditions, "The Proposed Plan will identify Central Bear Creek Valley (Site 7C) as the preferred location for onsite disposal of CERCLA mixed low level waste on the Oak Ridge Reservation."

Agreement to identify CBCV Site 7c as the preferred location, per the DRA, is not the same as agreeing to OREM's Preferred Alternative. In addition to the proposed landfill location, the Preferred Alternative includes OREM's proposed landfill size (23 acres of radioactive, hazardous, and toxic waste), waste types (including mercury waste from the Y-12 National Security Complex), and waste volume (2.2 to 2.8 million cubic yards).

The DRA allowed OREM to defer key elements for resolution before the Record of Decision (ROD). These key elements are required to determine whether the Preferred Alternative meets the CERCLA Threshold Criteria described in 40 CFR 300.430(f)(i)(A) and 40 CFR 300.430(e)(9)(iii). Threshold Criteria include overall protection of human health and the environment and compliance with Applicable or Relevant and Appropriate Requirements (ARARs). As currently written, the Plan is not clear that additional information identified in the enclosed State Acceptance language is still required.

Furthermore, OREM's Plan does not adequately address wastewater management. There is a fundamental disagreement between OREM and TDEC about discharge limits for wastewater from the proposed landfill. TDEC approval requires that OREM show that future wastewater discharges meet CERCLA Threshold Criteria and do not degrade waters of the State per Tennessee Rules 0400-40-05-.10(4) and 0400-40-03-.06. These requirements are necessary to protect receiving streams, as well as the people eating fish downstream. An attachment to the DRA lists these requirements, as does OREM's *Focused Feasibility Study [FFS] for Water Management for the Disposal of CERCLA Waste on the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-2664&D2). The FFS is a fundamental component of the RI/FS that serves as a basis for OREM's Plan. OREM has deferred components of the FFS and the RI/FS to be resolved prior to the ROD.

The DRA requires that OREM implement data collection identified in the Statement of Work provided by EPA and TDEC on August 8, 2017. In accordance with the DRA, the results and analyses thereof shall be included in the administrative record prior to the Proposed Plan public comment period. The DRA also says the field investigation and EPA/TDEC's review of the results shall be conducted prior to execution of the ROD and shall be used in selecting the remedy.

TDEC received a pre-publication draft report (Technical Memo 1 [TM-1]) yesterday (July 5). That report presents site characterization results from late winter and early spring of 2018. There was insufficient time for TDEC to review the results and evaluate their impact on the protectiveness and compliance of OREM's preferred alternative prior to submitting comments on the Proposed Plan within the timeframe required by the FFA.

Sincerely

Michael Haggan for

Randy Young,
FFA Manager

Enclosure: State Acceptance Language

xc: Dave Adler, DOE
Patricia Halsey, DOE
Rich Campbell, EPA
Carl Froede, EPA
Franklin Hill, EPA
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From:	Brad Stephenson
To:	John Blevins (john.blevins@crem.doe.gov); Henry, Brian; DePaoli, Susan (CONTR)
Cc:	Shari Meghreblian; Steve Goins (Steve.Goins@tn.gov); Chris P. Thompson; Andy Binford; Colby Morgan; Steven Stout; Michael D. Higgins; Kristof Czartoryski; Pat Flood; Randy Young (Randy.Young@tn.gov); Beth Rowan; Heather Lutz; Richard Campbell; Jones, Connie; frcode.carl@epa.gov
Subject:	EMDF Proposed Plan State Acceptance
Date:	Thursday, May 3, 2018 5:21:00 PM
Attachments:	EMDF PP State Acceptance 2018-05-03.docx image001.png

John,

The attached file includes our text for the State Acceptance section of the Proposed Plan, as well as bullets for the summary table in Appendix A. We did not try to define every acronym because we understand DOE will do so while formatting the Proposed Plan.

Regards,

TN Environment & Conservation

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STATE ACCEPTANCE

The State of Tennessee recognizes the importance of selecting a waste disposal option to support environmental cleanup and building demolition on the Oak Ridge Reservation (ORR) by the U.S Department of Energy (DOE). The State also supports identification of the Central Bear Creek Valley (CBCV) site as the most promising disposal location on the ORR. A key reason the State supports evaluation of the CBCV site is its potential to meet DOE's estimated disposal capacity needs without relying on underdrains for collecting and discharging groundwater under the facility. The State anticipates that information DOE is collecting at the site may confirm these assumptions.

The State documented concerns about protecting human health and the environment throughout the CERCLA process leading to this Proposed Plan. On May 22, 2017, DOE initiated a formal dispute under the *Federal Facility Agreement for the Oak Ridge Reservation* to move the CERCLA process forward. The State, EPA and DOE signed a Dispute Resolution Agreement (DRA) on December 7, 2017. As part of the DRA, the three parties agreed to issue this Proposed Plan identifying CBCV as the preferred location for EMDF. The DRA outlines a general path for meeting CERCLA requirements.

