



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

February 14, 2019

Mr. John Michael Japp
DOE FFA Project Manager
Oak Ridge Office of Environmental Management
U.S. Department of Energy
Post Office Box 2001
Oak Ridge, Tennessee 37831-8540

Re: Agreements by the FFA Parties for the Proposed Environmental Management Disposal Facility Record of Decision

Mr. Japp

In expectation of a first-draft (D1) Record of Decision (ROD) for the proposed Environmental Management Disposal Facility (EMDF), the Tennessee Department of Environment and Conservation (TDEC) - Division of Remediation Oak Ridge office (DoR-OR) feels it is necessary to recap decisions made between the State of Tennessee (State), the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Energy (DOE) Oak Ridge Office of Environmental Management (OREM). Attachment 1 presents a list drawn from the D5 Remedial Investigation/Feasibility Study (RI/FS), the D5 RI/FS Dispute Resolution Agreement (DRA), the "State Acceptance" portion of DOE's Proposed Plan for the EMDF, and the Federal Facility Agreement (FFA) for the Oak Ridge Reservation (ORR).

It is important for all FFA parties to be on the same page regarding what the State expects to be included with the ROD prior to submission of the D1. The EMDF Proposed Plan presents the State's position and key concerns, as required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan, also known as the National Contingency Plan (NCP). The State's key concerns are:

- Site characterization
- Identification of applicable or relevant and appropriate requirements (ARARs)
- Waste acceptance criteria (WAC)
- DOE performance assessment (PA) & composite analysis (CA) in the administrative record
- Mercury disposal limits
- Use of underdrains
- Landfill wastewater discharge limits

OREM has not resolved these concerns yet. The D5 RI/FS DRA and Proposed Plan require resolution of concerns before signature of a D2 ROD that selects on-site disposal as a component of the remedy. This does not preclude resolution of these matters prior to submittal of the D1 ROD. TDEC sees no value in reviewing a D1 ROD that lacks the information needed to resolve these deficiencies.

Lessons learned with OREM's currently operating landfill, the Environmental Management Waste Management Facility (EMWMF), indicate the need for the FFA parties to reach agreement on siting, wastewater management, and the type and volume of waste to be disposed of prior to review and signature of the ROD. The EMWMF required a corrective action to add an underdrain. It was discovered that the assumptions used to design the EMWMF did not adequately address the groundwater level and its ability to inundate a portion of the waste. The State wishes to apply the lessons learned from EMWMF to avoid other foreseeable contingencies.

CERCLA threshold criteria must be met prior to signature of the ROD. The burden of demonstrating protectiveness to the State and the EPA falls upon the DOE, the Lead Agency. As one example of an unresolved State concern, the Focused Feasibility Study for landfill wastewater for both the EMWMF and the proposed EMDF is in formal dispute and awaits resolution by the EPA Administrator. TDEC reminds DOE of the State's position, as documented in the Proposed Plan, that discharge limits for disposal of landfill wastewater must be consistent with CERCLA and established in the ROD. This is consistent with the D5 RI/FS DRA. Agreement on discharge limits must be reached through resolution of the formal dispute on the FFS. As is true for other unresolved issues, the State cannot provide a substantive review of a D1 ROD that lacks agreed upon discharge limits. Therefore, TDEC recommends that DOE submit the D1 ROD after the FFS dispute is resolved.

Attachment 2 presents TDEC's understanding of the near-term project schedule, based on information provided by DOE-OREM, as well as the State's expectations for what DOE will deliver at each stage. Actual dates will depend on when TDEC receives the D1 ROD and if the ROD sufficiently addresses the key concerns of the State.

Consistent with the NCP, Section XIV of the FFA requires the FFA parties to confer regarding public comments, and for DOE to include a full responsiveness summary in the D1 ROD. Specifically, the FFA requires that "all Parties shall confer about the need for modification of the Proposed Remedial Action Plan and additional public comment based on the public response".

TDEC recognizes that DOE held a 90-minute meeting on February 6, 2019 to 1) "summarize, at a high-level, the responses to [public] comments" and 2) "get TDEC and EPA's input on the public's comments, with regard to the remedy". Approximately 195 individuals and organizations submitted about 250 comments, so additional time may be necessary to evaluate the substantive comments in more detail.

One common theme was the need for additional public review *after* DOE provides the information needed to resolve State and community concerns and *before* a decision is made. After the additional public review, the State would be in a position to evaluate all technical information and public comments to determine if approval, disapproval, or modification of the proposed remedy is appropriate to comply with CERCLA, the FFA, and the NCP.

Please direct any questions or comments regarding the contents of this letter to Brad Stephenson. You may reach him at the above address or by phone at (865) 220-6587.

Sincerely

A handwritten signature in cursive script that reads "Michael Huggins". Below the signature, the word "for" is written in a smaller, simpler font.

