UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

September 27, 2021

VIA ELECTRONIC MAIL

Mr. Roger B. Petrie
Federal Facility Agreement Manager
Oak Ridge Office for Environmental Management
Department of Energy
Post Office Box 2001
Oak Ridge, Tennessee 37831

Dear Mr. Petrie:

The U.S. Environmental Protection Agency has completed review of the *Record of Decision for Comprehensive Environmental Response, Compensation, and Liability Act Oak Ridge Reservation Waste Disposal at the Environmental Management Disposal Facility, Oak Ridge, Tennessee* (DOE/OR/01-2794&D1) received on July 12, 2021.

This document presents the results of a combined effort between the U.S. Department of Energy Oak Ridge Office (DOE), the Tennessee Department of Environment and Conservation (TDEC) and the U.S. Environmental Protection Agency in addressing the need for additional radioactive, hazardous, and mixed waste management and disposal capacity under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Comments are attached and must be resolved before a revised document is submitted.

If you have any questions or concerns regarding this matter or require additional information, then please contact me at (404) 562-8550, or electronically at froede.carl@epa.gov.

Sincerely,

Carl R. Froede Jr.
Senior Remedial Project Manager
Restoration & DOE Coordination Section
Restoration & Site Evaluation Branch
Superfund & Emergency Management Division

cc: B. Henry, DOE
D.. Mayton, DOE
S. Scheffler, DOE
E. Phillips, DOE
DOE Mailroom
P. Flood, TDEC
S. Stout, TDEC
G. Young, TDEC
R. Young, TDEC
B. Stephenson, TDEC
C. Myers, TDEC
ORSSAB
M. Noe, DOE

EPA comments on the Record of Decision for Comprehensive Environmental Response, Compensation, and Liability Act Oak Ridge Reservation Waste Disposal at the Environmental Management Disposal Facility, Oak Ridge, Tennessee (DOE/OR/01-2794&D1)

General Comments

X. This Record of Decision (ROD) is specifically selecting Central Bear Creek Valley (CBCV) **Site 7c** as the location for the EMDF. Many references throughout the ROD cite CBCV but nothing is mentioned specific to Site 7c. The 2017 RI/FS also identifies Site 7a (in a dual site plan) overlapping Site 7c and this is shown in the ROD as Figure 2.2. Which landfill configuration is being selected? Please specify Site 7c in association with reference to the CBCV and identify it on a map so the reader can understand its specific location and configuration in Bear Creek Valley (Note: Site 7c is shown in Figures 2.4. and 2.5. on pages 56 and 58 of the D1 ROD but not identified as such. Site 7c should be clearly indentified as the location of the EMDF throughout this ROD).

X. Sections 1.1 and 2.1, and repeated throughout document. The name of the NPL site is Oak Ridge Reservation (USDOE), per the original rule, published in 48184 - 48189 Federal Register / Vol. 54, No. 223 / Tuesday, November 21, 1989. The D1 ROD consistently identifies the site as Oak Ridge NPL site, rather than using the correct term Oak Ridge Reservation (USDOE) NPL site. Abbreviating the site name is acceptable, but the correct text should be used in Sections 1.1 and 2.1, and the abbreviation defined (see [HYPERLINK "https://semspub.epa.gov/work/HQ/189634.pdf"]).

X. The ROD includes an evaluation of greenhouse gas emissions for the offsite disposal alternative. EPA expects ~~recommends also including in~~ the ROD to include a discussion of the potential impacts of climate change on the proposed remedy, including potential changes in rainfall, storm events and hydrologic conditions, and climate resiliency measures to be addressed in the design and construction of the remedy.

X. ~~The draft ROD also refers to LLW and higher level waste. However, the document does not provide a definition or how that relates to CERCLA and the risk range. Region shared relating this to the risk range would be a challenge. Revising comment to state "The draft ROD also refers to LLW and higher level waste. However, the document does not provide a definition. These definitions should be added to the ROD."~~

X. The draft ROD also refers to LLW and higher level waste. However, the document does not provide a definition. These definitions should be added to the ROD.

X. ~~Additionally, the document does not seem to consider the 2021 Focused Feasibility Study. I have not reviewed the 2021 FFS, but it is my understanding that the 2021 FFS does not comply with the latest guidance regarding the CWA WQBELS and risks associated with discharge limits for radionuclides are outside of EPA's risk range. It is important that the information in The the~~ 2021 FFS ~~should be revised, per EPA and TDEC comments on the D3, and approved prior to issuance of the final EMDF ROD. The water quality criteria for radionuclides discharged to Bear Creek will be developed in the FFS and must be incorporated in the EMDF RODbe corrected and complies with CERCLA. The FFS should also be released to the public for comment and when finalized be considered in the decision-making process.~~

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Proposed edited comment on a different comment regarding WQBELs, 10-5 and updates and consistency between FFS and ROD should address this concern. Same for public comment item addressed in other comments.

X. The D3 F2021 FS uses a significantly flawed method for developing discharge limits for radionuclides, most of which would pose risks of 10-2 to 10-0, which does not comply with the CWA WBELS (10-5) and is outside the CERCLA risk range (10-6 to 10-4). (See EPA's comments on the FFS.) It is EPA's understanding that this issue is being addressed in the revised D3 FFS.

X. The draft ROD does not provide much discussion about the dispute and the impacts of the dispute resolution on this decision. This needs to be addressed, given that the dispute decision is still under discussion and the outcome of the decision (discharge limits) are not included in the draft ROD.

X. The D1 ROD appears to be iInconsistent with the Administrator Wheeler's Dispute Decision which clarifies that the CWA applies to radiological discharges to surface water. is under review. Does not provide an accurate portrayal of the decision and doesn't show how this was factored into this decision. Rather, the D1 ROD It seems to be relying on the NRC regulations and not other parts of the decision. Please clarify this issue in the revised ROD.

X. Major sections of the D1 ROD are missing which make it difficult to provide a complete regulatory review. Deficiencies include: the waste acceptance criteria, radiological discharge levels, and the ARARs among other issues.

X. The draft ROD lacks key information that is critical to the complete review of the decision. This key information has not been provided to EPA for review or the public for the opportunity to comment. The key information relates to PRGs (in this case they would be cleanup levels) and discharge limits for the contaminants that would be disposed of at the FMDF and potentially discharged waste water. Not only are the numerical criteria missing, the risk associated with any proposed levels are also not included in the draft document.

X. As it relates to comment #1 above. There are numerous statements throughout the draft ROD that state that the "the remedy is protective of human health and the environment" or "complies with CERCLA requirements" or "complies with ARARs" however, because of the missing information (see comments #1 above) these statements are not supported.

X. Due to current deficiencies, we are unable to complete a comprehensive review of the draft ROD. A complete draft ROD is needed that conforms with CERCLA and the NCP. Deficiencies include: the waste acceptance criteria, the landfill design, the cleanup goals, and the ARARs among other issues. It doesn't contain key elements and therefore should not be viewed as a complete package under the FFA. It does not contain numerical release criteria, numerical Waste Acceptance Criteria, complete ARARs, no risk levels at all, etc.

X. Major sections of the D1 ROD are missing which make it difficult to provide a complete regulatory review. Deficiencies include: the waste acceptance criteria, radiological discharge levels, and the ARARs among other issues.

X. The regulatory agencies must have the opportunity to review the proposed WAC, discharge limits for rads, mercury, and located site location information before those items go out for public comment.

X. The draft ROD also makes and changes land use designations. CERCLA RODs or remedies can make land use assumptions based on land use designations, that are typically done at the local level. In this case, it would be by DOE in their Facility Land Use Plan. The draft ROD should be clear on that issue and provide a basis for changing the land use assumptions.

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The FFS will be reviewed by EPA in a parallel effort. AWQC revised comment above should address this comment.

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The Region is accepting this document as a D1.Revise comment to state "Major sections of the D1 ROD are missing which make it difficult to provide a complete regulatory review. Deficiencies include: the waste acceptance criteria, radiological discharge levels, and the ARARs among other issues.

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This came from Row 38 on "All Comments", Final HQ Comments. Not clear what Comment #1 is referencing.

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Addressed through previous edited comment on this topic.

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The Region is accepting this document as a D1.Revise comment to state "Major sections of the D1 ROD are missing which make it difficult to provide a complete regulatory review. Deficiencies include: the waste acceptance criteria, radiological discharge levels, and the ARARs among other issues.

Commented [AC7]: Kept comment, but moved it up in the sequence.

Commented [AK8]: HQ Comment: Consolidate with other comments

X. ~~The RAOs need to have concentrations or levels that provide a reference for how the RAOs will be met.~~

X. ~~Final WAC (numerical values) and associated risks need to be provided in the ROD and to the public for comment. It is unclear the risks associated with the landfill once it is operational and accepting waste, and at closure.~~

X. ~~Landfill Protectiveness—The draft ROD does not provide information on the protectiveness of the landfill and does not provide limits on what will be put in the landfill (see WAC discussion above). The ARARs table is lacking at this point.~~
~~For the McClellan Air Force Base in Region 9 an analysis was conducted termed a Stennet analysis that provided information on what would be protective for the landfill. This type of analysis is needed for leaving RAD waste in place. While this consultation doesn't apply to Federal Facilities it was done for McClellan as an extra assurance of protectiveness. As a result, the Air Force noted that above a certain level of radioactivity it would not be disposed of in that landfill. A similar analysis has not been conducted for ORR.~~

~~In addition, the contaminants include Rn-222 which result in radon emissions. We have had levels of radon at levels unprotective for workers and additional precautions such as a deeper cap are needed. This needs to be evaluated.~~

X. ~~Waste Acceptance Criteria. Disposal of The contaminants include~~ Rn-222 ~~may which~~ result in radon emissions ~~relevant to worker protection~~. ~~We have had levels of radon at levels unprotective for workers and additional precautions such as a deeper cap are needed.~~ Has this been evaluated for EMDF?

X. EPA ~~and TDEC-HQ~~ has~~es~~ determined ~~and DOE has agreed~~ that ~~the EMDF the site~~ROD merits additional public involvement activities before finalization ~~of the ROD. Public involvement should include new information developed since the September 2018 Proposed Plan specifically. HPQ HQ supports statements the Region 4 project team and management level has provided advising DOE to have public engagement on~~ the WAC, discharge limits for rad~~ionuclide~~s ~~and~~ mercury, and ~~groundwater elevation at the proposed~~ site location ~~information~~. ***DOE should issue a revised Proposed Plan for formal public comment*** which would ensure steps to have meaningful public involvement have been taken. EPA Region 4 will work with DOE and the State to determine an appropriate path forward for community engagement ~~for the EMDF at ORR~~ regarding this cleanup decision. ~~Please note that an optional fact sheet to explain the ROD in a concise format can be used to communicate the decision more effectively with the public. A video going over the fact sheet or a information session about the ROD can also be considered. EPA is aware that DOE is planning community engagement activities and public comment. Resulting public comments and responsiveness should be included in the final ROD.~~

X. The regulatory agencies must have the opportunity to review ~~and approve~~ the proposed WAC, discharge limits for rads, mercury, and located site location information before those items go out for public comment.

X. **Cleanup Levels Not Provided/Incorrect Compliance Measurement** – Pursuant to the National Contingency Plan (NCP) at 40 CFR § 300.430(f)(5)(iii), "The ROD also shall indicate, as appropriate, the remediation goals discussed in paragraph (e)(2)(i) of this section, that the remedy is expected to achieve. Performance shall be measured at appropriate locations in the groundwater, surface water, soils, air, and other affected media." In the case of the EMDF landfill generated wastewater that will be

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This comment may be addressed when WAC and RDLs are added to the ROD. On it's own, the comment is not clear for the Region to address.

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WAC will be in the ROD and undergo Public Comment.

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Consolidate with other comments on WAC. Include statement that WAC should address ARARs and TBCs compliance as well as remedy protectiveness, omit the McClellan reference as it doesn't appear to be fully relevant or helpful. Regarding radon emissions, perhaps send as a separate comment to R4 to ask whether Jon Richards has been consulted regarding potential for radon gas exposure for workers. Comment moving forward is Consolidate with other comments on WAC. The contaminants include Rn-222 which result in radon emissions. We have had levels of radon at levels unprotective for workers and additional precautions such as a deeper cap are needed. Has this been evaluated for EMDF?"

