



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

**OCT 09 2019**

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Mr. John A. Mullis, Manager  
Oak Ridge Office of Environmental Management  
U.S. Department of Energy  
Post Office Box 2001  
Oak Ridge, Tennessee 37831

Dear Mr. Mullis:

The U.S. Environmental Protection Agency and the Tennessee Department of Environment & Conservation (TDEC) appreciated the September 25, 2019, discussion of the path forward regarding the proposed Department of Energy (DOE) Oak Ridge Environmental Management Disposal Facility (EMDF). The submittal of the D1 Record of Decision (ROD) should be crafted to address the issues in the enclosed ROD language, which has been developed jointly by both the EPA and TDEC. This language should assist the three Federal Facility Agreement parties to reach consensus regarding siting and design of the EMDF. The enclosed language presents the minimum requirements that should be included in the ROD to address the 15-foot separation from the top of the water table to the base of the landfill buffer zone.

The enclosed language is based on the July 29, 2019, email from Jay Mullis, Manager, DOE Oak Ridge Office of Environmental Management to David Salyers, Commissioner, TDEC (enclosed) and Appendix G attached to the December 7, 2017, Dispute Resolution Agreement (DRA).

Further, because DOE is relying on new information contained in Technical Memorandum-2 (TM-2) that was not available at the time the Proposed Plan was issued for public comment, we recommend that DOE share this information with the public and accept public comment.

The process to achieve a D1 ROD is described below:

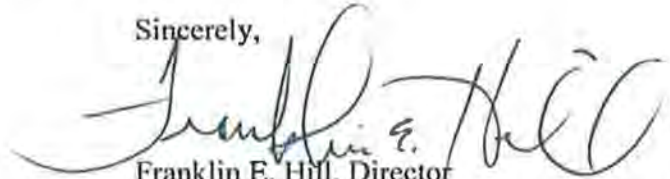
- To expedite the EPA and TDEC review of the ROD, DOE should formally respond to and resolve the EPA/TDEC comments on TM-2 before the D1 ROD is submitted.
- DOE should base D1 ROD language on Appendix G of the DRA, with revisions as described above.
- TDEC's key concerns as documented in the Proposed Plan need to be resolved.
- Submittal of D1 ROD should incorporate the Administrator's Focused Feasibility Study for Water Management decision.

The process following submission of the D1 ROD is described below:

- Because of the number of unresolved issues (e.g., WAC, PA/CA, PDAS, LFRG review), the EPA and TDEC may request additional time to review the D1 ROD, as was discussed and agreed to by DOE at the June 7, 2019 meeting between the parties.
- the EPA/TDEC will comment on the D1 ROD.
- DOE will submit D2 ROD.
- If approvable, the D2 ROD will be routed to the Administrator for signature.

If you have any questions regarding this matter, please contact me.

Sincerely,



Franklin E. Hill, Director  
Superfund & Emergency Management Division



Gregory T. Young, Deputy Commissioner  
Bureau of Environment  
TN Department of Environment & Conservation

Enclosures

cc: Christine Thompson, TDEC  
David Adler, DOE  
David Salyers, TDEC

## **Record of Decision (ROD).**

**ARAR Waivers.** The FFA parties have reviewed text contained in Appendix G (attached to the December 7, 2017, DRA) of the *Remedial Investigation/Feasibility Study for Comprehensive Environmental Response, Compensation, and Liability Act, Oak Ridge Reservation Waste Disposal, Oak Ridge, Tennessee*. This previously agreed upon text will support the waivers from the legal requirements in 40 CFR 761.75(b)(3) and (b)(5) and TDEC 0400-20-11-.17(1)(h). However, the text, specifically the text in Section 4, should be modified and included in the ROD as modified to reflect the support for ARAR waivers related only to the Preferred Alternative. The requirements comprising the 15-foot buffer will be included as a Remedial Action Objective. Additionally, the text should be modified to delete any reference to underdrains, which, as is explained in the Proposed Plan, are not associated with the Central Bear Creek Valley (CBCV) site Preferred Alternative. Further, the parties have agreed that the use of underdrains will not be allowed for design or as a future corrective measure for suppression of the water table.