Randy C. Young
FFA Manager

xc: Connie Jones, EPA
Pat Halsey, DOE
Amy Fitzgerald, ORRCA
Shelley Kimel, SSAB
Ron Woody, ORRCA
Traci Cofer, ORRCA

ATTACHMENT 1

CONCERNS REMAINING TO RESOLVE BEFORE THE STATE OF TENNESSEE SIGNS A ROD FOR THE PROPOSED ENVIRONMENTAL MANAGEMENT DISPOSAL FACILITY (EMDF) AS OF FEBRUARY 2019

The State of Tennessee is unable to approve a Record of Decision (ROD) that selects onsite disposal until the U.S. Department of Energy (DOE) demonstrates that construction, operation, and closure of the facility will protect human health and the environment and comply with Applicable or Relevant and Appropriate Requirement (ARARs). The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan, also known as the National Contingency Plan (NCP) require protectiveness and compliance. The State Acceptance section of the Proposed Plan summarizes specific outstanding concerns that must be resolved before a ROD selects onsite waste disposal as a CERCLA remedy. DOE should not submit a first draft (D1) ROD before resolving these concerns to the satisfaction of the State.

Unresolved Concerns

Unless otherwise stated, the following key concerns are summarized in the State Acceptance section of the Proposed Plan.

Site Characterization

- As noted in the Field Sampling Plan (p. 32), which is Appendix B of the Proposed Plan, DOE will collect data at the Central Bear Creek Valley (CBCV) Site over a 1-year period (at minimum) to ensure seasonal high- and low-water levels are captured.
- DOE will place the data in the Administrative Record. As noted in the Proposed Plan (p. 26), all data collected to support the ROD or design will be available to the public.
- As noted in Item 3 of the Dispute Resolution Agreement (DRA) for the fifth-draft (D5) of the Remedial Investigation/Feasibility Study (RI/FS) and the Proposed Plan (p. 8), the field investigation, and review of the results by the U.S. Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC), shall be conducted prior to execution of the ROD and shall be used in selecting the remedy.

ATTACHMENT 1

- DOE will document any new information that changes understanding of the site's suitability consistent with the NCP at 40 CFR 300.430(f)(3)(ii), including possible issuance of a revised Proposed Plan.
- As noted in the D5 RI/FS (p. ES-5), site-specific characterization data and waste acceptance criteria (WAC) will be used to evaluate key RI/FS assumptions before ROD approval.
- As noted in the D5 RI/FS (p. 3-7 and p. 6-91, Figure 6-31, Note 2), DOE will document site characterization results and final WAC per the CERCLA process, including public participation. Unverified key assumptions will require revisiting the RI/FS alternatives, such as an RI/FS addendum and revised Proposed Plan with appropriate public comment prior to ROD.
- As noted in the D5 RI/FS (p. 7-7), the overarching [key] assumption is that the final landfill design will maintain a 15-foot (ft) unsaturated buffer zone between the waste and the seasonal high water table. The 15-ft buffer zone expectation derives from the 5-ft composite liner system thickness and the TDEC solid waste disposal facility requirement TDEC 0400-11-01-.04(4)(a)(2) for 10 ft of low-permeability geologic buffer material between the seasonal high water table elevation and the base of the liner system.
- As noted in the D5 RI/FS (p. 7-13), should site characterization and design performance modeling indicate that the required buffer zone thickness and minimum acceptable disposal capacity cannot be achieved at the selected site, the remedy selection process under CERCLA will be revisited, with an opportunity for public input prior to issuing the ROD.
- The State may request another public meeting if evaluation of the data changes the State's understanding of conditions at the Central Bear Creek Valley Site 7c [e.g., estimated historical high water table in accordance with TSCA 40 CFR 761.75(b)(3)].

ARAR Identification

- As noted in the Proposed Plan (Appendix A, Compliance with ARARs, State Acceptance), State acceptance of onsite disposal depends on agreement on a final list of protective requirements (ARARs), including how site characterization data and

ATTACHMENT 1

projections of waste to be disposed will inform how DOE justifies any ARAR waiver or exemption requests.

- CERCLA requires the ROD to include a final list of ARARs. It is the State's position that, at a minimum, ARARs will include State and Federal statutes, rules, and regulations identified in RI/FS Appendix G attached to the DRA. DOE may request CERCLA waivers and/or exemptions under the State radioactive waste disposal rules and waivers under TSCA.
 - State approval of such requests would require DOE to demonstrate to the satisfaction of TDEC that the waivers/exemptions meet the Equivalent Standard of Performance. In other words, DOE must demonstrate how the selected action would be equal to or greater than the ARAR in terms of: (1) the degree of protection afforded; (2) the level of performance achieved; and (3) the potential to be protective in the future. The time required to achieve beneficial results using the alternative should be considered. A technology-based requirement must be evaluated from a technology performance perspective, not from a risk perspective.
- As noted in the D5 RI/FS (p. 6-62, 6-95, and 7-22), ARARs associated with the Integrated Water Management (IWM) Focused Feasibility Study (FFS) are incorporated into the ARARs table of the RI/FS [and DRA]. It is intended that complete merging of conclusions reached in the IWM FFS and the RI/FS is addressed at the Proposed Plan stage. A single ROD will address the final integrated alternative, and include ARARs from both the RI/FS and the IWM FFS.
- As noted in the D5 RI/FS DRA (Item 6), Appendix G preliminarily reflects the ARAR and TBCs. The ROD will determine the final version of Appendix G (and waivers with justification if necessary) considering new information gathered after the Proposed Plan and all public comment received. Appendix G does not currently reflect agreement regarding DOE Order and Manual citations as "to be considered" (TBCs). DOE, EPA, and TDEC will resolve this issue prior to signature of the ROD.
- As noted in the Proposed Plan (p. 25-26 and App. A), site characterization data will support the determination in the ROD whether key ARARs can be complied with or whether regulatory exemptions/waivers will be required as part of the remedy

ATTACHMENT 1

selection documented in the ROD. The additional data also will be used to evaluate the ability of the remedy to meet CERCLA statutory requirements.