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Ex Responses: Agree; already included in R4 comments. If not included: out of ROD scope, being addressed through other review processes;

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discharged into Bear Creek (or its tributaries) the remediation goals (i.e., cleanup levels) shall include effluent limits based on instream ambient water quality criteria (AWQC) equivalent for radionuclides that have been properly derived in accordance with identified 'applicable or relevant and appropriate requirements' (ARARs). Consistent with the NCP and as required by the Clean Water Act (CWA) regulations identified as ARARs (Ref. Assistant Administrator Peter Wright ARARs table from Jan 19, 2021 letter issued pursuant to Administrator Wheeler decision on Dec. 30, 2020 on the Waste Water FFS dispute), the effluent limits must be met at the point of discharge into the surface water (i.e., end of the pipe)[1] and AWQC equivalents (as well as other AWQC and narrative criteria under TDEC Water Quality Criteria regulations) must be met throughout stream[2] (not some point downstream of the discharge where DOE believes exposure from fishing might occur).

Neither these effluent limits nor instream criteria (i.e., remediation goals or cleanup levels) were included in the draft ROD, and thus the ROD is not consistent with the aforementioned NCP requirements at 40 CFR 300.430(f)(5)(iii). Further, the Oak Ridge Reservation (ORR) Federal Facility Agreement (FFA) Section III. PURPOSE. 2. also requires that DOE develop, implement, and monitor appropriate response actions at the Site in accordance with CERCLA, the NCP, RCRA, NEPA, appropriate guidance and policy, and in accordance with Tennessee State law. Accordingly, DOE must include these effluent limits based on instream AWQC equivalent concentrations for radionuclides in a draft ROD before EPA can fully determine its sufficiency and consistency with the NCP. These PRGs should be consistent with 40 CFR § 300.430(e)(2)(i) and based on ARARs where available and discussed in the appropriate section of the draft ROD consistent with EPA guidance (e.g., *A Guide To Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*, EPA 540-R-98-031, OSWER 9200.1-23P, July 1999).

In addition, consistent with CERCLA (e.g., section 113 and 117) and the NCP, those PRGs need to be developed and explained in the Revised *Focused Feasibility Study for Water Management for Disposal of CERCLA Waste on the Oak Ridge Reservation* [hereinafter "Revised Waste Water FFS" or "Revised FFS"] that is approved by EPA pursuant to the ORR FFA requirements for review and approval of Primary Documents in order to have an adequate Administrative Record supporting the final decision in the ROD. EPA is aware that the DOE is revising the FFS, per EPA and TDEC comments on the D3 FFS, and that the next draft of the ROD is intended to include instream water quality levels ("AWQC equivalents") and associated effluent limits discussed in this comment. EPA will review the next draft of the ROD accordingly.

X. **Compliance with ARARs** – CERCLA Section 121(d)(2)(A) establishes compliance with ARARs as a threshold criterion for remedy selection. As mentioned above and described more fully below in the Specific Comments, DOE did not include all of the ARARs required to be met by the landfill remedial action, including those in the December 31, 2020 Administrator Wheeler Decision (Wheeler Decision) (See: Ref. Table submitted by EPA Assistant Administrator Peter C. Wright in letter dated January 19, 2021) that should have been in the Revised Waste Water FFS and ultimately included in the ROD for

[1] Ref. TDEC 0400-40-05-.07(2)(h), TDEC 0400-40-05-.08(1)(k) "All permit effluent limitations, standards, and prohibitions shall be established for each outfall or discharge point..." and 40 CFR § 122.44(i) *Monitoring requirements. See also* NCP Preamble at 53 Fed Reg 51440 (Dec. 21, 1988) "...discharges of toxic pollutants to receiving waters is measured for compliance at the discharge point (i.e., "end of the pipe")." For purposes of these comments the terms 'discharge point', 'end of pipe', 'outfall', 'point of discharge' all have the same meaning for purposes of measurement (i.e., monitoring) of hazardous substances in wastewater effluent that is discharged into surface water.

[2] 40 CFR 122.44(d) *Water quality standards and state requirements*; 40 CFR 122.44(d)(vi)(A) "Establish effluent limits using a calculated numeric water quality criterion ...which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use."

the preferred alternative of construction, operation, closure and post-closure of the on-site EMDF which includes waste water management. For example, DOE has not included certain CWA and RCRA requirements related to effluent limits from a RCRA landfill (40 CFR part 445) and RCRA tank system requirements in 40 CFR 264.192 et. seq. that EPA maintains are ARARs for this remedial action which could include management of wastewater and/or leachate that is considered RCRA hazardous waste. Pursuant to ORR FFA Section XXI.F. Identification and Determination of Potential 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 EPA."

Additionally, DOE has proposed in the June 2021 Revised FFS point(s) of measuring compliance with water quality-based effluent limits and instream AWQC equivalent that are inconsistent with CWA NPDES regulations that were identified as ARARs (including those in EPA's Jan. 19, 2021 submittal pursuant to the Wheeler Decision) and carried that flawed approach into the ROD as part of the selected remedy. The DOE effluent limits for radionuclides in the Revised FFS are based on a dilution factor of 64x and use approximately 4 miles of Bear Creek to mix and dilute the concentrations of radionuclides in the landfill wastewater which is not allowed under EPA and TDEC CWA regulations for bioaccumulative carcinogens. As described more fully below in Specific Comments, DOE has apparently mis-interpreted certain CWA regulations and TDEC water quality criteria regulations identified as ARARs which effectively resulted in creating a new/modified Recreation Use Classification for Bear Creek specifically for radionuclides which is not allowed except by TDEC pursuant to its rulemaking process and approved by EPA. Instead, it appears that DOE is using a point of exposure for measuring radiation dose identified in the TDEC regulations for near surface radioactive waste land disposal that are based upon Nuclear Regulatory Commission (NRC) regulations at 10 CFR part 61.41.

> [*See* language in ROD Section 2.13.2 Compliance with ARARs - "The following NRC-based TDEC regulations are relevant and appropriate: TDEC 0400-20-11-.16(2) [equivalent to 10 CFR 61.41] and TDEC 0400-20-11-.16(4) [equivalent to 10 CFR 61.43]. These ARARs are used along with site-specific parameters to develop limits on radiological discharges during operations that ensure protection of human health and the environment;" *see also* language in ROD Section 2.12.2.4 "These ARARs developed by the NRC provide dose limits for protecting the public. Compliance with the ARARs is required at the nearest point of public exposure which is downstream of the facility." "Discharge limits will be implemented where waters are discharged from the landfill operation, prior to mixing with proximate surface water."]

The NRC annual dose-based limits apply to protection of the public from landfill releases of radionuclides from all pathways including surface water; [3] however, there is no prescribed methodology or guidance on establishing protective effluent limits for radionuclides under this rule that considers the legally applicable TDEC *Use Classifications for Surface Water*. In addition, the NRC approach for measuring dose from a land disposal unit allows use of a 'buffer zone' which is defined as "a portion of the disposal site that is controlled by the licensee and that lies under the disposal units and between the disposal units and the boundary of the site."[4] This approach is inconsistent with CWA and TDEC water quality standard regulations (identified as ARARs including those submitted by EPA pursuant to the Wheeler Decision) that require effluent limits to be met at the discharge point into surface water to

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[3] 10 CFR 61.41 ("Concentrations of radioactive material which may be released to the general environment in groundwater, surface water, air, soil, plants, or animals must not result in an annual dose exceeding an equivalent of 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public." (underline added))

[4] 10 CFR 61.2 Definitions.

achieve instream AWQC as well as narrative criteria throughout the surface water in order to fully protect the designated uses (See FN 2 above).

As a result, the TDEC radioactive waste landfill regulation 0400-20-11-.16(2) is a less stringent ARAR than the CWA and TDEC water quality standards regulations that are also identified as ARARs for establishing and measuring compliance with effluent limits for radionuclides. Pursuant to the NCP at 55 Fed Reg 8741 (March 8, 1990), compliance with the more stringent ARAR is required for remedial actions in order to ensure all ARARs are met. These ARARs issues must be addressed by DOE in the Revised D3 Waste Water FFS and in the ROD in order to be compliant with CERCLA and consistent with the NCP and EPA guidance for a selected remedy as required by the ORR FFA. EPA is aware the FFS is currently being revised, and once approved, the resulting information should be in the revised ROD.

X. **Protection of Human Health the Environment** – Statements by DOE asserting that the Draft ROD meets CERCLA and the NCP's threshold requirements, namely overall protection of human health and the environment and compliance with ARARs, are premature and cannot be evaluated by EPA because the draft ROD does not specify remediation goals (including effluent limits) and does not accurately apply ARARs (as described above) related to compliance with certain CWA and TDEC water quality standards identified as ARARs. Overall protection of human health and the environment and compliance with ARARs (unless a specific ARAR is waived) are threshold requirements that each alternative must meet in order to be eligible for selection [40 CFR § 300.430(f) *Selection of remedy*]. Similar to the ARARs issues described above, the identification of protective PRGs/cleanup levels must be addressed by DOE in the Revised D3 Waste Water FFS and in the ROD in order to be compliant with CERCLA and consistent with the NCP and EPA guidance for a selected remedy as required by the ORR FFA. EPA expects information ~~is aware that water quality based effluent limits are currently being~~ developed ~~and~~ in the revised and approved FFS ~~is being revised, and~~ will be incorporated into the revised ROD.~~review the next draft of the ROD accordingly.~~

~~X. Public Comment – The new information generated since the previous public comment period in 2018 needs to be provided to the public in a Proposed Plan before the ROD is signed. Public comment was conducted prior to the dispute resolution. DOE has not been provided information on ARARs or results of the dispute or levels and basis for those level for the release. They have not been provided the WAC disposal criteria. The Southern Environmental Law Center has identified this problem as well.~~

~~X. Public Participation and Response to Comments – Insufficient information has been provided to the public as part of the Proposed Plan process and as a result we are required to fully inform the public through the Proposed Plan, and we have not done so. We should not be working on the ROD until that step has been sufficiently addressed.~~

X. Please revise the ROD to discuss any long-term impacts of altered surface water hydrology and wetlands filling on potential for flooding and include wetlands ARARs. Please revise Table 2.1 comparing alternatives to consider potential long-term impacts on hydrology and flood retention.

Specific Comments

X. **Declaration, Section 1.2, page 1-3, second paragraph.** Please explain ~~indicate~~ the ~~document or~~ process by which the FFA parties decided to use a stand-alone RI/FS and remedy selection process for the on-site EMDF~~, and r~~Revise the text~~following sentence accordingly~~ to explain that in order to ~~"To~~ evaluate and select a comprehensive remedy for disposal of CERCLA waste from future cleanup actions

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Comment will be addressed with the other public involvement comments.

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at the Oak Ridge Reservation ~~NPL Site CERCLA waste~~, a waste disposal decision separate from the decisions generating waste was determined necessary by the Federal Facility Agreement (FFA) parties.~~? Revise the language accordingly.~~

X. **Declaration, Section 1.2, page 1-3, third paragraph**. The ROD language states, "The selection of the CBCV site requires updating the basis of remediation goals for the area in Bear Creek Valley (BCV) referred to as Zones 1 and 2 in the *Record of Decision for the Phase I Activities in Bear Creek Valley at the Oak Ridge Y-12 Plant, Oak Ridge, Tennessee* (DOE 2000, Table 2)." Please clarify whether DOE is suggesting that this will change the Bear Creek Valley remedial decision, or whether it merely needs to update DOE's view on the reasonably anticipated land use for Bear Creek Valley. Also, consider including language on how that land use designation will be revised and documented by DOE.

~~X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-3. "*This land use term, restricted recreational, is newly established to define recreational use that is limited in some way.*" In the past we have not allowed a new term to describe a land use. We should discuss if it is appropriate to use this term to describe the prohibition on fishing. "Recreational" is more appropriate.~~

~~X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-3. "*This land use term, restricted recreational, is newly established to define recreational use that is limited in some way.*" In the past we have not allowed a new term to describe a land use. "Recreational" is more appropriate. We should discuss if it is appropriate to use this term to describe the prohibition on fishing.~~

X. **Declaration, Section 1.2, page 1-3, fourth paragraph and Decision Summary, Section 2.12, page 2-33**. DOE has established a new term, "restricted recreational" due to the fish advisory established by TDEC for the entirety of Bear Creek (from its headwaters to its mouth) as a result of mercury contaminated fish resulting from ORR releases. Reclassification of the state recreational use designation cannot be accomplished through a CERCLA ROD. While DOE may develop nomenclature as it wishes for its internal land use designation purposes, please note that the fish advisory does not change the use of Bear Creek as designated by the state's stream classifications in TDEC 0400-40-04-.09 *Use Classifications for Surface Water*. Notably, recreational use is intended to support "recreation in and on the waters including the safe consumption of fish and shellfish" (TDEC 0400-40-03-.02(2)), even where there is a fish advisory to protect the public while the surface waters are restored from damage due to legacy contamination. No discharges to surface water that are part of a CERCLA remedial action are allowed if the ROD does not provide for compliance with the applicable requirements of CWA or regulations promulgated under CWA (40 CFR 122.4(a)) or if the action will cause or contribute to a violation of a water quality standard (40 CFR 122.4(i)). Please revise the language to clarify that Tennessee's designated use classifications for Bear Creek includes Recreation. Attainment of AWQC, narrative criteria and AWQC equivalents for radionuclides is required throughout the stream pursuant to CWA and TDEC water quality standards regulations identified as ARARs. DOE's access restrictions (suppression of recreational use) should not be factored into derivation of AWQC equivalents for radionuclides.[5]

~~X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-3. These sections discuss land use changes. DOE's land use changes do not affect TN's recreation use classification, and the entire water body must still meet 10-5.~~

[5] Guidance for Conducting Fish Consumption Surveys, December 2016. Suppression is defined to include the reduction in consumption due to environmental or other factors (e.g., fears of chemical contamination in fish, fish populations of inadequate size to support consumption, loss of access to fisheries . . .), at p. vi.