The following text should be included in the ROD:

In order to assure protectiveness during operation and post-closure, a requirement shall be to maintain a perpetual 15-foot unsaturated zone between the zone of groundwater fluctuation and the base of emplaced wastes. The Record of Decision (ROD) identifies this 15-foot unsaturated zone as a Remedial Action Objective (RAO). Included within these 15 feet would be the facility's 10-foot geologic buffer, and the 5-foot liner system, leachate, and leak detection systems. Site-specific groundwater investigations indicate that parts of the site footprint can meet this requirement based on fill, however, uncertainty exists for higher elevations in the site - particularly in the area of the knoll feature in the proposed CBCV site footprint in its undeveloped state. TDEC and EPA have expressed concern with the predictive value of computer modeling used by DOE based on disputed assumptions in the model programming.

**Post-ROD Activity.** DOE has proposed that higher elevation areas of the site will be excavated prior to facility construction. DOE claims that groundwater levels in these areas are predicted by its groundwater model to decline with the cutoff of recharge. To demonstrate this, the Environmental Protection Agency, the State of Tennessee, and the Department of Energy have agreed to have DOE conduct a post-ROD study or physical demonstration. This will be scheduled after the ROD to evaluate methods of achieving groundwater levels consistent with the added RAO of maintaining a perpetual 15-foot unsaturated zone between the zone of groundwater fluctuation and the base of emplaced wastes. The plan for post-ROD study or demonstration of groundwater elevation will be described in a Remedial Design Work Plan (RDWP) for groundwater elevation demonstration, a milestone primary document. Upon tri-party approval, the study or demonstration may be implemented and the results submitted as part of the Remedial Design Report (RDR) for demonstration of groundwater elevations, also a milestone primary document. The approved demonstration or study shall be used as the basis for an RDWP for landfill design, which shall address minimum design grade elevations for meeting the RAO of 15 feet of perpetual unsaturated buffer between the zone of fluctuation and the emplaced waste.



The RDWP for demonstrating groundwater elevation will describe the details of a conceptual approach outlined by DOE involving preliminary excavation and recharge cutoff of a limited area and observe direct groundwater level measurements to assure facility design will maintain a perpetual 15-foot unsaturated zone between waste and groundwater. DOE proposes the sequencing of this effort will address, at a minimum:

- After Tri-Party signature of the Record of Decision and approval of the RDWP for demonstration of groundwater elevation, DOE will complete excavation activities to lower site grade in areas where existing groundwater measurements indicate groundwater might intrude into the perpetual 15-ft unsaturated zone providing the basis for ARAR waivers and thus not meet the RAO.
- After excavation, DOE will install a low permeability barrier over the excavated area to simulate the effect that landfill construction will have on site rainwater infiltration. No underdrains will be utilized.
- Using direct groundwater elevation measurements from on-site groundwater monitoring wells, EPA, the State, and the Department of Energy shall determine the minimum elevation for facility construction that ensures a perpetual 15-foot unsaturated zone (RAO) between the zone of groundwater fluctuation and emplaced wastes.
- If the results of the groundwater study or demonstration as implemented and approved by the FFA parties indicate earthen fill materials must be imported to elevate areas of the site to comply with the added RAO for minimum separation of wastes and groundwater, these requirements will be incorporated into final facility RDWP and RDR/RAWP and approved by EPA and TDEC before implementation. Mechanically stabilized earth (MSE) walls will be evaluated as a design option if groundwater measurements indicate that elevating the facility is necessary. If the added RAO cannot be achieved by design, then there will be no approval of onsite waste disposal under this ROD and the selected remedy shall be modified.
- Prior to site construction or site operation, DOE will obtain EPA and TDEC approval of the RDR/RAWP, consistent with Oak Ridge Reservation Federal Facility Agreement protocols:
  - Post-ROD changes to the design will trigger a new ARAR waiver review because the waiver determination in the ROD is based largely on landfill design
  - Post-ROD changes to the remedy must be consistent with 40 CFR 400.435 and EPA guidance on post-ROD changes
  - DOE is responsible to implement the remedy as selected, consistent with 40 CFR 300.435(b)(2) (including that DOE shall be responsible to ensure that the conditions of the waivers are met)

**From:** [Chaffins, Randall](#)  
**To:** [Hill, Franklin](#); [Woolheater, Tim](#); [Jones, Connie](#); [Froede, Carl](#); [Brock, Martha](#); [Johnson, MaryC](#)  
**Subject:** Fwd: Status report on EMDF ROD language  
**Date:** Tuesday, September 24, 2019 10:17:23 PM