- As noted in the D5 RI/FS (p. G-8), any waiver request will be provided in writing or granted through approval of the ROD.
- As noted in the Proposed Plan (p. 14), the basis of the waivers or exemptions to be requested for onsite locations will be included in the ROD if an Onsite Disposal Alternative is selected.
- As noted in the Proposed Plan (p. 18), DOE anticipates requesting a Toxic Substances Control Act (TSCA) waiver and a Tennessee Department of Radiological Health (TDRH) exemption for the selected Onsite Disposal Alternative. DOE anticipates making these determinations in the ROD based on available data.

Waste Acceptance Criteria

- As stated in correspondence from TDEC's Commissioner, Bob Martineau, to DOE's Oak Ridge Office of Environmental Management (OREM) Manager Jay Mullis on March 1, 2018, "...an approved WAC is a must at the time the ROD would be signed. It can be an addendum of course, but we do not agree that we might sign the ROD and add the WAC as an addendum at a later date. We will not agree to say that we might finalize the WAC after the ROD but before waste is placed in the landfill."
- The State will independently verify DOE modeling used to develop the WAC. The State will consider site-specific data, assumptions, and exposure scenarios in evaluating whether the WAC support an onsite disposal alternative that meets CERCLA requirements, remedial action objectives in this Proposed Plan, and performance objectives in Tennessee radiological health rule 0400-20-11-.16.
- As noted in the D5 RI/FS (p. ES-5), site-specific characterization data and WAC will be used to evaluate key RI/FS assumptions before ROD approval.
- As noted in the D5 RI/FS (p. ES-7) and Proposed Plan (p. 12-13 & 26), site-specific WAC (including radiological contaminant-specific inventory limits) will be developed and included in the ROD prior to signature to ensure protection of human health and the environment.

ATTACHMENT 1

- As noted in the D5 RI/FS (p. 3-7 and p. 6-91, Figure 6-31, Note 2), DOE will document site characterization results and final WAC per the CERCLA process, including public participation. Unverified key assumptions will require revisiting the RI/FS alternatives, such as an RI/FS addendum and revised Proposed Plan with appropriate public comment prior to ROD.
- As noted in the D5 RI/FS (p. ES-6), the ROD will contain a commitment to waste minimization.

DOE Assessments

- As noted in the Proposed Plan (p. 26), [DOE] approval to proceed with construction will be granted before signature of the ROD. Similarly, the D5 RI/FS DRA (Item 4) states that DOE will issue a Preliminary Disposal Authorization Statement (PDAS) for onsite disposal of CERCLA mixed low level waste prior to signing the ROD.
- DOE's Performance Assessment (PA) and Composite Analysis (CA) should be in the Administrative Record because the State will rely on them when evaluating the protectiveness of the preferred alternative during remedy selection under CERCLA.
- As noted in the Proposed Plan (Appendix A, Compliance with ARARs, State Acceptance), State acceptance of onsite disposal depends on independent verification of DOE's assessments [PA and CA], to the extent that they inform the State's CERCLA decisions, including evaluation of potential long-term risks posed by exposure to hazardous contaminants like mercury and the toxic effects of uranium.
- The State will evaluate potential toxic effects of uranium in addition to potential cancer risk.

Mercury Disposal

- As noted in the Proposed Plan (Appendix A, Compliance with ARARs, State Acceptance), State acceptance of onsite disposal depends on DOE limiting or managing mercury disposal to provide reasonable assurance that the amount of mercury released in the future will not violate the intent of the Tennessee Water Quality Control Act or adversely impact people fishing and eating fish downstream.

ATTACHMENT 1

Use of Underdrains

- Selecting a disposal alternative that requires an underdrain would require (1) exemptions or waivers from Tennessee Division of Radiological Health and TSCA requirements and (2) a convincing demonstration that use of underdrain(s) would protect human health and the environment.
- As noted in the D5 RI/FS (p. 7-7), an additional key assumption is that the final design for the CBCV Site will not require permanent underdrains beneath the waste to maintain sufficient buffer zone thickness.