~~X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-3. These sections discuss land use changes. DOE's land use changes do not affect TN's recreation use classification, and the entire water body must still meet 10-5. This needs to be clarified in the text.~~

~~X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-3. "Statement of Basis (1.2.) (Land Use) — Need to use "land use assumptions" and needs to comport with the TN designation of the stream as recreational."~~

X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-3. "Additionally, BCV from Highway 95 east to the Y-12 National Security Complex (areas including Zones 1, 2, and 3) is within DOE-posted No Trespassing property limits; therefore, although portions of this property are open for recreational hunting (turkey and deer) at limited times, fishing is never allowed, and is prohibited within the whole Bear Creek Watershed." ~~The entire watershed is not restricted, and this needs to be clarified in the revised ROD. Is that true that fishing is prohibited within the whole Bear Creek Watershed? Tennessee has designated Bear Creek as recreational, I would assume that fishing is part of recreation.~~

Commented [AC17]: HQ response necessary. No, fishing isn't prohibited in the entire bcv.

X. ~~Declaration, Section 1.2, page 1-4, first paragraph. The language in the ROD states, "To further discourage the possibility of fishing in Bear Creek, beavers and their habitat, which cause pooling that could enhance fishing, are removed (as necessary) as a best management practice." Please confirm the statement that the beavers and their habitat are removed to discourage fishing (as opposed to removing possible sites of mercury methylation). In addition, if this is, in fact, the purpose, please indicate whether such habitat alteration is a "best management" practice under TDEC water quality standards regulations and/or the Clean Water Act. Alterations to surface water that would discourage and inhibit the development of healthy fish populations seems counter to the purposes of the Clean Water Act and TDEC water quality standards.~~

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1. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4. ~~Delete the statement:This section states,~~ "To further discourage the possibility of fishing in Bear Creek, beavers and their habitat, which cause pooling that could enhance fishing, are removed (as necessary) as a best managment practice." ~~Please define what is meant by "as necessary." Clarify that Beaver dam removal should be considered an ongoing priority in Bear Creek. By by~~ removing these structures DOE can minimize further impairment to Bear Creek (e.g., reduce phosphorus load, reduce methyl mercury formation, and minimize the buildup of contaminated sediment behind the dams). ~~beaver dam removal may~~~~This action will serve to~~ increase the dissolved oxygen levels via restoration of the surface water flow system.

~~X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4. Odd statements on beaver control to limit or discourage fishing in Bear Creek (page 1-4 and 2-33).~~

Commented [H19]: HQ Comment:

Consoldiate to one beaver comment which states "Regarding beaver control to limit or discourage fishing in Bear Creek (page 1-4 and 2-33), it is inappropriate and outside the purview of DOE to remove beavers to prevent pooling in the river to prevent fish production.?

~~X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4. Beavers — introduction — it is inappropriate and outside the purview of DOE to remove beavers to prevent pooling in the river to prevent fish production.~~

~~X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4. Regarding beaver control to limit or discourage fishing in Bear Creek (page 1-4 and 2-33), it is inappropriate and outside the purview of DOE to remove beavers to prevent pooling in the river to prevent fish production.~~

~~X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4. "These land use modifications, which are necessary based on this new CERCLA decision, are consistent with the BCV Phase I ROD~~

~~language that states "These initial goals will remain in effect unless new technologies, land use requirements, regulatory requirements, or subsequent CERCLA decisions for BCV establish a basis for revision."~~ ~~Land use restrictions do not necessarily address surface water use, or groundwater. There is still a discharge to the Bear Creek outside the facility which DOE does not have the authority to change the designated use of that stream, that is Tennessee's authority to do.~~

Commented [AC20]: Duplicate (see orc comment)

X. ~~Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4. It is worth noting that the RI/FS was not approved by the FFA parties, rather, in the December 2017 dispute resolution agreement the parties agreed to move forward with the Proposed Plan. Suggest adding a footnote to the first reference to the RI/FS (DOE 2017a) providing this explanation.~~

X. **Section 1.2, page 1-4, fourth paragraph**. Please add language to reflect that EPA has not approved the RI/FS for the EMDF landfill due to multiple issues that were not resolved by the December 7, 2017, dispute resolution agreement (DRA) signed the FFA Senior Executive Committee. The only part of the RI/FS that EPA agreed to was Appendix D, ARARs, which was attached to the DRA. Appendix G provided the legal framework for the siting, design, construction, operation, and closure of the landfill, as well as a discussion of those legal requirements that the landfill would not meet. It also provided the information (including design elements of the proposed EMDF) that DOE was proposing to support a waiver of those legal requirements.

~~X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4, 5th full paragraph – Discussion of public input. Given the new information from the Administrator's Decision and the new executive orders, are there more opportunities for public engagement?~~

X. **Declaration, Section 1.2, page 1-4, sixth paragraph**. This paragraph discusses the public comment period. It should be noted that at least two elements of the Administrative Record were not complete at the time that the public comment period was held. In addition to the RI/FS (discussed in comment above), Tech Memo 2,[6] which provided additional "wet weather" groundwater elevation information, was not complete until after the Proposed Plan was published for public comment and therefore represented a gap in the Administrative Record at the time that the Proposed Plan was published. An additional and significant gap in the Administrative Record is the lack of an approved Waste Water FFS, which should have included preliminary remedial goals (PRGs) for the discharge of waste water. This gap in the Administrative Record should be addressed consistent with the *community relations to support the selection of remedy* requirements at 40 CFR § 300.430(f)(3).[7] Because the only public comment period was before the finalization of Tech Memo 2 and the Revised FFS, it can be argued that the public has not had a "reasonable opportunity" to submit comments on the proposed plan, "including the RI/FS."[8] So, while remedy decision making should "factor[] in any new information or points of view expressed by the state (or support agency) and community during the public comment period,"[9] the public has not had an opportunity to comment on a landfill based on a higher-than-projected water table or PRGs for the discharge of landfill waste water into surface water, including but not limited to Bear

[6] Tech Memo 1 provided "dry weather" information about groundwater elevations in the location of the proposed site (Site 7C).

[7] ("Provide a reasonable opportunity, not less than 30 calendar days, for submission of written and oral comments on the proposed plan and the supporting analysis and information located in the information repository, including the RI/FS.") Under either 40 CFR 300.430(f)(3)(i)(C) or 40 CFR 300.430(f)(3)(ii)(B).

[8] In this case, DOE proposed to remove the waste water component of the action from the RI/FS and to place it into an FFS, so there is an FFS as well as an RI/FS that the public should be able to review in commenting on the proposed remedial action.

[9] 40 CFR § 300.430(f)(4)(1).

Creek. EPA ~~expects is aware that~~ DOE ~~is planning~~ to accept public comment on the aforementioned information, and incorporate comments and responses in the final ROD. ~~. The next draft of the ROD will be reviewed accordingly.~~

X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4. Twice the text references "30 CFR" when it should reference parts of 40 CFR. Wrong citation also occurs in top paragraph on page 2-50.

~~X. Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4, seventh paragraph. This paragraph states that the selected alternative meets the threshold criteria that the action "1) be protective of human health and the environment, (2) attain those applicable or relevant and appropriate requirements (ARARs) . . ." Information in the package does not comport with this statement. Information on WAC and landfill requirements not provided. Need to include standards such as TDEC 0400-40-04-.09 — use of Bear Creek as designated by the state's stream classifications.~~

X. ~~Section 1.2, STATEMENT OF BASIS AND PURPOSE, p. 1-4, seventh paragraph. Need to include standards such as TDEC 0400-40-04-.09 — use of Bear Creek as designated by the state's stream classifications.~~

X. **Declaration, Section 1.2, page 1-4, seventh paragraph**. This paragraph states that the selected alternative meets the threshold criteria that the action "1) be protective of human health and the environment, (2) attain those applicable or relevant and appropriate requirements (ARARs) . . ." The ROD makes this assertion without a factual record to support it, that is, because the ROD does not identify cleanup levels such as ambient water quality criteria equivalents for radionuclides or the discharge limits that will be protective of those criteria, it is not clear that this action does, in fact, meet those threshold requirements.[10] Without having those criteria or limits, especially given DOE's calculations provided in the D3 (not final) FFS, it not clear that the remedy is protective or meets the state relevant and appropriate requirement that *Recreation Use* AWQCs for carcinogenic pollutants protective for fish consumption are to be developed at a 10-5 level of risk (TDEC 0400-40-03-.03(4)(j) FN(c)). ~~See General Comments #1, #2 and #3 above.~~ EPA is aware that AWQC ~~C3~~-equivalents for radionuclides ~~and associated effluent limits~~ are being developed and the FFS is being revised. Once approved in the FFS, water quality levels for radionuclides must be incorporated in the final ROD. ~~The next draft of the ROD will be reviewed accordingly.~~

X. **Declaration, Section 1.2, page 1-4, seventh paragraph**. This paragraph states that the statutory preference for treatment will be addressed in the waste generation RODs. There is no exception for the application of this CERCLA preference to a selected remedy. While much of the preference may not be relevant to the operation of the landfill, certainly the waste water, as a waste stream generated in this remedial action, should satisfy this preference. Please explain whether at least this component of the remedy satisfies the CERCLA statutory preference for treatment "which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances, pollutants, and contaminants," since these actions are to be preferred over remedial actions not involving such treatment. Revise the ROD language accordingly to specify how this statutory preference is satisfied by this remedy (not other CERCLA response actions).

X. **Declaration, Section 1.3, page 1-5, first paragraph**. The first sentence states that the remedial action "protects the public health and the environment from actual or threatened releases of hazardous

[10] ROD p. 2-45 merely states, "All discharge water from EMDF will be treated as necessary to meet the most stringent applicable instream water quality criteria, including recreational, with consideration of the stream mixing zone at the point of discharge."

substances . . ." Without having approved radionuclide AWQCs from the Revised Waste Water FFS to incorporated into the ROD and no ROD cleanup levels (i.e., effluent limits) for the discharge of radiological hazardous substances into Bear Creek (or another location, which has apparently not been located), it is premature to assert that the remedy is protective of human health and the environment. Based on effluent limits in the as-yet-unapproved D3 FFS, however, the calculated limits are based on exposures other than recreational use of Bear Creek (including fish consumption) as understood under the Clean Water Act and TDEC water quality standards. ~~See General Comments #1, #2, and #3.~~

X. Section 1.3, ASSESSMENT OF THE SITE, p. 1-5:

> ~~A. The text should state that the selected remedy will meet the remedial action objectives (RAOs) both during the operational period of the landfill and after the landfill is closed. The remedial action objectives (RAOs) are unclear because they do not specify the time frame when the objectives will be met such as whether the objectives will be met throughout the construction, operation, and post-closure care of the landfill. Section 1.3 should reference tables of applicable or relevant and appropriate requirements (ARARs) in Appendix A. Chemical specific ARARs should be tabulated in the ROD and referenced in Section 1.3.~~
>
> ~~B. Remedial action objectives (RAOs) should be revised to add language to restore water quality in Bear Creek to meet ARARs and restore beneficial uses for Bear Creek to support healthy populations and communities of benthic macroinvertebrates and fish relative to a suitable reference location.~~

X. Section 1.3, ASSESSMENT OF THE SITE, p. 1-5. ~~The RAO states: "Maintain a 15-ft separation between the bottom of emplaced waste and the seasonal high water table of the uppermost unconfined aquifer, which includes 5 ft of liner system and 10 ft of geologic buffer consistent with TDEC 0400-11-01-.04(4)(a)(2)". Is this appropriate to have as a RAO? Seems more like a location-specific ARAR. The explanation below is "This requirement has been added as an RAO in order to assure protectiveness during operation and post-closure." Please add to the start of the sentence, "To protect groundwater . . ." Could be rewritten as "Protect groundwater by maintaining a 15-ft . . ."~~

X. **Declaration, Section 1.3, page 1-5, first paragraph, RAO bullets**. There is an insufficient factual record to support the assertions in the first three bullets, which claim that people, the water resources, and ecological receptors would be protected by meeting identified ARARs, especially considering that DOE has not included all of the ARARs identified by EPA and that DOE appears to be following the NRC dose-based approach for protection of the public from surface water pathway and therefore is not complying with the most stringent ARAR for developing and measuring effluent limits for discharges of radionuclides. Please address these deficiencies in the revised ROD. ~~See General Comments #1, #2 and #3 as well as Specific Comment 23 for further detail.~~

X. Section 1.3, ASSESSMENT OF THE SITE, p. 1-5. ~~Lacking AWQCs (Section 1.3) — Without having approved radionuclide AWQCs it is premature to assert that the remedy is protective. Based on effluent limits in the as-yet-unapproved FFS, however, the dose-based concentrations are not protective in that they exceed 12 mrem dose, which EPA has stated are not protective (11,000 pCi/L is a 25 mrem concentration), and the calculated limits are based on exposures other than recreational use of Bear Creek as understood under the Clean Water Act.~~

~~X. Section 1.3, ASSESSMENT OF THE SITE, p. 1-5. Lacking AWQCs (Section 1.3) — AWQC's consistent with the 12/31/2020 Administrator's dispute decision need to be documented in the FFS and~~

Commented [H21]: HQ Comment:

comment be changed as follows: "AWQC's consistent with the 12/31/2020 Administrator's dispute decision need to be documented in the FFS and included in the ROD. Lacking inclusion of AWQC's, it would not be possible to determine whether the remedy is protective."