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FYI

Sent from my iPhone

Bcgin forwarded message:

**From:** "Adler, David Green" <[David.Adler@orem.doc.gov](mailto:David.Adler@orem.doc.gov)>  
**Date:** September 24, 2019 at 7:51:58 PM EDT  
**To:** "Chris P. Thompson" <[Chris.P.Thompson@tn.gov](mailto:Chris.P.Thompson@tn.gov)>, "Chaffins, Randall" <[Chaffins.Randall@epa.gov](mailto:Chaffins.Randall@epa.gov)>  
**Subject:** Re: Status report on EMDF ROD language

We left the July 26 meeting charged with capturing a specific agreement (15 ft unsaturated zone under waste, post ROD studies to establish that can be achieved) in language we could include in the ROD. The whole premise was that the commitment for 15 ft of separation would assure protectiveness against GW intrusion. DOE proposed ROD language two months ago to capture that and we've received nothing back. I asked for a three party discussion to hear status. Now we're talking about "extensive" new field studies, resolving TDEC comments on TM 2 before even submitting the ROD, prerequisites to receiving ARAR waivers, additional public hearings, and a facility elevation that was not even evaluated as an alternative in the FS. Let's talk tomorrow, but the July 26 concepts have unraveled, and we need to use FFA protocols to sort things out. That may not require formal disputes, but we need the FFA framework to move things forward.

**From:** "Chris P. Thompson" <[Chris.P.Thompson@tn.gov](mailto:Chris.P.Thompson@tn.gov)>  
**Date:** Tuesday, September 24, 2019 at 5:18:27 PM  
**To:** "Adler, David Green" <[David.Adler@orem.doc.gov](mailto:David.Adler@orem.doc.gov)>, "Chaffins, Randall" <[Chaffins.Randall@epa.gov](mailto:Chaffins.Randall@epa.gov)>  
**Subject:** RE: Status report on EMDF ROD language

Dave,

I'm a little confused. What Randall sent is information to secure agreement on ROD language to address the necessary waivers. It concludes with a summary of what is ultimately needed for ROD approval (with the waiver justification(s) being one piece). I don't believe the purpose has shifted to a much broader discussion.

Are you saying that DOE plans to discontinue the waiver discussion, wait for the Administrator's FFS decision, and submit the D1 to get resolution through the formal

dispute process?

Chris

**From:** Adler, David Green [<mailto:David.Adler@orem.doe.gov>]  
**Sent:** Tuesday, September 24, 2019 4:47 PM  
**To:** Chaffins, Randall; Chris P. Thompson  
**Subject:** [EXTERNAL] RE: Status report on EMDF ROD language

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Randall-

It appears a meeting requested for one purpose has shifted to a very different and much broader discussion. Let's see how it goes tomorrow, but looks to me like we need to get the Administrator's decision on the water discharge issue and just process the ROD under FFA primary document protocols. If it doesn't get approved, DOE will just have to focus resources on projects that don't require a new landfill. Bad for cleanup, but worse still to make no decision. Talk to you tomorrow. Thanks.

Dave

**From:** Chaffins, Randall [<mailto:Chaffins.Randall@epa.gov>]  
**Sent:** Tuesday, September 24, 2019 3:55 PM  
**To:** Adler, David Green <[David.Adler@orem.doe.gov](mailto:David.Adler@orem.doe.gov)>; 'Chris Thompson' <[Chris.P.Thompson@tn.gov](mailto:Chris.P.Thompson@tn.gov)>  
**Subject:** RE: Status report on EMDF ROD language

Dave/Chris: Attached is a document I suggest we use to guide tomorrow's discussion. Thanks, Randall

**From:** Adler, David Green <[David.Adler@orem.doe.gov](mailto:David.Adler@orem.doe.gov)>  
**Sent:** Monday, September 23, 2019 3:05 PM  
**To:** Chaffins, Randall <[Chaffins.Randall@epa.gov](mailto:Chaffins.Randall@epa.gov)>  
**Cc:** Chris P. Thompson <[Chris.P.Thompson@tn.gov](mailto:Chris.P.Thompson@tn.gov)>  
**Subject:** Re: Status report on EMDF ROD language

Are you sending ROD language or something else?