Discharge Limits

- Discharge limits for disposal of facility wastewater must be consistent with CERCLA and established in the ROD. The State considers it important for a future onsite disposal facility to protect downstream surface water users who eat fish and comply with the Tennessee Water Quality Control Act and regulations.
- As noted in the D5 RI/FS (p. 4-1), one Remedial Action Objective (RAO) is defined in the IWM FFS to address landfill wastewater; all RAOs will be merged in the Proposed Plan and ROD.
- As noted in the D5 RI/FS (p. 6-62, including Note 14; p. 6-94, including Note 15; p. 6-95; and p. 7-22), the IWM FFS presents details regarding the water treatment alternatives and their operation (discharge limits and discharge locations). It is intended that complete merging of conclusions reached in the IWM FFS and the RI/FS will be addressed at the Proposed Plan stage. A single ROD will address the final integrated alternative, and include ARARs from both the RI/FS and the IWM FFS.
- As noted in the D5 RI/FS (p. G-25 & DRA p. G-29), RCRA listed waste will be prohibited from disposal at the proposed EMDF per the ROD.¹

¹ Estimates of future waste streams at the EMDF, however, indicate there may be enough mercury to cause leachate or contact waters to fail TCLP for hazardous characteristics, which would cause the wastewater stream to be characteristically hazardous. Further, the IWM FFS (p. E-14) states that the amount of mercury-contaminated waste soil and debris expected to be disposed is large enough to result in significant "as-disposed" soil mercury concentrations that may result in measurable mercury concentrations in the leachate. It also says that leachate concentrations could exceed water quality criteria for mercury.

ATTACHMENT 1

- As noted in the Proposed Plan (p. 13), the Administrative Record for the management and discharge of wastewater is not complete, and evaluation of alternatives to address wastewater management in the second-draft (D2) FFS is currently in dispute among DOE, EPA, and TDEC. The ROD will describe CERCLA and NCP-compliant discharge requirements for wastewaters from the EMDF.
- As noted in the Proposed Plan (Appendix A, Compliance with ARARs, State Acceptance), State acceptance of onsite disposal depends on the amounts of hazardous and radioactive constituents that DOE may discharge into Bear Creek being consistent with CERCLA and agreed to in the ROD.

Federal Facility Agreement (FFA) ROD Requirements (Section XIV)

- Upon completion of the public comment period, all Parties shall confer about the need for modification of the Proposed Remedial Action Plan and additional public comment based on the public response.
- When public comment has been properly considered, the DOE shall submit its initial D1 ROD(s), including the responsiveness summary, in accordance with applicable guidance.
- The DOE shall also submit the proposed Administrative Record (AR) Index with transmittal of the D1 ROD for review, in accordance with Appendix I-10, AR Index Transmittal Operating Instructions.
- The D1 ROD(s) shall meet the purposes set forth in Section III (Purposes of Agreement) of the FFA.
- A review in accordance with Section XXI (Review/Comment) shall be conducted on the D1 ROD(s).
- If the Parties agree on the D1 ROD(s), the D1 ROD(s) shall be adopted by EPA and TDEC, and the DOE shall issue the ROD(s) for signature by DOE, EPA, and TDEC.
- Notice of the final ROD(s) shall be published by the DOE with EPA's concurrence and shall be made available to the public prior to the commencement of the remedial action(s), in accordance with Sections 117(b), (c), and (d) of CERCLA, 42 U.S.C. §§ 9617(b), (c), and (d).

ATTACHMENT 1

Other Requirements

Responsiveness to State and Community Input

- As noted in the State Acceptance section of the Proposed Plan, CERCLA requires DOE to incorporate meaningful citizen input into making the decision.
- Appendix A of the Proposed Plan notes that State acceptance of onsite disposal depends on community feedback and DOE's evaluation/inclusion of public input.
- As noted in the D5 RI/FS (p. 7-2), the viability of the preferred alternative is evaluated on the basis of two modifying criteria, state acceptance and community acceptance; these criteria will be addressed in the ROD based on stakeholder participation (state and community) and feedback on the preferred alternative identified in the Proposed Plan.
- As noted in the Proposed Plan (p. 27), DOE will document, evaluate, and respond to comments as part of the subsequent ROD.

Administrative Record

- As noted in the Proposed Plan (p. 26), any new information collected after this Proposed Plan and prior to the signature of the ROD will be placed in the Administrative Record.
- As noted in the Proposed Plan (p. A-6), State acceptance of onsite disposal depends on timely inclusion in the Administrative Record of all primary and secondary documents, decision-relevant correspondence, and public notices/presentation materials that form the basis for remedy selection, including the PA, CA and PDAS.

Design & Land Use Controls and S&M/Performance Monitoring

- As noted in the D5 RI/FS (p. 6-80), the future ROD will include an indication that, as a phased construction is implemented, the landfill design will be reviewed and reconsidered under new developments regarding the functioning of the design for those later phases.
- As noted in the D5 RI/FS (p. 5-17), permanent restrictions, e.g., ROD land use controls on land and groundwater use, would help ensure long-term protection of

ATTACHMENT 1

workers and the public. Should monitoring of the site ever detect non-compliance with RAOs, corrective actions would be implemented.

- As noted in the D5 RI/FS (p. 6-95 & 6-97), surveillance and maintenance (S&M) and performance monitoring would be performed during operation and after facility closure.... Determinations regarding the entity performing the work...would necessarily be determined and incorporated into the ROD.
- As noted in the D5 RI/FS (p. 7-14, 7-17, 7-33, 7-38, 7-40, and 7-66) and the Proposed Plan (p. 26), selection of the...CBCV Site...would require BCV Phase I ROD modifications to limit future use of those sites in accordance with ROD cleanup levels. Site 7c (CBCV) is located in future (long-term) land use designation of unrestricted usage as well, with a short-term restriction for recreational use only. However, if selected, either site will require a revision to the future land use designation as well to allow an area in Zone 2 to be used for long-term waste management. Moreover, given the future long-term land usage plans, no future planned developments would be allowed within DOE property limits.
- As noted in the D5 RI/FS (p. 7-26), institutional controls would prevent access to EMDF and use of local groundwater. Active institutional controls would continue for an indefinite period and land use restrictions would be made permanent through the property deed or ROD. Further, state and federal regulations (e.g. 40 CFR 264.116 and 40 CFR 62.151) require that local authorities be provided with a survey plat showing the locations and dimensions of the landfill cells. S&M of the facilities and monitoring to determine the effectiveness of the primary controls would continue for the period of active institutional controls.