Commented [AC22R21]: Duplicate. Covered in R4 comments

~~included in the ROD. Lacking inclusion of AWQCs, it would not be possible to determine whether the remedy is protective~~

~~X. Section 1.4, DESCRIPTION OF THE SELECTED REMEDY. Discussion of public input. Given the new information from the Administrator's Decision and the new executive orders, are there more opportunities for public engagement?~~

Commented [AC23]: Response to HQ – yes.

X. Section 1.4, DESCRIPTION OF THE SELECTED REMEDY, p. 1-5. These sections discuss land use changes. DOE's land use changes do not affect TN's recreation use classification, and the entire water body must still meet CERCLA excess lifetime risk of cancer of 10E-5 based on fish consumption in a recreational use scenario. This needs to be clarified in the text.

~~X. Section 1.4, DESCRIPTION OF THE SELECTED REMEDY, p. 1-5. These sections discuss land use changes. DOE's land use changes do not affect TN's recreation use classification, and the entire water body must still meet 10-5. This needs to be clarified in the text.~~

~~X. Section 1.4, DESCRIPTION OF THE SELECTED REMEDY, p. 1-5. These sections discuss the requirement for a 15 ft unsaturated zone & planned field demonstration to obtain gw data. For the Region: Is it acceptable to put off this particular data collection until a "post ROD" field demonstration?~~

Commented [AK24]: HQ Comment:

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Commented [AC25]: Response to HQ. Yes, EPA and TDEC have agreed that this can be done post rod to support design.

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X. Section 1.4, DESCRIPTION OF THE SELECTED REMEDY, p. 1-6.

- "Construction of groundwater and surface water drainage features, as needed, to ensure long-term protection of human health and the environment and to be consistent with ARARs.
- Construction of support facilities adjacent to the footprint of the landfill. Support facilities and infrastructure may include operations/support trailers; staging/laydown areas; borrow areas; stockpile areas; parking areas; wastewater storage tanks or basins; truck loading stations; electrical, water, and communication utilities; truck weigh scale; guard stations; wastewater and stormwater management systems; storage/staging areas; material stockpile areas; and spoil areas.
- Construction and operation of a landfill wastewater treatment system (LWTS) consistent with ARARs."

Clarify whether the potential for significant damage to the structural integrity/design of landfill due to potential increase in flood events were incorporated to the described conceptual design of the landfill and supporting facilities/features. For example, can the LWTS/other drainage features take on additional capacity if such an event were to occur? The level of climate resiliency of the selected remedy should be discussed.

X. Section 1.4, DESCRIPTION OF THE SELECTED REMEDY, p. 1-6.

- "Use of fill material during operation of EMDF, including, but not limited to, crushed concrete, block and brick masonry, waste soil, clean soil, and other soil-like material consistent with ARARs"

Clarif~~ication~~ whether fill material used during operation of EMDF will meet landfill WAC.

X. Section 1.4, DESCRIPTION OF THE SELECTED REMEDY, p. 1-6. "Closure of EMDF after operations are complete, consistent with ARARs." Please clarify text to explain that closure, consistent with ARARS, will occur when EMDF operation is complete. ~~What operations? Cleanup operations or ORR operations? This should be consistent with closure requirements. Will these ARARs be specified in this decision document?~~

Commented [AC26]: Response Hq – when landfill is full and EMDF operations are complete. Yes, closure ARARS are in the ROD.

~~X. Declaration, Section 1.4, pages 1-6 and 1-7, bullets. NOTE to Program: *this comment is directed to the EPA program to confirm.* In the fourth, tenth and last bullets, please confirm whether the "clean fill dike" and the "mechanically stabilized earth" were part of the alternative presented to the public. If not, consider and determine whether it is a significant change to the remedy, and could the public have reasonably anticipated it? If the public could not have reasonably anticipated a significant change based on the Proposed Plan and Administrative Record published at the time of public comment, this would trigger an additional public comment period under 40 CFR 300.430(f)(3)(ii).~~

Commented [AC27]: Response to ORC:

Clean fill dike is described as a key facility element in the Proposed Plan. The PP is clear that waste will be isolated from gw. The design particulars of how the waste will be isolated from the gw are not specified in the PP or ROD – they will be part of the design. The ROD includes engineered perimeter structurs "such as mechanically stabilized earth walls or similar structures, if needed." This is not a significant change to the remedy.

X. Section 1.5, STATUTORY DETERMINATIONS, p. 1-7. Add text that states the selected remedy was determined in the ROD to provide the best balance of tradeoffs among the alternatives with respect to the balancing criteria.

~~X. Declaration, Section 1.5, page 1-7. The first sentence states that the remedy is protective. As noted in other comments, this assertion is premature and currently unsupported in the Administrative Record file. Revisions to the ROD (and to the underlying Waste Water FFS) need to be made, consistent with EPA comments on both documents, and approved by EPA in order to provide a basis for the statement.~~

Commented [AC28]: redundant

X. **Declaration, Section 1.5, page 1-7**. The second sentence states that there is no principal threat waste to be addressed as part of this action. DOE's calculation of effluent limits and screening level effluent limits in the D3 Revised FFS would result in concentrations of radionuclides in the effluent that are at a level of risk exceeding (10-3) that EPA would generally find to reflect principal threat waste for direct exposure. Once DOE has revised the Waste Water FFS and ROD to include AWQC equivalent and effluent limits that meet all the ARARs (including the most stringent CWA and TDEC water quality standard regulations), however, this should be an accurate statement.

X. **Declaration, Section 1.5, page 1-7**. The third sentence states that the action meets all ARARs. This statement is not currently supported by a factual record (in the Revised FFS or in this ROD). Once the FFS and ROD have been revised per these comments, that should be an accurate statement.

X. **Declaration, Section 1.6, page 1-8**. The last sentence states that the Administrative Record contains information approved by the three FFA parties. Note that EPA has not approved the RI/FS or a Revised Waste Water FFS for the EMDF landfill. This statement should be revised to accurately reflect the facts related to EPA approval (or not) of Primary Documents that are part of the Administrative Record file and support remedy selection.

X. Figure 2. Land use (from Phase I BCV ROD) and disposal sites evaluated in Bear Creek Valley., p. 2-5. The outlines for Site 7A and Site 7C overlap in a way that confuse the reader. Please make changes to the outlines that will allow the reader to clearly differentiate between the two proposed locations for the EMDF.

~~X. Section 2.2.1, Previous Investigations and Data Sources, p. 2-7. "Results of the Phase 1 site characterization confirmed the acceptability of the CBCV site for a new, low level (radioactive) waste (LLW) landfill and support final site selection." When was this completed and where are the results of this study? Are they in the AR? Provide citation.~~

X. Section 2.2.1, Previous Investigations and Data Sources, p. 2-7. "Results of the Phase 1 site characterization confirmed the acceptability of the CBCV site for a new, low level (radioactive) waste (LLW) landfill and support final site selection." When was this completed and where are the results of this study? Are they in the AR? Provide ~~a citation~~document names and approval dates in the ROD.

X. Section 2.2.1, Previous Investigations and Data Sources, p. 2-8. Based on the topography shown on Figure 2.3 (Phase I characterization and site characteristics of the EMDF site), it is unclear if the outside perimeter of the Environmental Management Disposal Facility (EMDF) landfill is sufficiently set back to allow for the engineered perimeter structures, such as mechanically stabilized earth walls or similar structures, needed to grade the site to the top of the geologic buffer. This is of particular note given the locations of streams NT-10 and NT-11, as shown on Figure 2.5 (EMDF conceptual site layout). Revise the ROD text to clarify if the outside perimeter of the EMDF landfill is sufficiently set back to allow for the engineered perimeter structures needed to grade the site to the top of the geologic buffer.

X. Section 2.2.1, Previous Investigations and Data Sources, p. 2-9. "Per the first formal Dispute Resolution Agreement between DOE, EPA, and TDEC in December 2017, the results and analysis of the field investigation, including the first 2 months of monitoring, were placed in the Administrative Record and were available during the Proposed Plan public comment period (DOE 2018c). The entire year long monitoring results are documented in a second Technical Memorandum (DOE 2019), also included in the Administrative Record." ~~Was the public made aware of the availability of the second TM (2019)?~~ Was any new information found through the 2019 effort that had an impact on the remedy selected or its implementability? Include in the ROD, as summary of the findings in Technical Memorandum 1 and 2. These documents provide information that enhances the characterization for the selected site. Add information about the post-ROD groundwater field study. EPA expects this information to be shared with the public in the upcoming public engagement activities, and included in the final ROD.

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~~X. Section 2.2.1, Previous Investigations and Data Sources, p. 2-9. "Per the first formal Dispute Resolution Agreement between DOE, EPA, and TDEC in December 2017, the results and analysis of the field investigation, including the first 2 months of monitoring, were placed in the Administrative Record and were available during the Proposed Plan public comment period (DOE 2018c). The entire year long monitoring results are documented in a second Technical Memorandum (DOE 2019), also included in the Administrative Record." Was the public made aware of the availability of the second TM (2019)? Was any new information found through the 2019 effort that had an impact on the remedy selected or its implementability? There should be a section in the ROD that identifies any new information that came to light after the Proposed Plan was issued for public comment.~~

~~X. **Decision Summary, Section 2.2.2, page 2-9.** In the first paragraph, the ROD refers to an EMWMF 2010 ESD and a 2017 RDR Addendum. Please confirm that EPA has approved these documents and if so, revise the language to acknowledge approval. NOTE to Program: In addition, there has been a long-term dispute over waste water in EMWMF RDR/RAWPs. I highlight to query whether the program thinks that omission of several RDR/RAWPs from this summary is acceptable or is an omission to the degree of inaccuracy.~~

Commented [AC29]: response to ORC:
The text in this section pertaining to the EMWMF is adequate for the purposes of the EMDF ROD. Omitting specific EMWMF RDR/RAWPs related to problems with waste water management is acceptable.

~~X. Section 2.2.2, Previous Cleanup Decisions, p. 2-9. "The RFR indicates that contaminant concentrations in the valley have improved as a result of the actions taken, but that final remediation goals have not yet been met." This is an interesting comment. Do we have final remediation goals? Have all actions within the valley been selected and implemented?~~

X. **Decision Summary, Section 2.3, page 2-9**. In the first paragraph, DOE states that it has surpassed CERCLA requirements for public engagement. This does not appear to be accurate, since it is not clear that the NCP requirements at 40 CFR § 300.430(f)(3), have been met. See comment on Decision Summary Section 2.10.9 below. EPA is aware that additional public engagement is being planned, and

once completed, it may be accurate to state that CERCLA requirements for public engagement have been met. EPA advises against the term "surpassed" in favor of the term "met."

~~X. Section 2.3 Highlights of Community Participation, Page 2-9, Paragraph 1: DOE did conduct a lot of outreach activities, however, please delete the word "surpassed" in the second sentence. The description associated with early and frequent involvement by members of the public is subjective.~~

X. Section 2.3, Highlights of Community Participation, Page 2-10, Paragraph 2: Please modify the text to explain why ~~It appears that~~ DOE did not conduct specific outreach efforts with residents of the Country Club Estates, a community close to the Proposed Site. ~~This oversight/omission should be explained and support the DOE response given for Comment #118.~~ Also, please include the venue(s) where the Scarboro meetings were held on the dates referenced.