The State has not approved the remedial investigation/feasibility study (RI/FS) report that serves as the primary basis for this Proposed Plan. Outstanding issues must be resolved before the State can approve a Record of Decision (ROD). The following discussion is meant to inform the public of the State's key concerns.

1) Site characterization (detailed description) - DOE must collect sufficient information about groundwater levels, springs and streams affecting the site's ability to contain the waste and protect the public and the environment. DOE must use this information to support an estimate of historical high groundwater levels at the CBCV site. The State supports DOE's commitment to share the data with the public and notes that the data must be in the administrative record before DOE asks the State to approve a ROD. The State expects DOE to use site-specific data to support ARAR waiver requests (see Item 2 below), develop waste acceptance criteria (WAC [see Item 3]), and assess long-term protectiveness per CERCLA. The Proposed Plan says DOE will justify requests for ARAR waivers or exemptions in the ROD. Therefore, the State suggests holding a public forum after DOE collects data from both wet and dry seasons to support such requests.

2) ARAR identification - The FFA parties must agree on the final ARARs as required by CERCLA. In addition, DOE requests an exemption under the State radioactive waste

disposal rules and waivers under the Toxic Substances Control Act (TSCA) for the following requirements, as allowed by the regulations.

- The site shall not discharge groundwater to the land surface (e.g., through springs) under natural conditions before a landfill is built.

- The site shall not be located on steep slopes to minimize erosion and landslides.

- The bottom of the liner system shall be at least 50 feet above the historical high water table, and there shall be no hydraulic connection between groundwater and streams at the site.

The rules containing these requirements allow DOE to demonstrate equal protection for any requirements that may be waived. All ARAR issues, including any requests for waivers or exemptions, must be resolved prior to ROD approval. Furthermore, regulatory review of site characterization data and projections of waste proposed for disposal (i.e., volumes, types, and characteristics) will inform final decisions on ARAR waivers, based on the conceptual dimensions for a waste disposal unit at CBCV. This includes a waiver for landfill stability after closure if an underdrain is used.

3) Waste acceptance criteria (WAC) – DOE must develop WAC based on realistic waste inventory assumptions and site-specific characterization data. For radioactive, hazardous, and toxic waste disposal facilities, computer modeling is used to develop protective WAC and limits on the amount of waste. The DRA provides for the State's independent verification of DOE modeling. State acceptance of the preferred alternative relies heavily on the State's ability to complete the independent verification. This will require DOE to provide the information we need to evaluate. Our evaluation will determine if we can assure the public that the WAC meet CERCLA requirements, including the Remedial Action Objectives presented in this Proposed Plan and performance objectives in Tennessee rule 0400-20-11-.16. The State must approve the WAC before approving the ROD.

4) DOE assessments - DOE intends to assess the performance of the proposed disposal facility as required by DOE Orders, through its authority under the Atomic Energy Act of 1954. DOE does not plan to complete a CERCLA risk assessment. The State intends to evaluate whether DOE's assessment meets the requirements of

CERCLA. This includes evaluating potential long-term risks associated with hazardous contaminants like mercury, as well as the toxic effects of uranium. The State's evaluation depends on DOE providing all documents that form the basis for the selected remedy. These documents include the Performance Assessment (PA), Composite Analysis (CA), and Preliminary Disposal Authorization Statement (PDAS). The State contends these DOE documents should be in the administrative record, because they will be relied upon to evaluate the protectiveness of the preferred alternative during remedy selection under CERCLA. For example, modeling to support the PA and CA should support the WAC, and the State will independently verify the modeling and WAC for protectiveness.

5) Mercury disposal - The State is particularly concerned about mercury disposal because of its potential release into Bear Creek and threat to people who eat fish downstream. Mercury contamination at the Y-12 National Security Complex (Y-12) is currently the greatest known environmental risk on the ORR[1]. DOE plans to demolish parts of Y-12, including the West End Mercury Area (WEMA) buildings. The State is concerned that disposal of mercury-contaminated waste in EMDF would further degrade Bear Creek, East Fork Poplar Creek, Poplar Creek and the Clinch River. The Antidegradation Statement of the Tennessee Water Quality Control Act (TWQCA) prohibits additional mercury discharges into Bear Creek. The State's position is that DOE must establish mercury inventory limits with consideration of mercury already present in the environment.

6) Use of underdrains – Tennessee regulations for siting and construction of solid waste disposal facilities do not allow for the use of underdrains to mitigate the presence of pre-existing creeks, springs or streams. Underdrains have been used occasionally to mitigate perched water that had the potential to impact construction. This position is reiterated in the State licensing rule for radioactive waste disposal [Tennessee 0400-20-11-.16(5)]. DOE intends for the landfill to contain radioactive, hazardous and toxic waste long into the future, but any drains below the landfill will degrade over time. As described in Item 1 above, DOE is collecting data at the CBCV site to determine if it would need an underdrain. Any State waivers or exemptions will be based on site-specific data.