Wetlands Mitigation

As noted in the D5 RI/FS (p. G-18), wetlands would be destroyed or adversely impacted and compensatory mitigation in the form of wetland restoration, creation, or enhancement would be carried out as required.

ATTACHMENT 2

TDEC UNDERSTANDING OF NEAR-TERM SCHEDULE FOR THE PROPOSED ENVIRONMENTAL MANAGEMENT DISPOSAL FACILITY (EMDF) AS OF FEBRUARY 2019

The following discussion presents the Tennessee Department of Environment & Conservation's (TDEC's) understanding of the approximate schedule for deliverables related to a forthcoming Record of Decision (ROD) for the proposed Environmental Management Disposal Facility (EMDF) project. TDEC's understanding is based on information provided by the U.S. Department of Energy (DOE) Oak Ridge Office of Environmental Management (OREM) and standard timetables and deadlines in Section XXI of the Federal Facility Agreement (FFA) for the Oak Ridge Reservation (ORR). FFA timetables allow eight review/decision pathways, as illustrated on Figure 1. Refer to Figure 1 for Pathways 1 through 8 in the discussion below. Depending on the pathway actually followed, **TDEC would sign or dispute (comment on) the second-draft (D2) ROD between August 6 and November 4, 2019.**

The discussion below also presents the State's expectations for what the DOE will deliver at each stage, as listed in Attachment 1. These expectations are based on the assumption that the DOE will select onsite disposal as a component of the remedy for ORR CERCLA waste disposal. Actual dates will depend on when TDEC receives the first-draft (D1) ROD and timetables/deadlines agreed by the FFA Parties.

Before signing the ROD, TDEC would need to review information that the DOE may provide to resolve outstanding concerns. TDEC is willing extend the FFA milestones for the D1 ROD and subsequent documents to allow the DOE sufficient time to develop and submit the information needed to resolve State concerns. Regardless of whether the DOE requests schedule extensions, substantive State review requires timely and complete submittals.

The DOE should not submit the D1 ROD to TDEC before resolving the State's concerns. Although previous Dispute Resolution Agreements (DRAs) allow some concerns to be resolved before signature of the D2 ROD, the State strongly recommends that the D1 ROD resolve concerns to the extent possible to facilitate consensus on the D2 ROD. Submittal of the D1 ROD before resolving the DOE's outstanding commitments could preclude the State's ability to review and sign the D2 ROD in accordance with CERCLA and the FFA.

January-March 2019: Public Comment Response

- Upon completion of the public comment period (January 9, 2019)
 - The DOE must properly consider public comments.

ATTACHMENT 2

- FFA Parties shall confer about the need for modification of the proposed plan and additional public comment based on any new information that changes understanding of site suitability consistent with 40 CFR 300.430(f)(3)(ii).
- The DOE must prepare a responsiveness summary in accordance with applicable guidance to document, evaluate, and respond to public comments in the D1 ROD.
- The Parties shall confer to finalize all potential Applicable or Relevant and Appropriate Requirement (ARARs).
 - D1 ARARs determinations shall be prepared by the DOE in accordance with Section 121(d)(2) of CERCLA, 42 U.S.C. §9621(d)(2), the NCP, and pertinent guidance issued by the EPA.
 - Actual ARARs can be identified only on a site-specific basis.
 - ARARs depend on the specific hazardous substances, pollutants or contaminants at a site; the actions proposed as a remedy; and the site characteristics.
 - The Parties will resolve the current lack of agreement regarding DOE Order and Manual TBCs as citations in the ROD.
 - ARAR identification is an iterative process; potential ARARs must be re-examined until the DOE implements the Remedial Action.
- Central Bear Creek Valley (CBCV) data
 - Although the 1-year period (minimum) of data collection ends on March 7, 2019, maintaining the DOE's schedule requires:
 - TDEC review of raw data well before TM-2 is submitted in April 2019¹; and
 - DOE provision of a defensible estimate of the seasonal high water table (surface) across the proposed landfill footprint.
 - Unverified key assumptions will require revisiting the RI/FS alternatives, such as an RI/FS addendum and revised Proposed Plan with appropriate public comment prior to ROD.
 - The overarching key assumption is that the final landfill design will maintain a 15-foot (ft) unsaturated buffer zone between the waste and the seasonal high water table. This assumption is based on a 5-ft-thick composite liner system and the TDEC 0400-11-01-.04(4)(a)(2) requirement for 10 ft of low-permeability geologic buffer material between the seasonal high water table and the base of the liner system.
 - Should site characterization and design performance modeling indicate that the required buffer zone thickness cannot be achieved at the selected site, the CERCLA remedy selection process will be revisited, with an opportunity for public input prior to issuing the ROD.