X. Section 2.3, Highlights of Community Participation, Page 2-10, Paragraph 3: The approved DOE 2016 Public Involvement Plan (PIP) states that ~~It does not appear that~~ DOE will utilized all media outlets, e.g., radio and television, ~~media identified in the approved DOE 2016 Public Involvement Plan (PIP)~~ to communicate the availability of CERCLA~~the~~ decision documents, ~~Proposed Plan,~~ the public comment periods and public meetings. ~~This PIP was the approved PIP for use to notify the Oak Ridge community. Please provide information for not using these media.~~ Was the this done for the EMDF and will it be followed for future public information for the EMDF?

X. Section 2.3, Highlights of Community Participation, Page 2-10, Paragraph 3: ~~Add summary information from the results obtained from implementing the activities contained in Technical Memorandum 1 and 2. These documents provide information that enhances the characterization for the selected site. Add information about the post-ROD groundwater field study.~~

Commented [AC30]: Comment is included with earlier comment on section 2.2.

X. **Decision Summary, Section 2.3, page 2-10**. In the third full paragraph, DOE states that "[t]his remedy was chosen in accordance with CERCLA, as amended by SARA and the NCP. This decision was based on the Administrative Record prepared for this project." This statement is premature since the RI/FS and Waste Water FFS have not been approved by EPA or TDEC and new information provided in the FFS should be analyzed by DOE as described below (see comment on Decision Summary, Section 2.10.9, page 2-29 to 2-30).

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X. Section 2.3, HIGHLIGHTS OF COMMUNITY PARTICIPATION, p. 2-10. The text states:

> This remedy was chosen in accordance with CERCLA, as amended by SARA and the NCP. This decision was based on the Administrative Record prepared for this project. The principal documents supporting this ROD include the following:
>
> • Remedial Investigation/Feasibility Study for Comprehensive Environmental Response, Compensation, and Liability Act Oak Ridge Reservation Waste Disposal, Oak Ridge, Tennessee (DOE 2017a)
>
> • **Focused Feasibility Study for Water Management for the Disposal of CERCLA Waste on the Oak Ridge Reservation, Oak Ridge, Tennessee (DOE 2016)**
>
> • Proposed Plan for the Disposal of Oak Ridge Reservation Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Waste (DOE 2018a). (Bold added)

The second bullet shown in italics above should be revised to clarify that this document will have been updated and approved by the time the ROD is approved (cite new approval date) and is not the original 2016 version of the document. This new version should be consistent with the D2 ROD (running parallel

and approved before the final ROD is approved) to include the work conducted to address the EPA Administrator's decision in the protection of human health and the environment from radionuclide discharges to Bear Creek. All of the Dispute Resolution Agreement Team approved documents and corresponding calculations to establish safe radionuclide discharge limits should be included in this revised wastewater FFS.

X. Section 2.3 Highlights of Community Participation, Page 2-10, Paragraph 5: Add a new bullet that references, in a summary manner, the use of information obtained from implementing the activities contained in Technical Memoranda 1 and 2. These activities resulted from the Field Sampling Plan for Site 7c in Central Bear Creek Valley (CBCV) and provide information that enhances the characterization of the selected site, but may not have been clearly presented in the Proposed Plan.

X. Section 2.4 SCOPE AND ROLE OF THE ACTION, p. 2-10. The ROD needs to be clear in the scope and role section (2.10) that each individual ROD for which a remedy will send waste to this landfill will meet the specific (yet to be specified) WAC for the landfill. Furthermore, that the specific ROD for the sending wastes will meet protectiveness and treatment to the maximum extent practicable and other criteria under CERCLA.

Commented [H32]: HQ Comment

The second part of this sentence seems outside of the role of this EMDF ROD Edited to state "The ROD needs to be clear in the scope and role section (2.10) that each individual ROD for which a remedy will send waste to this landfill will meet the specific (yet to be specified) WAC for the landfill."

X. Section 2.4 SCOPE AND ROLE OF THE ACTION, p. 2-10. The ROD needs to be clear in the scope and role section (2.10) that each individual ROD for which a remedy will send waste to this landfill will meet the specific (yet to be specified) WAC for the landfill.

X. Section 2.4, Scope and Role of the Action, Page 2-11, Paragraph 5: Please modify the text to reference a modification to the Record of Decision (ROD) will be made consistent with the document, *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (OSWER 9200.1-23P, July 1999).* Any material for disposal that is sourced from an off-site location remains subject to the decision document and not by project documents not specifically addressed by the ROD scope at the time of signature by the Administrator or delegate.

X. Section 2.4 SCOPE AND ROLE OF THE ACTION, p. 2-11. Fifth paragraph: "The scope of the action is to provide for disposal of CERCLA waste generated from the cleanup…If at some future time. DOE CERCLA waste…" What criteria will be used regarding CERCLA waste generated within the state that can be disposed at the on-site waste treatment unit? Need to consider how CERCLA offsite rule may impede the ability to retrive ORR waste from offsite locations. More details are needed.

X. **Decision Summary, Section 2.4, page 2-11**. The fifth paragraph states, "If at some future time DOE CERCLA waste from original Oak Ridge NPL Site activities is generated within the state that requires disposal, and it is determined by the FFA parties that EMDF is the appropriate place for disposal, then the FFA parties will agree that those waste streams may be disposed of within EMDF consistent with the project-specific Waste Handling Plan." Please revise this statement to reflect that disposal decisions for CERCLA waste located off the ORR will be made in a remedy selection document reviewed and approved by the FFA parties consistent with the FFA requirements and may include issuance of a Proposed Plan as part of the remedy selection consistent with NCP requirements.

X. Section 2.4 SCOPE AND ROLE OF THE ACTION, p. 2-11. The text states:

> If at some future time DOE CERCLA waste from original Oak Ridge NPL Site activities is generated within the state that requires disposal, and it is determined by the FFA parties that EMDF is the appropriate place for disposal, then the FFA parties will agree that those waste streams may be disposed of within EMDF consistent with the project-specific Waste Handling

Plan.

Please create a table listing all known areas offsite from the DOE-ORR that might be subject to a CERCLA removal action in the future consistent with the text above.

X. Section 2.4, SCOPE AND ROLE OF THE ACTION, p. 2-11. The text states: "The selection of the remedial action involving onsite disposal at EMDF in BCV is consistent with the recommendations made by EUWG; however, the EUWG recommendation favored those areas already contaminated..." This statement does not reflect the EUWG recommendation, which specifically identifies CBCV within Zone 2. Suggested text: "Notwithstanding the EUWG recommendation favoring placement of long-term waste disposal facilities in areas already contaminated or near areas of contamination." The text also states that "for a variety of technical reasons discussed under Sect. 2.12.1, the FFA parties believe that CBCV is the preferred location for the landfill." However, review of Section 2.12.1 does not find technical reasons that explain the preference for CBCV over other sites considered. In general, the ROD doesn't explain the reasons that CBCV site is preferred over other options for onsite disposal.

X. **Decision Summary, Section 2.4, page 2-11**. The last paragraph states that DOE has completed the required public review and comment. As noted in several comments, this is not supported by the facts or the Administrative Record. EPA is aware that additional public review and comment is being planned, and that the FFS is being revised. Upon completion of those activities, this statement may be accurate. The next draft of the ROD will be reviewed accordingly.

X. Section 2.5.3, Surface Water, p. 2-13. Section 2.5.3 and Figure 2.3. Though the text refers to drainage feature D-11 East, the figure does not include drainage feature D-11 East. (None of the figures include D-11 East.) Please update figures.

X. Section 2.5.2, Groundwater. p. 2-13. The text refers to the absence of strike-parallel groundwater contamination in the Nolichucky Shale and Maryville Limestone around the Bear Creek Burial Grounds (BCBG) part of BCV. As noted in prior Remediation Effectiveness Reports and commented upon by EPA, there is an absence of groundwater monitoring in critical areas of the outcrop belts of these formations to the west of the BCBG. Thus, it is inappropriate to cite the groundwater conditions around the BCBG as supporting some conclusion or inference that groundwater contamination would not likely migrate along strike in these formations to the west of the EMDF area.

X. Section 2.5.3, Surface Water, p. 2-13. The second paragraph of Section 2.5.3 should add an explanation for the losing character of the streams. A losing stream implies a karst condition which is inconsistent with the characterization of the EMDF setting presented in Section 2.5.1.

X. Section 2.5.3, Surface Water, p. 2-13. "Road crossings (culverts) present physical barriers for upstream migration of aquatic fauna..." Is is accurate that fish cannot swim upstream due to culverts, and if so, where are these culverts located in the stream? Are they maintainted by DOE?

X. Section 2.5.3, Surface Water, p. 2-13. "Road crossings (culverts) present physical barriers for upstream migration of aquatic fauna..." Is it accurate that fish cannot swim upstream due to culverts, and if so, where are these culverts located in the stream? Are they maintained by DOE? This information should be included in the ROD.

X. Section 2.5.4, Ecological Resources, p. 2-14. Please describe the area of the wetland delineation study. It is variously referred to as "a broader area" and "expanded study area" but details regarding the

area is not described or depicted in a figure.

X. Section 2.5.4, Ecological Resources, p. 2-14. There is no discussion of the anticipated or potential impacts to the Bear Creek riparian system. Will tree clearing for the landfill impact the creek (loss of shade, erosion, siltation, etc)? How will additional stormwater due to land clearing impact Bear Creek? How will construction activities, rerouting the roads, etc., impact Bear Creek?

X. Section 2.5.4, Ecological Resources, Page 2-14, Paragraph 2: Irrespective of observing no Tennessee dace in the tributary streams at the CBCV, the impact on the Tennessee dace population from the EMDF construction through operation should be addressed in this section.

X. **Decision Summary, Section 2.5.4, page 2-14**. The third paragraph states that there are three federally listed endangered bat species living in or near the CBCV site. Please confirm that the consultation with U.S. Fish & Wildlife Service (FWS) required under Section 7 of the Endangered Species Act has been completed. The consultation requirement is cited as part of a Location-specific ARAR, so it is presumed that it has or will be completed, but it should be completed in a timeframe that allows for the Secretary of FWS to render an opinion, which may suggest an action other than the one proposed by the federal agency (DOE).

X. Section 2.5.5, Cultural Resources, p. 2-15. Section 2.5.5 indicates that DOE intends to avoid the Douglas Chapel Cemetery and preserve it in situ as well as maintain access to the cemetery for visitors; however, this is not conveyed on Figure 2.5 (EMDF conceptual site layout). Specifically, no rerouted roads to the cemetery are shown. Revise the ROD to clarify how access to the Douglas Chapel Cemetery will be maintained for visitors given the proximity of the cemetery to the EMDF, borrow area, and support facility, shown on Figure 2.5.

X. Section 2.5.5, Cultural Resources, p. 2-15. "Because of their limited research potential, no further work was recommended at these five sites. The sites were recommended not eligible for inclusion in the National Register of Historic Places." Although the archeological/historic artifacts were deemed "not eligible for inclusion of the National Register of Historic Places, please clarify on how the archeological/historic artifacts will be handled during construction activity in the event that additional artifacts are discovered. Will SHPO be involved as part of process? Is there a contingency plan in the event that additional artifacts are encountered during construction phase?

X. Section 2.6, CURRENT AND ANTICIPATED LAND USES, p. 2-16. "While the EUWG Stakeholder Report on Stewardship (DOE 1998b) included recommendations on the end use of BCV and for siting an onsite CERCLA waste disposal facility, there are no formal land use plans for ORR." But you have land use designations. So how are the designations established without a formal land use plan?

X. Section 2.6, CURRENT AND ANTICIPATED LAND USES, p. 2-16. Per the LUC Checklist #2, in Section 2.6 please include current and anticipated land uses for Zone 1, 2, and 3. Please include prohibited uses that may not be obvious based on the reasonable anticipated land use such as prohibit the development and use of property for residential housing, elementary and secondary schools, childcare facilities and playgrounds.

X. Section 2.6.1, Current Land Use, p. 2-16. Description of land use. This section says that DOE is required to modify the land use but does not specify what the new modified land use needs to be.

X. Section 2.6.1, Anticipated Land Use, p. 2-16. Description of ownership of land. Anticipated land use should be specified in this section. This section doesn't comport with LUC checklist language re potential transfers.