**From:** "Chaffins, Randall" <[Chaffins.Randall@epa.gov](mailto:Chaffins.Randall@epa.gov)>  
**Date:** Monday, September 23, 2019 at 2:06:21 PM  
**To:** "Adler, David Green" <[David.Adler@orem.doe.gov](mailto:David.Adler@orem.doe.gov)>  
**Cc:** "Chris P. Thompson" <[Chris.P.Thompson@tn.gov](mailto:Chris.P.Thompson@tn.gov)>



**Subject:** Re: Status report on EMDF ROD language

Dave, we plan to send you something tomorrow to guide Wednesday's discussion. We can talk about ROD language then.

Sent from my iPhone

On Sep 23, 2019, at 11:48 AM, Adler, David Green <[David.Adler@orem.doe.gov](mailto:David.Adler@orem.doe.gov)> wrote:

Chris/Randall-

I see a meeting has been scheduled for 1 pm EST on Wednesday to discuss EMDF. I'm assuming it's the meeting I requested a few weeks ago to get the status of TDEC/EPA efforts to prepare EMDF ROD language.

We still haven't received any comments on the language we proposed in July (drafted to capture the path forward discussed at the July 26<sup>th</sup> meeting with Commissioner Salyers).

There are multiple invite lists swirling around. On our end it will be myself and Brian at least, and Kim if we're adding the lawyers—but again I'm just hoping for your status report. If there is anything you can send in advance of the meeting please do.

Thanks,

Dave

From: Mullis, Jay

Sent: Monday, July 29, 2019 2:40 PM

To: David W. Salyers ([david\\_salyers@tn.gov](mailto:david_salyers@tn.gov)) <[david\\_salyers@tn.gov](mailto:david_salyers@tn.gov)>

Cc: Gregory T. Young ([greg\\_young@tn.gov](mailto:greg_young@tn.gov)) <[greg\\_young@tn.gov](mailto:greg_young@tn.gov)>

Subject: Draft ROD language for Landfill project

David,

The language below attempts to capture the path forward discussed last week. I've asked our Chief Counsel's office to work with Steve Stout to come up with legally sufficient language. Once they've come up with that we can add into the Draft Record of Decision. Since Steve Stout is on vacation this week, I'd appreciate your & Greg's feedback on the language below. Just want to make sure the lawyers start with something that is

conceptually consistent with what we discussed.

Also, if you feel it would be helpful, I am more than happy to participate in a call or meeting with EPA to discuss our meeting last Friday. On the other hand, if you think it better for a TDEC/EPA only meeting, then I am, of course, fine with that as well.

Best,  
Jay

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In order to assure protectiveness during operation and post closure, a requirement shall be to maintain a 15 foot unsaturated zone between ground water and the base of emplaced wastes. Included within these 15 feet would be the facility's liner, leachate, and leak detection systems. Site-specific ground water investigations and ground water modelling indicate that most of the site foot print will easily meet this requirement, however, uncertainty exists for a higher elevation portion of the site. Lower areas of the site will be built up with fill material, raising the landfill well above the current ground water table.

Limited higher elevation areas of the site will be excavated prior to facility construction. Ground water levels in these areas (post-facility construction) have been predicted by ground water models to decline with the cutoff of recharge. To demonstrate this, the Environmental Protection Agency, the State of Tennessee, and the Department of Energy have agreed to conduct preliminary excavation and recharge cutoff of a limited area and observe direct ground water level measurements to assure facility design will maintain a 15 foot unsaturated zone between waste and ground water. The sequencing of this effort will be as follows:

- After Tri-Party signature of the Record of Decision, DOE will complete excavation activities to lower site grade in areas where existing ground water measurements indicate seasonal ground water highs might intrude into the 15 ft unsaturated zone required for facility operation.
- After excavation, DOE will install a low permeability barrier over the excavated area to simulate the effect that landfill construction will have on site rainwater infiltration. Shallow runoff diversion trenches will be installed to the north of the footprint at the base of Pine Ridge to divert water flow around the planned facility foot print. No underdrains will be utilized.
- Using direct ground water elevation measurements from on-site ground water monitoring wells, EPA, the State, and the Department of Energy shall determine the minimum elevation for facility construction that ensures a 15 foot unsaturated zone between ground water and emplaced wastes.