¹ On February 6, 2019, DOE provided data collected through January 10, 2019.

ATTACHMENT 2

- The State may request another public meeting if evaluation of the data changes the State's understanding of site [e.g., estimated historical high water table in accordance with Toxic Substances Control Act (TSCA) 40 CFR 761.75(b)(3)].

April 8, 2019: D1 ROD Milestone (Approved by TDEC & EPA in February 2019)

- The ROD shall meet the purposes set forth in FFA Section III.
- The D1 ROD should resolve State concerns to facilitate consensus on the D2 ROD (see D2 ROD expectations below).
- The DOE must include the responsiveness summary described above.
 - The DOE must incorporate meaningful citizen input into making the decision;
 - The D1 ROD must evaluate viability of the preferred alternative on the basis of:
 - State acceptance and community acceptance; and
 - Feedback on the preferred alternative identified in the Proposed Plan; and
 - State acceptance of onsite disposal depends on community feedback and the DOE's evaluation/inclusion of public input.
- The D1 ROD shall commit to the following:
 - Review and reconsideration of the design of the landfill, including wastewater management systems, as phased construction is implemented;
 - Compensatory mitigation to restore, create, or enhance wetlands destroyed or adversely impacted by landfill construction;
 - Identification of entities responsible for surveillance & maintenance (S&M) and performance monitoring during operation and perpetually after closure;
 - Corrective action implementation should monitoring of the site ever detect non-compliance with RAOs;
 - Revision to the future land use designation to allow the CBCV area in Zone 2 to be used for long-term waste management and prohibit future planned developments on DOE property in the area;
 - Permanent institutional controls to help ensure long-term protection of workers and the public:
 - Preventing access to EMDF;
 - Preventing use of local groundwater; and
 - Providing local authorities with survey plats showing the locations and dimensions of the landfill cells; and
 - Date by which the DOE will modify the BCV Phase I ROD to limit future use in accordance with ROD cleanup levels.
- The DOE shall submit the proposed Administrative Record (AR) Index, in accordance with FFA Appendix I-10, AR Index Transmittal Operating Instructions:

ATTACHMENT 2

- The AR Index should include all information and data collected to support the ROD (e.g., TM-2, PA, CA, and PDAS), as well as a list of forthcoming documents that will support the design (e.g., Phase 2 & 3 Field Sampling Plans, Remedial Design Work Plan, and Remedial Design Report/Remedial Action Work Plan).
- TDEC shall review the D1 ROD in accordance with FFA Section XXI.
 - If the Parties agree, EPA and TDEC shall adopt the D1 ROD, and the DOE shall issue the ROD for signature by the DOE, EPA, and TDEC.
 - Notice of the final ROD shall be published by the DOE with EPA's concurrence and shall be made available to the public prior to the commencement of the remedial action(s), in accordance with Sections 117(b), (c), and (d) of CERCLA, 42 U.S.C. §§ 9617(b), (c), and (d).
- CBCV Data
 - 1-year period (minimum): OREM began recording groundwater levels at all CBCV wells on March 8, 2018, so the 1-year period ends March 7, 2019.
 - The DOE may need to include data from the Environmental Management Waste Management Facility (EMWMF) and/or other locations identified in the Phase 1 Field Sampling Plan to provide a defensible estimate of the seasonal high water table (surface) across the proposed landfill footprint.
 - The FFA Parties shall confer about the need for modification of the proposed plan and additional public comment based on any new information that changes understanding of site suitability consistent with 40 CFR 300.430(f)(3)(ii).
 - NOTE: Maintaining the DOE's schedule requires TDEC review of raw data well before the scheduled TM-2 submittal in April 2019². This is necessary to allow review of results for use in selecting a remedy before ROD execution.

April 2019: Technical Memorandum #2 (TM-2) in Administrative Record

- The DOE will document CBCV site characterization results (described above) in TM-2 and place TM-2 in the Administrative Record.

June 7, 2019: TDEC D1 ROD Comments (Pathways 1, 2, 3, 4)

- If the DOE submits the D1 RD before resolving key State concerns or DOE commitments, TDEC would likely request a 30-day extension, as allowed by the FFA.
- Submittal of the D1 ROD before resolving the DOE's outstanding commitments could preclude the State's ability to review and sign the ROD in accordance with CERCLA and the FFA.

ATTACHMENT 2

- TDEC comments would detail any State expectations or DOE commitments associated with the D2 ROD (see below) that have not been met when the DOE submits the D1 ROD.

July 6, 2019: D2 ROD (Pathways 1, 2) or **TDEC D1 ROD Comments** (Pathways 5, 6, 7, 8)

August 6, 2019: D2 ROD (Pathways 3, 4, 5, 6) or **D2 ROD Signed/Disputed²** (Pathway 1)

- Preliminary Disposal Authorization Statement (PDAS)
 - The DOE must provide a PDAS for onsite disposal of CERCLA mixed low-level waste before ROD signature.
 - The DOE anticipates availability of a PDAS in June or July, per a December 10, 2018 email from DOE (Dave Adler) to TDEC (Chris Thompson).
 - NOTE: Per January 4, 2019 email from DOE (Susan DePaoli) to TDEC (Brad Stephenson), DOE will complete testing to determine site-specific Kd values for two important PA/CA drivers, iodine and technetium, before the Operational Disposal Authorization Statement (ODAS)—i.e., after the PDAS and ROD.