X. Section 2.7, SUMMARY OF SITE RISKS. p. 2-16.

> ~~A. Please discuss the baseline risks from current conditions in Bear Creek. Discuss whether risk in question is additive risk on top of risks already present before construction of the facility. Describe the current ranges of contaminants in fish tissues and how the remedy will reduce the body burdens of contaminants in fish tissue to restore beneficial uses including support of healthy populations and communities of aquatic life.~~
>
> ~~B.~~ TDEC has classified Bear Creek as having a fishable/swimmable goal. Bear Creek is CWA 303(d) listed for not currently achieving its designated uses on account of PCBs, cadmium and mercury. The creek lacks additional capacity to take on increased discharges of pollutants. ~~released from the landfill without increasing the degree of degradation of fish and macroinvertebrate communities by physical alteration and addition of pollutants. Releases from the landfill will likely further degrade downstream water bodies on the CWA 303(d) list~~. The ROD should discuss how CWA and TDEC 0400.40.03 were considered in the selection of the remedy.

X. Section 2.7, SUMMARY OF SITE RISKS. p. 2-16. But this is the section that should discuss the risks to HH and ECO from the discharges of the landfill to sw, gw and air.

X. **Decision Summary, Section 2.8, page 2-17**. This text repeats text in the Declaration, Section 1.3, page 1-5, first paragraph, bullets (see earlier comment above). There is an insufficient factual record to support the assertions in the first three bullets, which claim that the remedial action objectives, that is, protection of people, the water resources, and ecological receptors, would be met by meeting ARARs. There is an insufficient record to support an assertion that all ARARs will be met. For instance, the requirement at TDEC 0400-40-04(4)(j) FN(c) requires that AWQCs be developed at a 10-5 level of risk. Neither the ROD nor the FFS contain calculated AWQCs for radionuclides that may be contained in the landfill waste water and discharged from the landfill. The "effluent limits" or "screening level effluent limits" in the D3 Waste Water FFS do not clearly meet that level of risk for the designated use of recreation because DOE's calculations are based on exposure inputs which results in an ingestion rate (e.g., one day a year for fishing) that does not appear to have a scientific basis and is not consistent with exposure assumptions used by TDEC for establishment of AWQC for pollutants that are protective for fish consumption. While the ROD does not contain limits based on those inputs, the record established in the (unapproved) D3 FFS does not support DOE's statements that the remedy will "meet ARARs." In addition, later parts of the ROD (see Sections 2.12.2.4 and 2.13.2.3) suggest that the federal and state NRC rules are "the" ARARs that the radiological discharge component of the remedial action must meet. This is inconsistent with the December 31, 2020, Administrator Wheeler Decision and the January 19, 2021 supplemental ARARs, which identified additional Clean Water Act (CWA) regulations as ARARs for the discharge of waste water and also directed that the existing CWA ARARs already identified as "applicable" to pollutant be designated as "relevant and appropriate" to radionuclides. Also inconsistent with the Decision's direction, DOE did not identify certain state water quality standards as "relevant and appropriate" to radionuclides (e.g., TDEC 0400-40-04-.03(4)). This must be corrected in the ROD. See General Comments #1 and #2 above. EPA is aware that AWCQ-equivalents for radionuclides and associated effluent limits are being developed and the FFS is being revised. The next draft of the ROD will be reviewed accordingly.

X. Section 2.8, REMEDIAL ACTION OBJECTIVES, p. 2-17. Remediation Goal (2.8) – Under CERCLA we need to set remediation goals for all parts of the response. ~~Water Treatment Unit – What goals will the release of the water treatment meet?~~ Landfill -- Will there be an unacceptable risk to a person standing on the landfill due to gamma radiation? What standard for releases from the landfill will be required for it to meet protection of the surface water and groundwater? What level of radioactivity will be allowed to be disposed in this unit? A Low-Level Waste designation does not provide information as to the level of radiation. ~~Also how will we ensure that the radon gas emissions [sic]~~

Commented [H33]: HQ Comment:

RDLs and WAC will be in the final ROD. Radon gas emissions are included in a different comment. Revised comment to state: "Remediation Goal (2.8) – Under CERCLA we need to set remediation goals for all parts of the response. Landfill -- Will there be an unacceptable risk to a person standing on the landfill due to gamma radiation? What standard for releases from the landfill will be required for it to meet protection of the surface water and groundwater? What level of radioactivity will be allowed to be disposed in this unit? A Low-Level Waste designation does not provide information as to the level of radiation."

X. Section 2.8, REMEDIAL ACTION OBJECTIVES, p. 2-17. Remediation Goal (2.8) – Under CERCLA we need to set remediation goals for all parts of the response. Landfill -- Will there be an unacceptable risk to a person standing on the landfill due to gamma radiation? What standard for releases from the landfill will be required for it to meet protection of the surface water and groundwater? What level of radioactivity will be allowed to be disposed in this unit? A Low-Level Waste designation does not provide information as to the level of radiation.

X. Section 2.8, REMEDIAL ACTION OBJECTIVES, p. 2-17. "Prevent exposure of people to waste in EMDF (or contaminants released from the EMDF into the environment) through meeting chemical-, location-, and action-specific ARARs, and by preventing exposure that exceeds a human health risk of 10-4 to 10-6 ELCR or HI of 1" What does this mean? Direct contact? Inhalation, fish consumption? What?

X. Section 2.8, REMEDIAL ACTION OBJECTIVES, p. 2-17. Please correct the acronym in the following text:

> Prevent adverse impacts to water resources (surface water and groundwater) from CERCLA waste or contaminants released from the waste through meeting chemical-, location-, and action-specific ARARs, and by preventing exposure that exceeds a human health risk of 10-4 to 10-6 **ECLR** or HI of 1. (Bold and underline added)

The acronym should be ELCR - excess lifetime cancer risk.

X. Section 2.8, REMEDIAL ACTION OBJECTIVES, p. 2-17. "The objectives state, by preventing *exposure that exceeds a human health risk of 10^{-4} to 10^{-6} ELCR or HI of 1.*" Consider if it would be more appropriate to state "to prevent exposure until UU/UE is achieved."

X. Section 2.8, REMEDIAL ACTION OBJECTIVES, p. 2-17. "Maintain a 15-ft separation between the bottom of emplaced waste and the seasonal high water table of the uppermost unconfined aquifer, which includes 5 ft of liner system and 10 ft of geologic buffer consistent with TDEC 0400-11-01-.04(4)(a)(2". Same as previous comment: Is this appropriate to have as a RAO? Seems more like a location-specific ARAR. The explanation below is "This requirement has been added as an RAO in order to assure protectiveness during operation and post-closure." Could be rewritten as "Protect groundwater by maintaining a 15 ft…."

X. **Decision Summary, Section 2.9, page 2-17**. The first paragraph states that the alternatives are presented in the ROD as they were presented in the RI/FS and that any later changes are discussed in a separate part of the ROD. While it is not clear from this text, if the alternatives are not as they were presented in the Proposed Plan, please correct this section to reflect the alternatives as presented in the Proposed Plan.

X. Section 2.9.2, Alternative 2 – Onsite Disposal Alternative, p. 2-18. The description of the four sites evaluated for potential location of EMDF use different terminology than figure 2.2 (p. 2-5). Help the reader match the four locations described in the text to the figure. For example (shown in red text):

- East Bear Creek Valley (EBCV) site, just east of the existing EMWMF (labeled Site 5 on figure 2.2)
- West Bear Creek Valley (WBCV) site, located approximately 2.5 miles west of the existing EMWMF (Site 14)
- Dual site, which includes a site beside and to the west of the existing EMWMF, and a second site in CBCV, located 1.5 miles west of the existing EMWMF (Sites 6b and 7a)
- CBCV, expansion of one of the dual sites (Site 7c).

X. **Decision Summary, Section 2.9.2, page 2-18**. The fourth full paragraph, last sentence, states that an ARAR-compliant waste water treatment system was part of the onsite disposal alternative. As noted in other comments, that statement is not supported by the record in this case (i.e., no approved FFS for waste water management, but the D3 FFS provided by DOE does not currently appear to comply with the most stringent ARARs for discharge of landfill waste water and does not clearly acknowledge Clean Water Act requirements – both federal and state – as RAR for the discharge of radionuclides).

X. **Decision Summary, Table 2.1**. Please make corrections in the table consistent with these comments, for instance, that the onsite alternatives meet RAOs (discussed in comment 20). Until the factual record supports the assertion, EPA cannot recommend approval of the ROD.

X. **Decision Summary, Section 2.10.1, page 2-20**. The second paragraph, first sentence, states, "The No Action Alternative is the least protective as it is anticipated that the lack of a coordinated disposal program results in an increased reliance on management of waste in place at CERCLA remediation sites and a potential slowing of the pace of cleanup." Use of off-site disposal options (although likely more costly) would not necessarily result in containment remedies for the other CERCLA response actions under the FFA. It is premature to make this declaration in the ROD. Accordingly, the language in the ROD should be consistent with the Appendix G of the RI/FS or clarified considering this remedy selection process for an on-site landfill is not directly addressing existing releases of hazardous substances contamination.

Commented [AK34]: Note from Cathy:
NOTE to Program: Please confirm that you agree with these statements and the assertion that the No Action alternative (where a waste generation ROD would "build" the landfill under CERCLA or where all waste is sent offsite) is the least protective.

X. Section 2.10.1, Overall Protection of Human Health and the Environment, p. 2-21. Summary of comparative analysis has definitely a different perspective on specifically the first threshold criteria, see pages 2-21 for my comments.

Commented [AK35]: TechLaw comment:
The statement of 'see pages 2-21 for my comments" is unclear. Row 47, Comment #66, OLEM IO, "All Comments" HQ Spreadsheet.

X. Section 2.10., Overall Protection of Human Health and the Environment, Table 2.1, p. 2-21. "Offsite Alternative: More protective than the Onsite or Hybrid Disposal Alternatives in preventing releases on the ORR because waste would be permanently removed and disposed in unpopulated regions with greater depths to groundwater." It is either protective or not. Now it may be that in the longterm effectiveness and permanence and short term risks this information may be more appropriate to include.

X. Section 2.10., Overall Protection of Human Health and the Environment, Table 2.1, p. 22. "Up to approximately 1.6 acres of wetlands impacted. Impacts would be minimized through use of BMPs or

mitigated in accordance with ARARs." What ARARs provide for the mititagion?

X. Table 2.1 Summary of CERCLA evaluation criteria for disposal alternatives (cont.), p. 2-22. Short-term effectiveness: The table includes collection of leachate in a leachate collection system, but does discuss treatment of leachate, and does not discuss collection and treatment of contaminated stormwater (also known as "contact water"). Please add a brief description of how that wastewater will be managed.

X. **Decision Summary, Section 2.10.2, page 2-25**. The third paragraph states that all onsite alternatives meet ARARs. As noted in other paragraphs, there is an insufficient record to support this statement. Notably, this paragraph does not discuss the waste water discharge ARARs. While it would be more complete to include in this section a discussion of those ARARs, it would be inappropriate to assert, at this time, that those ARARs will be met since the ROD has no AWQC equivalents for radionuclides or effluent limits that will be protective of those instream AWQCs and meet TDEC Water Quality Standards regulations. EPA is aware that AWCQ-equivalents for radionuclides and associated effluent limits are being developed and the FFS is being revised. The next draft of the ROD will be reviewed accordingly.

X. Section 2.10.3, Long-term Effectiveness and Permanence, p. 2-25. "The No Action Alternative may or may not have been effective, as it would depend on multiple future individual waste disposal decisions. Because the decisions would be under CERCLA, they would be required to be protective" Effective and protective are different criteria.

X. **Decision Summary, Section 2.10.3, page 2-25**. The third paragraph, last sentence, states that landfill waste water generation would cease upon landfill closure. Please confirm the accuracy of this statement. Typically, leachate can be generated after final closure.

X. **Decision Summary, Section 2.10.4, page 2-26**. The third paragraph, first sentence states that "Onsite Disposal Alternatives would provide landfill wastewater treatment needed to meet ARARs, including portions of the Clean Water Act of 1972 (CWA) that address hazardous chemicals and ARARs addressing radiological discharges." This appears to be incorrect or at least confusing, as it suggests that the CWA requirements are different from the ARARs addressing "radiological discharges." Please revise this sentence to read, "Onsite Disposal Alternatives would provide landfill wastewater treatment needed to meet ARARs, including portions of the Clean Water Act of 1972 (CWA) regulations that address hazardous chemicals and radiological discharges as well as Nuclear Regulatory Commission requirements that addresses radiological discharges alone."

X. Section 2.10.3, Long-term Effectiveness and Permanence, p. 2-26. The WAC were not fully developed at the time of the D1 ROD preventing the EPA from quantifying the long-term risk of the disposal facility. Without this information the protectiveness of the selected remedy could not be assessed. Provide a reference in this section to that information in this ROD.