· If ground water measurements indicate earthen fill materials must be imported to elevate areas of the site, these requirements will be incorporated into final facility remedial design documentation. Mechanically stabilized earth (MSE) walls will be evaluated as a design option if ground water measurements indicate that elevating the facility is necessary.

· Prior to completing site construction or site operation DOE will obtain EPA and TDEC approval of the facility design, consistent with Oak Ridge Reservation Federal Facility Agreement protocols.

Jay Mullis  
Manager  
Oak Ridge Office of Environmental Management  
United States Department of Energy  
865-241-3706 (o)  
865-201-3952 (c)

**From:** [Chris P. Thompson](#)  
**To:** [Brad Stephenson](#); [Randy Young](#); [Michael D. Higgins](#); [Andy Binford](#); [Steven Stout](#); [Peter Murrey](#); [Emily Vann](#); [Beth Rowan](#); [Pat Flood](#)  
**Subject:** Fwd: [EXTERNAL] EPA/TDEC EMDF Record of Decision (ROD) Language  
**Date:** Wednesday, October 9, 2019 8:12:16 PM  
**Attachments:** [10-9-2019 EPA TDEC Letter Re ROD Language.pdf](#)  
[ATT00001.htm](#)

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FYI

Chris Thompson, Senior Advisor  
Bureau of Environment  
865-253-0576

Sent from my iPhone

**Had a recent experience with TDEC? Please take a few minutes to complete our survey at: [TDEC Customer Survey](#)**

Begin forwarded message:

**From:** "Jones, Connie" <[Jones.Constance@epa.gov](mailto:Jones.Constance@epa.gov)>  
**Date:** October 9, 2019 at 4:04:11 PM EDT  
**To:** "Mullis, Jay" <[Jay.Mullis@orem.doe.gov](mailto:Jay.Mullis@orem.doe.gov)>, Greg Young <[Greg.young@tn.gov](mailto:Greg.young@tn.gov)>, "Hill, Franklin" <[Hill.Franklin@epa.gov](mailto:Hill.Franklin@epa.gov)>, "Chaffins, Randall" <[Chaffins.Randall@epa.gov](mailto:Chaffins.Randall@epa.gov)>, "Adler, David Green" <[David.Adler@orem.doe.gov](mailto:David.Adler@orem.doe.gov)>, "Chris P. Thompson" <[Chris.P.Thompson@tn.gov](mailto:Chris.P.Thompson@tn.gov)>, Colby Morgan <[Colby.Morgan@tn.gov](mailto:Colby.Morgan@tn.gov)>  
**Cc:** "Henry, Brian" <[Brian.Henry@orem.doe.gov](mailto:Brian.Henry@orem.doe.gov)>, "Woolheater, Tim" <[Woolheater.Tim@epa.gov](mailto:Woolheater.Tim@epa.gov)>, "Froede, Carl" <[Froede.Carl@epa.gov](mailto:Froede.Carl@epa.gov)>, "Brock, Martha" <[Brock.Martha@epa.gov](mailto:Brock.Martha@epa.gov)>, "Palmer, Leif" <[Palmer.Leif@epa.gov](mailto:Palmer.Leif@epa.gov)>, "Johnson, MaryC" <[Johnson.MaryC@epa.gov](mailto:Johnson.MaryC@epa.gov)>, "Dorsey, Claudette" <[Dorsey.Claudette@epa.gov](mailto:Dorsey.Claudette@epa.gov)>  
**Subject:** [EXTERNAL] EPA/TDEC EMDF Record of Decision (ROD) Language

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All,

Attached you will find the e-version of the letter that communicates language jointly developed by the EPA and TDEC for the D1 Environmental Management Disposal Facility (EMDF) CERCLA Record of Decision. This letter sent today via certified mail.

The letter contains two enclosures:

1. EPA/TDEC jointly developed EMDF ROD language

2. September 24, 2019 email from David Adler (DOE)

We appreciate the discussions and everyone's effort to finalize the language. EPA and TDEC anticipate the receipt of the D1 ROD.

If you have any questions, please feel free to me.

Regards,

*Constance A. Jones*

Constance A. Jones  
Restoration & DOE Coordination Section  
Superfund Division  
U.S. Environmental Protection Agency  
61 Forsyth Street  
Atlanta, Georgia 30303-8960  
Email: [jones.constance@epa.gov](mailto:jones.constance@epa.gov)  
Phone: 404-562-8551  
Fax: 404-562-8788