[1] U.S. Department of Energy, 2017, Strategic Plan for Mercury Remediation at the Y-12 National Security Complex, Oak Ridge, Tennessee, Revision 1, DOE/OR/01-2605&D2/R1, September, p. ES-1.

7) Discharge limits - DOE must maintain a buffer between Bear Creek and the landfill, including wastewater management operations. Water in Bear Creek connects directly to groundwater that flows quickly through caves in the Maynardville Limestone rock layer. However, the Proposed Plan says DOE would discharge wastewater (water that contacts the waste) into Bear Creek without treatment if it complies with limits that have not been determined yet. DOE should not discharge untreated wastewater into Bear Creek without showing that 1) the discharged water will protect public health and the environment and achieve ARARs, such as anti-degradation requirements of the Clean Water Act, as required by CERCLA; and 2) will not result in the further degradation of the waters of the State.

CERCLA requires DOE to seek input from local governments and affected communities to help ensure selection of the most acceptable alternative. The State expects DOE to host a meeting to provide the public with an opportunity to ask questions and provide comments about the Proposed Plan including the administrative record. CERCLA also requires DOE to incorporate meaningful citizen input into making the decision. After DOE collects additional data, we may request another public meeting if our evaluation changes the State's understanding of conditions at the CBCV site.

BULLETS FOR TABLE: Proposed Plan Appendix A, Summary of CERCLA Evaluation Criteria for Disposal Alternatives

No Action Alternative

- The State recognizes DOE concerns that the no action alternative would require each cleanup project to select a disposal option for its waste.

Onsite Disposal Alternatives

- State acceptance of the onsite disposal alternatives depends on the following:
    - Evaluation of information DOE is collecting on streams, springs and groundwater (e.g., depth of the historical high water table) that would affect the ability to contain the waste and protect humans and the environment (including the degree and duration of reliance on underdrains to discharge groundwater or surface water during facility operation or after closure);

- Agreement on a final list of protective requirements (ARARs), including how site characterization data and projections of waste to be disposed will inform how DOE justifies any ARAR waiver or exemption requests;

- Evaluation of realistic information on the amounts and types of waste to be disposed, including WAC;

- Independent verification that the proposed WAC comply with the law and protect human health and the environment over the long term;

- Agreement on limits for the amount of hazardous and radioactive wastewater that DOE may discharge into Bear Creek;

- Evaluation of the degree to which the PA and CA help show the preferred alternative would meet CERCLA requirements, including evaluation of potential long-term risks associated with hazardous contaminants like mercury and the toxic effects of uranium;

- Preventing additional mercury releases into Bear Creek through protective limits on the amount of mercury to be disposed and discharged;

- Timely inclusion in the administrative record of all documents that form the basis for remedy selection, including the PA, CA and PDAS; and

- Community feedback and DOE's evaluation and inclusion of public input.

East Bear Creek Valley

- The EBCV alternative is not acceptable to the State because meeting DOE's capacity needs would require building the facility over existing streams and springs that would require underdrains.

- Long-term protectiveness and justifications for ARAR waivers and exemptions have not been established.

Central Bear Creek Valley

- The State supports identification of the CBCV site as the most promising disposal location on the ORR. DOE must collect and evaluate additional

information about the site to determine long-term protectiveness and provide justification for waivers and exemptions.

- An important reason the State supports this site is its potential to meet DOE's estimated disposal capacity needs without relying on underdrains to discharge groundwater or surface water during operation of the facility or after closure.

West Bear Creek Valley

- The WBCV alternative is not acceptable to the State, because meeting DOE's capacity needs would require building the facility over existing streams and springs that would require underdrains.

- Long-term protectiveness and justifications for ARAR waivers and exemptions have not been established.

Dual Site

- The State could support the dual-site alternative as a promising disposal option on the ORR, although DOE would need to collect and provide additional information about the sites.

- An important reason the State could support this alternative is its potential to meet DOE's estimated disposal capacity needs without relying on underdrains to discharge groundwater or surface water during operation of the facility or after closure.

Offsite Disposal Alternative

- The State could support the offsite disposal alternative, because the offsite facilities have approved permits that comply with applicable regulations and are located in relatively flat, dry, unpopulated locations with deep water tables—factors that make them more protective over the long term than sites on the ORR.

- Offsite disposal of mercury-contaminated waste would also remove large amounts of mercury from the Clinch River watershed, reducing potential future mercury releases to streams where people fish.

Hybrid Disposal Alternative

- The State could support the hybrid disposal alternative because the offsite facilities have already been permitted in relatively flat, dry, unpopulated locations with deep water tables—factors that make them more protective over the long term than sites on the ORR. However, DOE would need to provide additional information about the onsite location(s).

- A hybrid alternative that uses offsite disposal of mercury would remove large amounts of mercury from the Clinch River watershed, reducing potential future mercury releases to streams where people fish.

- An important reason the State could support this alternative is its potential to meet DOE's estimated disposal capacity needs with a combination of onsite and offsite disposal without relying on underdrains to discharge groundwater or surface water during operation of the onsite facility or after closure.