X. Section 2.10.4, Reduction of Toxicity, Mobility, or Volume Through Treatment, Page 2-26. "Onsite Disposal Altnernatives would provide landfill wastewater treamtent needed to meet ARARs, including portions of the [CWA] that address hazardous chemicals and ARARs addressing radiological discharges." It appears that they avoid saying that CWA is an ARAR for radiological discharges. If that is true, we suggest modifying the language to make it clear that CWA is an ARAR for rads.

Commented [AK36]: HQ Comment: Consolidate with other comments

X. Section 2.10.4, Reduction of Toxicity, Mobility, or Volume Through Treatment, Page 2-26, Paragraph 4: Although the text states that treatment is not part of the remedy, the statement is

misleading. Please revise the text to clarify that aspects of treatment could include waste volume reduction. Additionally, the responsibility should not be the sole responsibility of the waste generators, but a general description of administrative and physical WAC should be presented. This will present to the community the commitment to ensure disposal of waste material will be implemented responsibly. Please include the "hierarchy" decision-tree graphic currently used at the Environmental Management Waste Management Facility that determines if waste is acceptable.

X. Section 2.10.5, Short-term Effectiveness, p. 2-27. There is a discussion regarding short-term environmental effects of onsite disposal, such as land disturbance and loss of habitat, however, it does not address impacts of increased stormwater or discharges of landfill wastewater to Bear Creek or tributaries to Bear Creek. Please add that information to this discussion.

X. Section 2.10.5, Short-term Effectiveness, p. 2-27. Forested (2.10.5) – We are unduly impacting forested lands. Some of the responses asked why we are building this landfill in a green area and there was not a cogent response. The ROD text notes: The greatest impact would be installation of EMDF in CBCV or WBCV, where up to 94 acres of forested land would be expected to be impacted. The other onsite alternatives had less, but still notable, impact on environmental habitat.

Commented [AK37]: HQ Comment: Consolidate with other comments

X. Section 2.10.5, Short-term Effectiveness, p. 2-27. "Disturbance to terrestrial resources would be expected, with land use resulting in losses/changes of habitat and displacement of wildlife from the construction areas. The greatest impact would be installation of EMDF in CBCV or WBCV, where up to 94 acres of forested land would be expected to be impacted. The other onsite alternatives had less, but still notable, impact on environmental habitat."

The CBCV location would appear to also impact existing wetlands as shown in Figure 2.3 on p. 2-8. Section 2.5 on p. 2-12 indicates "The cleared area includes a recent soil staging area along the southern margin and two wetland basins completed in 2015 for Y-12 compensatory wetland mitigation." Table 2-1 indicates "Impacts would be minimized through use of BMPs or mitigated in accordance with ARARs" and 2.12.4 indicates "The loss of habitat and some wetland areas also will occur during construction. Mitigation of wetland impacts will be implemented as required by ARARs." Are there other triggers for restoring/replacing existing compensatory wetlands beyond what is included in ARARs for the EMDF ROD? Will DOE include additional compensatory mitigation to account for its impacting the existing wetlands constructed themselves as a mitigation project for Y-12?

Commented [H38]: HQ Comment:

Comment rewritten as "EPA acknowledges that the CBCV location was a location alternative developed with input from EPA and TDEC. However, we should consdier if this action is unduly impacting forested lands. Some of the public comments in the Responsiveness Summary asked why we are building this landfill in a green area and there was not a cogent response. Are there other triggers for restoring/replacing existing compensatory wetlands beyond what is included in ARARs for the EMDF ROD? Will DOE include additional compensatory mitigation to account for its impacting the existing wetlands constructed themselves as a mitigation project for Y-12?"

X. Section 2.10.5, Short-term Effectiveness, p. 2-27. The ROD text notes: The greatest impact would be installation of EMDF in CBCV or WBCV, where up to 94 acres of forested land would be expected to be impacted. The other onsite alternatives had less, but still notable, impact on environmental habitat. Text also states: "Disturbance to terrestrial resources would be expected, with land use resulting in losses/changes of habitat and displacement of wildlife from the construction areas. The greatest impact would be installation of EMDF in CBCV or WBCV, where up to 94 acres of forested land would be expected to be impacted. The other onsite alternatives had less, but still notable, impact on environmental habitat."

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acknowledges that the CBCV location was a location alternative developed with input from EPA and TDEC. However, we should consider if this action is unduly impacting forested lands. Some of the public comments in the Responsiveness Summary asked why we are building this landfill in a green area and there was not a cogent response. Are there other triggers for restoring/replacing existing compensatory wetlands beyond what is included in ARARs for the EMDF ROD? Will DOE include additional compensatory mitigation to account for its impacting the existing wetlands constructed themselves as a mitigation project for Y-12?

X. Section 2.10.7, Cost, p. 2-28. Costs are in FY 2016 dollars (page 2-28) and in FY 2012 dollars (page 2-49). Costs should be consistent and should be updated since it is now 4th Quarter FY 2021.

X. Section 2.10.8, State acceptance, p. 2-28. State acceptance is mentioned (page 2-28) but no information is provided to support that statement.

X. Section 2.10.9, Community Acceptance, Page 2-29. There is a requirement to publish a notice and brief analysis of the proposed plan and make such plan available to the public. Was this done? The date the newspaper ad was placed should be listed in this section. [CERCLA 117(a)(1) and (d); NCP 40 C.F.R. §300.430(f)(3) (i)(A).

X. Section 2.10.9, Community Acceptance, Page 2-29. "DOE held a public review and comment period from September 10, 2018 to January 9, 2019, and hosted two information sessions and a public meeting on November 7, 2018,..." Was a transcript of the meeting added to the AR? This is a requirement under the NCP to keep a transcript of the public meeting held during the public comment period pursuant to CERCLA section 117(a) and make such transcript available to the public. [CERCLA 117(a)(2); NCP 40 C.F.R. §300.430(f)(3) (i)(E)]

X. Section 2.10.9, Community Acceptance, Page 2-29. First paragraph in this section. Include the language from the responsiveness summary which states: The meeting was publicized in all of the local newspapers, on social media, and by mailing reminders to all 15,000 households in Oak Ridge

X. Section 2.10.9, Community Acceptance, Page 2-29. "The Responsiveness Summary in Part 3 of this ROD presents DOE's responses to comments received from the public review and comment period." Please note that an optional fact sheet to explain the ROD in a concise format can be used to communicate the decision more effectively with the public. A video going over the fact sheet or a information session about the ROD can also be considered.

X. Section 2.10.9, Community Acceptance, Page 2-29, Paragraph 3: Please consider adding a table with the numeric representation that would quickly summarize the number of comments received by categories. Alternatively, this could be added by expanding the second paragraph under Community Acceptance to present this information. Displaying the comments in a tabular format assists the readers to better understand the breakout of the comments and position taken. whether agree, disagree, etc. For example: a) Comments Supporting EMDF, b) Opposed, 3) Information Incomplete to Provide a Comment, 4) Other Information Requested Not Associated with the EMDF Decision under CERCLA.

X. Section 2.10.9, Community Acceptance, p. 2-29. "Although the SSAB did not submit comments during the public comment period, they had provided earlier endorsement of the EMDF." How? Through writing, please reference the document to support this statement.

X. Section 2.10.9, Community Acceptance, p. 2-29. The text states "Although the SSAB did not submit

comments during the public comment period, they had provided earlier endorsement of the EMDF." Please provide clarification. In what form did the SSASB provide endorsement? Is this endorcement available to the public? Please provide a reference to that location (and number if referenced).

X **Decision Summary, Section 2.10.9, page 2-29 to 2-30**. DOE's statement that it "obtained public input on the proposed action for onsite disposal of Oak Ridge NPL Site CERCLA waste at EMDF" should be qualified since information collected after the proposed plan was not made available to the public for consideration. The original Proposed Plan for on-site CERCLA waste disposal was issued to the public (September 10, 2018) and comments were sought through early 2019. New information has been obtained (i.e. DOE obtained groundwater elevation data which it documented in *Technical Memorandum 2*, which indicated groundwater elevations higher than projected in the RI/FS) and is being developed (i.e. water quality based effluent limits for radionuclides) since the original Proposed Plan was published. In addition, the ROD discusses using "mechanically stabilized earth" in its construction of the landfill, which may raise the elevation of the landfill above that envisioned during public comment. Under the NCP, new information should be made available for public review and comment in a Proposed Plan consistent with 40 CFR § 300.430(f)(3) before it can issue a ROD with a selected remedy which includes discharges of wastewater from the EMDF landfill along with effluent limits identified as cleanup levels. Thus, the ROD will need to be revised, at a minimum, to include additional responses to any received public comments in the Responsiveness Summary and the remedy may need to be revised in response to public comments as part of the NCP's Modifying Criteria for community acceptance. EPA is aware that AWCQ-equivalents for radionuclides and associated effluent limits are being developed and the FFS is being revised. The next draft of the ROD will be reviewed accordingly.

Commented [AC39]: Suggest omitting this sentence. I think this is more a design matter than a remedy feature that requires explanation in the PP. The landfill may need to be raised – this has not yet been determined – and will be based on data collected during the design phase. The fact that a 15 ft buffer is required hasn't changed.

Commented [AC40]: Discuss

X. Section 2.10.9, Community Acceptance, Page 2-30, Paragraph 1: Please add the City of Oak Ridge (host city) as providing concerns about the landfill and the Proposed Plan, if these comments were submitted separately from the Environmental Quality Advisory Board (EQAB).

X. Section 2.10.10. NEPA Values, Page 2-31. "Based on the proposed locations for alternatives, coupled with the proximities of these proposed locations when compared with surrounding communities, it was demonstrated that no community is disproportionately affected by the potential environmental consequences presented by the onsite alternatives." Please elaborate on how this does not pose an EJ concern. Is it because of X distance from the site to neighboring areas? Is it lack of exposure pathways to vulnerable communities? A lack of vulnerable communities? Which specific factors were used to make this determination. A new section in the ROD should be written that conducts a full EJ analysis outside of this smaller section under DOE NEPA values. The 2015 EPA Guidance on Considering Ej During the Development of Regulatory Actions provides more information on how to consider EJ. IT states "current EPA guidance does not prescribe or recommend a specific approach or methodology for conducting screening-level analysis. A screening-level analysis should provide information related to whether there may be potential EJ concerns associated with regulatory actions, and may include elements such as the following:

1. A description of the potential impacts on, and existing risks to, minority populations, low-income populations, and/or indigenous peoples. This may involve a description of:

- The proximity of sources being regulated to these populations
- The number of sources that may be impacting these populations
- The nature and amount of pollutants that may be impacting these populations
- Whether there are any unique exposure pathways involved
- Combinations of the various EJ factors occurring in conjunction with one another
- Expressed stakeholder concerns about the action, if any.

2. A description of potential impediments to meaningful involvement. This may involve understanding whether the action presents opportunities to improve public involvement requirements or limits opportunities in some way." After initial screening, qualitative factors addressing site-specific factors should be identified and considered. (https://www.epa.gov/environmentaljustice/guidance-considering-environmental-justice-during-development-action)

X. Section 2.10.10. NEPA Values, Page 2-31. "Based on the proposed locations for alternatives, coupled with the proximities of these proposed locations when compared with surrounding communities, it was demonstrated that no community is disproportionately affected by the potential environmental consequences presented by the onsite alternatives." Please elaborate on how this does not pose an EJ concern. The following should be added to the discussion: how EJ was considered, how they'll undertake meaningful stakeholder outreach, how it was demonstration that no community was disproportionately affected. Is it because of X distance from the site to neighboring areas? Is it lack of exposure pathways to vulnerable communities? A lack of vulnerable communities? Which specific factors were used to make this determination. A new section in the ROD should be written that conducts a full EJ analysis outside of this smaller section under DOE NEPA values. The 2015 EPA Guidance on Considering Ej During the Development of Regulatory Actions provides more information on how to consider EJ. IT states "current EPA guidance does not prescribe or recommend a specific approach or methodology for conducting screening-level analysis. A screening-level analysis should provide information related to whether there may be potential EJ concerns associated with regulatory actions, and may include elements such as the following:
1. A description of the potential impacts on, and existing risks to, minority populations, low-income populations, and/or indigenous peoples. This may involve a description of:
• The proximity of sources being regulated to these populations
• The number of sources that may be impacting these populations
• The nature and amount of pollutants that may be impacting these populations
• Whether there are any unique exposure pathways involved
• Combinations of the various EJ factors occurring in conjunction with one another
• Expressed stakeholder concerns about the action, if any.
2. A description of potential impediments to meaningful involvement. This may involve understanding whether the action presents opportunities to improve public involvement requirements or limits opportunities in some way." After initial screening, qualitative factors addressing site-specific factors should be identified and considered. (https://www.epa.gov/environmentaljustice/guidance-considering-environmental-justice-during-development-action)

X. Section 2.10.10. NEPA Values, Page 2-32, Paragraph discussing EJ. Is this enough to address the EJ concerns? The following should be added to the discussion: how EJ was considered, how they'll undertake meaningful stakeholder outreach, how it was demonstrated that no community was disproportionately affected.