TDEC's decision regarding whether to sign the ROD will be based on whether the ROD resolves State concerns and DOE commitments, as described below, to achieve overall protection of human health and the environment.

- The DOE must include the following in the Administrative Record in a timely manner:
 - All documents, decision-relevant correspondence, and public notices/presentations that form the basis for remedy selection in the ROD;
 - The PA, CA and PDAS;
 - Any new information collected after the Proposed Plan and prior to the signature of the ROD; and
 - A list of existing and forthcoming documents that will support the design.
- TDEC will evaluate key RI/FS assumptions using DOE's site-specific characterization data, assumptions, exposure scenarios, and waste acceptance criteria (WAC).
- Final ARARs/TBCs
 - Include State and Federal statutes, rules, and regulations identified as ARARs/TBCs in RI/FS Appendix G attached to the DRA
 - Include ARARs associated with the Integrated Water Management (IWM) Focused Feasibility Study (FFS)

² Public comments on the Proposed Plan highlight the need for additional public review *after* DOE provides the information needed to resolve State and community concerns and *before* a decision is made. Therefore, additional public review must be included in the schedule.

ATTACHMENT 2

- Agree on DOE Order/Manual citations as TBCs before ROD signature
- Include the basis for and justify any requests for CERCLA waivers and/or exemptions under State radioactive waste disposal rules and/or TSCA waivers if an onsite disposal alternative is selected as part of the remedy
 - Use available data to evaluate support for a TSCA waiver and a Tennessee Department of Radiological Health (TDRH) exemption for onsite disposal
 - Demonstrate to the satisfaction of TDEC that any requested waivers/exemptions would meet the Equivalent Standard of Performance
 - Describe how site characterization data and waste projections inform justification of any ARAR waiver or exemption requests
- Evaluate site characterization data to determine the ability of the remedy to meet CERCLA statutory requirements
- Consider new information gathered after the Proposed Plan and all public comment
- Final WAC
 - The DOE must demonstrate that any onsite disposal alternative meets CERCLA requirements, remedial action objectives in this Proposed Plan, and performance objectives in Tennessee radiological health rule 0400-20-11-.16.
 - The DOE will document site characterization results and final WAC per the CERCLA process, including public participation.
 - The ROD will contain a commitment to waste minimization.
 - TDEC review will be based on
 - Final, site-specific WAC (including radiological contaminant-specific inventory limits) in the ROD prior to signature;
 - Independent verification of DOE modeling used to develop the WAC; and
 - WAC used to evaluate key RI/FS assumptions.
 - Unverified key assumptions will require revisiting the RI/FS alternatives, such as an RI/FS addendum, and revised Proposed Plan with appropriate public comment.
- DOE Assessments
 - The DOE Headquarters must issue a PDAS approving construction of an onsite landfill for CERCLA mixed low-level waste.
 - The DOE's Performance Assessment (PA) and Composite Analysis (CA) should be in the Administrative Record because the State will rely on them when evaluating the protectiveness of the preferred alternative during remedy selection under CERCLA.
 - State acceptance of onsite disposal depends on
 - Independent verification of the DOE's assessments (PA and CA), to the extent that they inform the State's CERCLA decisions; and

ATTACHMENT 2

- Evaluation of potential long-term risks associated with hazardous contaminants like mercury and the toxic effects of uranium, as well as potential cancer risk.
- Mercury Disposal
 - The DOE will limit or manage mercury disposal to provide reasonable assurance that the amount of mercury released in the future will not violate the intent of the Tennessee Water Quality Control Act or adversely impact people fishing and eating fish downstream.
- Use of Underdrains
 - The design will not rely on permanent underdrains beneath the waste to maintain sufficient buffer zone thickness.
 - The DOE must provide a convincing demonstration that any proposed underdrains would protect human health and the environment sufficiently to justify exemptions or waivers from TDRH and TSCA requirements.
- Discharge Limits
 - Discharge requirements for management of facility wastewater from onsite disposal—i.e., the amounts of hazardous and radioactive constituents that the DOE may discharge into Bear Creek—must:
 - Be described and agreed to in the ROD;
 - Be consistent with CERCLA and the NCP; and
 - Meet discharge limits for key COCs to protect surface water for designated uses—a Remedial Action Objective (RAO) defined in the IWM FFS.
 - An onsite disposal facility must:
 - Protect downstream surface water users who eat fish;
 - Comply with the Tennessee Water Quality Control Act and regulations; and
 - Prohibit RCRA listed waste disposal on site.³

September 5, 2019: D2 ROD (Pathways 7, 8) or **TDEC D2 ROD Signed/Disputed²** (Pathways 2, 3, 5)

October 5, 2019: TDEC D2 ROD Signed/Disputed² (Pathways 4, 6, 7)

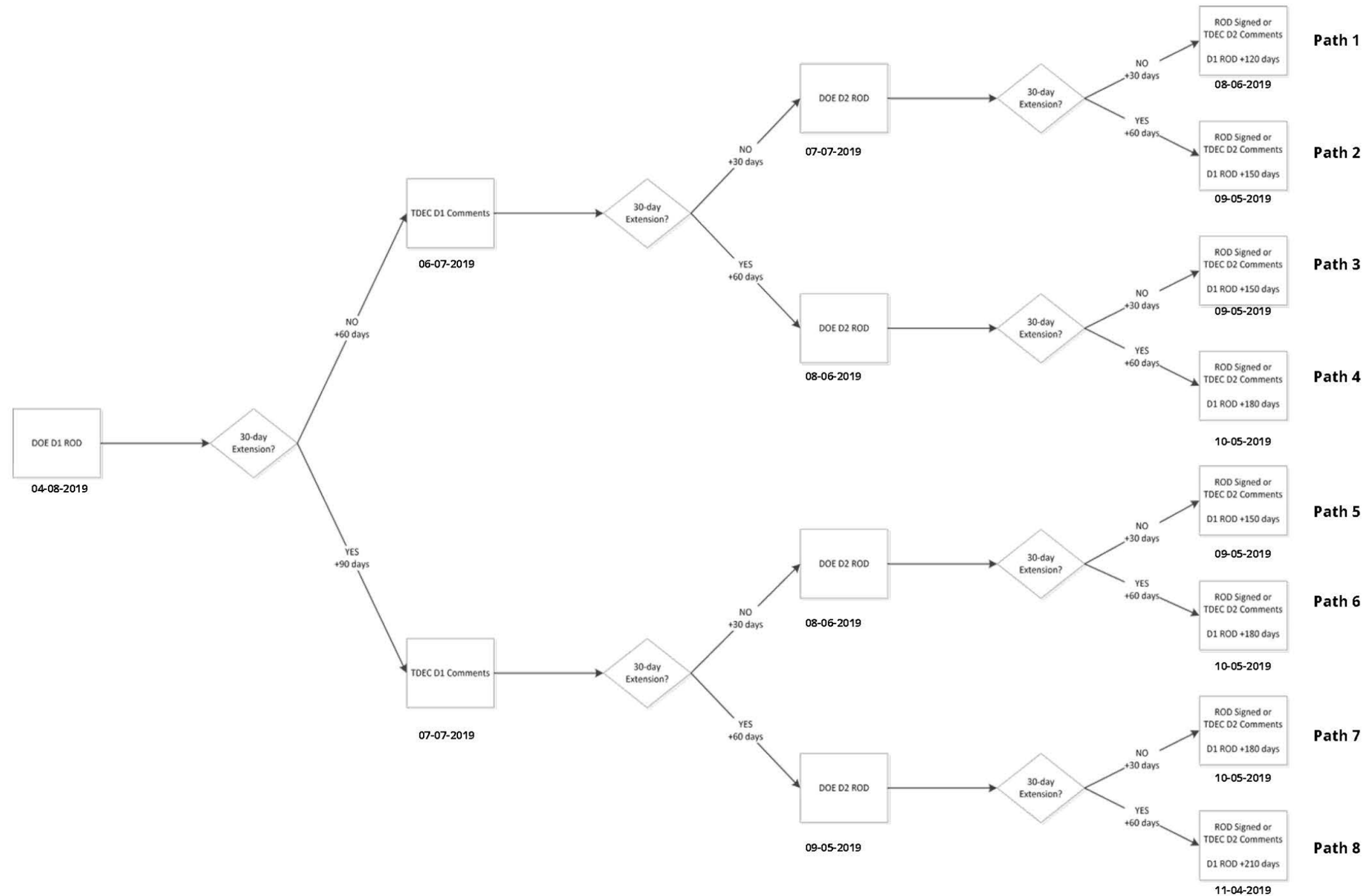
- As of November 28, 2018, DOE (Dave Adler) told the Oak Ridge Site Specific Advisory Board's Environmental Management (EM)/Stewardship Committee that DOE will finalize waste acceptance protocols six months after the submitting D1 ROD. Mr. Adler noted

³ Estimates of future waste streams at the EMDF indicate there may be enough mercury to cause landfill wastewater to fail TCLP for hazardous characteristics, which would cause the wastewater to be characteristically hazardous. Per the IWM FFS (p. E-14), the amount of mercury-contaminated waste expected to be disposed is large enough to result in significant "as-disposed" mercury concentrations that may result in measurable mercury concentrations in the leachate. It also says that leachate concentrations could exceed water quality criteria for mercury.

ATTACHMENT 2

that DOE would probably have additional public engagement on WAC and then six months later, theoretically, a ROD could be signed.

Any TDEC decision regarding whether to sign the ROD will be based on whether the ROD resolves State concerns and DOE commitments, as described above, to achieve overall protection of human health and the environment.



D1 - Second Draft
 D2 - First Draft
 DOE - U.S. Department of Energy
 EMDF - Environmental Management Disposal Facility
 EPA - U.S. Environmental Protection Agency
 FFA - Federal Facility Agreement
 ROD - Record of Decision
 TDEC - Tennessee Department of Environment & Conservation

Figure 1
 EMDF Record of Decision
 FFA Schedule Pathways
 February 2019