Commented [AK41]: HQ Comment: Consolidate with other comments

X. Section 2.10.10. NEPA Values, Page 2-32, Paragraph 2: Please reference Executive Order 12898-Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations and add more information regarding the DOE's environmental justice assessment regarding air deposition from EMDF landfill operations and the impact to nearby communities.

X. Section 2.10.10, NEPA Values, p. 2-30. What are the NEPA requirements for this decision/action? Was a NEPA Environmental Assessment or Environmental Impact Statement prepared; or not required? Please define the term "NEPA values." This section does not include discussion of habitat loss, especially with regards to threatened or endangered species, and does not discuss impact to water quality

or habitat associated with Site 7c in Bear Creek Valley.

X. Section 2.10.10, NEPA Values, p. 2-32. Environmental Justice. There is one paragraph in the D1 ROD addressing Environmental Justice (located in the "NEPA Values" section). As written, the D1 ROD insufficiently addresses environmental justice. Environmental Justice is about the disproportionate environmental burdens on a community from cumulative environmental impacts, not limited to the particular decision at hand (EMDF). An evaluation is needed to identify communities with potential environmental justice concerns. If communities with environmental justice concerns are present, further evaluation of the concerns and appropriate responses may be needed. EPA has provided some resources on this matter, and is available for further consultation.

X. **Decision Summary, Section 2.11, page 2-32**. This section discusses principal threat waste and concludes that there is no principal threat waste concern in this ROD. Please note comment 13 above. To the degree that the discharge of landfill radiological waste water is as DOE represented in the D3 FFS, which is at a 10-3 level of risk when using Clean Water Act recreational use exposures, this would likely constitute the discharge of principal threat waste into Bear Creek, in that this effluent at these concentrations (e.g., for Tc-99 a concentration of 1,818,240 pCi/L at the end of pipe) meets all three elements of PTW: it is liquid, mobile and highly toxic. As noted above, however, once DOE has revised the Waste Water FFS and ROD to include AWQC equivalent and effluent limits that meet all the ARARs (including the most stringent CWA and TDEC water quality standard regulations), this should be an accurate statement.

X. Section 2.12, SUMMARY OF PREFERRED REMEDY. Discussion of public input. Given the new information from the Administrator's Decision and the new executive orders, are there more opportunities for public engagement?

X. Section 2.12, SUMMARY OF PREFERRED REMEDY, p. 2-33. These sections discuss land use changes. DOE's land use changes do not affect TN's recreation use classification, and the entire water body must still meet 10-5.

X. Section 2.12, SUMMARY OF PREFERRED REMEDY, p. 2-33. These sections discuss land use changes. DOE's land use changes do not affect TN's recreation use classification, and the entire water body must still meet 10-5. This needs to be clarified in the text.

X. Section 2.12, SUMMARY OF PREFERRED REMEDY, p. 2-33. Please include language that a RD or RAWP will be submitted, along with a timeline. Sample language: "A LUC Remedial Design will be prepared as the land use component of the Remedial Design. Within 90 days of ROD signature, the [federal agency] shall prepare and submit to EPA for review and approval a LUC remedial design that shall contain implementation and maintenance actions, including periodic inspections." Another option is to refer to the enforceable schedule in the IAG for the RD or RAWP."

X. Section 2.12, SUMMARY OF PREFERRED REMEDY, p. 2-33. Fish Advisory (2.12) – the ROD inappropriately relies on fish advisories in conflict with the NCP to select a response action. Furthermore, it is setting a more restricted use of the stream

X. Section 2.12, SUMMARY OF PREFERRED REMEDY, p. 2-33. Fish advisories are referenced in this section. If fish advisories are going to be relied upon as part of the selected remedy, it needs to be identified as a LUC.

X. Section 2.12, SUMMARY OF PREFERRED REMEDY, Figure 2-2, p. 2-33. *For Zone 1 (the area adjacent to the proposed EMDF site), the near-term and long-term land usage for purposes of determining land use controls and setting remediation goals is modified to restricted recreational. Land usage in Zone 2, the area proposed for construction of EMDF, is changed from recreational use in the near-term and unrestricted in the long-term to DOE-controlled industrial use (same as for Zone 3), for purposes of setting land use controls and determining remediation goals both near- and long-term, with approval of this ROD.* Please update figure with new land use restrictions for Zones 1, 2, and 3, as described in Sections 1.2 and 2.12. Further, please label LUC.

Commented [H42]: TechLaw comment: Figure 2-2 is on page 2-5. Figure 2-4 is on page 2-34. Both are related to land use, but it appears that Figure 2-4 (Page 2-34) may be the Figure intended for this comment. Update the Figure #, page number and add Figure title(s) applicable to the comment.

X. **Declaration, Section 1.2, page 1-3, fourth paragraph and Decision Summary, Section 2.12, page 2-33**. DOE has established a new term, "restricted recreational" due to the fish advisory established by TDEC for the entirety of Bear Creek (from its headwaters to its mouth) as a result of mercury contaminated fish resulting from ORR releases. Reclassification of the state recreational use designation cannot be accomplished through a CERCLA ROD. While DOE may develop nomenclature as it wishes for its internal land use designation purposes, please note that the fish advisory does not change the use of Bear Creek as designated by the state's stream classifications in TDEC 0400-40-04-.09 *Use Classifications for Surface Water*. Notably, recreational use is intended to support "recreation in and on the waters including the safe consumption of fish and shellfish" (TDEC 0400-40-03-.02(2)), even where there is a fish advisory to protect the public while the surface waters are restored from damage due to legacy contamination. No discharges to surface water that are part of a CERCLA remedial action are allowed if the ROD does not provide for compliance with the applicable requirements of CWA or regulations promulgated under CWA (40 CFR 122.4(a)) or if the action will cause or contribute to a violation of a water quality standard (40 CFR 122.4(i)). Please revise the language to clarify that Tennessee's designated use classifications for Bear Creek includes Recreation. Attainment of AWQC, narrative criteria and AWQC equivalents for radionuclides is required throughout the stream pursuant to CWA and TDEC water quality standards regulations identified as ARARs. DOE's access restrictions (suppression of recreational use) should not be factored into derivation of AWQC equivalents for radionuclides.[11]

X. Section 2.12, SUMMARY OF PREFERRED REMEDY, p. 2-33. Third paragraph. Specify that a land use change to restricted recreational use is selected for Zone 1 for short and long term, and state the rationale for that change. Land use is not being changed from unrestricted to restricted recreational because there are no trespassing signs; rather, the land use change is being made to provide a buffer between the landfill and potential human access (or other reason that should be stated). The text states that fish consumption advisories and prohibitions on fishing are in place, but please include the reasons for the advisories and prohibitions, and whether these advisories and access (no trespassing) prohibitions will be needed in the long term.

X. Section 2.12, SUMMARY OF PREFERRED REMEDY, p. 2-33. Odd statements on beaver control to limit or discourage fishing in Bear Creek (page 1-4 and 2-33).

Commented [H43]: Consoldiate to one beaver comment which states "Regarding beaver control to limit or discourage fishing in Bear Creek (page 1-4 and 2-33), it is inappropriate and outside the purview of DOE to remove beavers to prevent pooling in the river to prevent fish production.?

X. Section 2.12, SUMMARY OF PREFERRED REMEDY, p. 2-33. Beavers – Introduction – it is inappropriate and outside the purview of DOE to remove beavers to prevent pooling in the river to prevent fish production.

[11] Guidance for Conducting Fish Consumption Surveys, December 2016. Suppression is defined to include the reduction in consumption due to environmental or other factors (e.g., fears of chemical contamination in fish, fish populations of inadequate size to support consumption, loss of access to fisheries . . .), at p. vi.

X. Section 2.12, SUMMARY OF PREFERRED REMEDY, p. 2-33. Regarding beaver control to limit or discourage fishing in Bear Creek (page 1-4 and 2-33), it is inappropriate and outside the purview of DOE to remove beavers to prevent pooling in the river to prevent fish production.

X. **Decision Summary, Section 2.12.1, page 2-35**. The second paragraph states that the remedy described in the ROD is protective and attains ARARs. As noted in earlier comments, because the ROD fails to establish AWQCs for radionuclides and discharge limits that are protective of those AWQCs, there is no basis for concluding that the remedy is protective or attains ARARs. The only indication of the kind of discharge limits that DOE is proposing is in the D3 FFS, which EPA has not approved because it fails to establish discharge limit PRGs that are protective and meet ARARs. EPA is aware that AWCQ-equivalents for radionuclides and associated effluent limits are being developed and the FFS is being revised. The next draft of the ROD will be reviewed accordingly.

X. **Decision Summary, Section 2.12.2, page 2-35**. The second paragraph incorrectly dismisses the CERCLA statutory preference for treatment as "not germane to a disposal decision." Please note that this preference is not excluded for any remedial action. Please include an analysis of whether the remedy meets that statutory preference, paying attention to the waste, including waste water, generation component of this remedy.

X. Section 2.12.1, Summary of the Rationale for the Selected Remedy, p. 2-35. The text states:

- The site is **adjacent** to an existing area designated as a CERCLA waste management area (i.e., EMWMF) *along with several other CERCLA disposal areas in BCV.*

This sentence is not clear and should be revised. The Site 7c EMDF location will be approximately 1.5 miles west of the existing EMWMF. While land use designation Zone 2 (the area containing the EMDF) is adjacent to Zone 3 (the area containing the EMWMF) the location of the EMDF is not "adjacent" to the existing EMWMF. Additionally, the italicized text is not accurate and should be changed to reflect TDEC-permitted Resource Conservation and Recovery Act managed landfills and not multiple CERCLA-managed landfills.

X. Section 2.12.1, Summary of the Rationale for the Selected Remedy, p. 2-35. "The need for underdrains is limited to consideration under berms. Any/all groundwater intercepts in use during disposal operations are conceptualized as not necessary or operational following closure and will not be under the waste." What is the basis for this conclusion? Is it the depth to groundwater or other criteria? Please explain and provide a citation. A second option would be to delete this language from the ROD and put descriptions of underdrains in the RD/RA WP.

X. Figure 2.5. EMDF conceptual site layout, p. 2-36. Please label D-11 East. It is discussed in the text, but not shown on the figure. Will there be a settling basin for uncontaminated stormwater (non-contact water)? Please identify this feature (if present) in this figure.

X. Section 2.12.2, Description of the Selected Remedy, p. 2-37. Waste Acceptance Criteria (WAC) – 2.12.2 – The draft does not include numerical waste acceptance criteria and therefore this package is deficient. Furthermore, the public has not been given the opportunity to review the Waste Acceptance Criteria.

In the case of McClellan Air Force Base (AFB), the facility did an analysis of level that would be protective and further established levels that based on the maximum that would be envisioned to be received. As the ORR document stands, any level of radionuclides and types of could be disposed of at

this facility. Recommend that ORR follow the McClellan AFB model. We should not allow an open-ended decision that any level of radionuclides would be allowed to be disposed of this landfill that may not be designed to be protective for that type of material. Furthermore, the public should be fully aware and have an opportunity provide comment on what is disposed of in their back yard.

X. Section 2.12.2, Description of the Selected Remedy, p. 2-37. Construction and operation of a LWTS consistent with ARARs. Details of the LWTS should be included as part of the remedial design which will undergo EPA review/approval. This should be called out in the selected remedy section along with a schedule for remedy implementation (see other comments on including an enforceable schedule in the ROD).

X. Section 2.12.2, Description of the Selected Remedy, p. 2-37. Construction and operation of a LWTS consistent with ARARs. Just to clarify, will details of the LWTS be part of the remedial design and undergo EPA review/approval? That should be called out in the selected remedy section along with a schedule for remedy implementation (see other comments on including an enforceable schedule in the ROD).

X. Section 2.12.2, Description of the Selected Remedy, p. 2-38. These sections discuss the requirement for a 15 ft unsaturated zone & planned field demonstration to obtain gw data. For the Region: Is it acceptable to put off this particular data collection until a "post-ROD" field demonstration".

Commented [H44]: OK to delete from FFEO.

X. **Decision Summary, Section 2.12.2, page 2-37**. NOTE to Program – *as with comment 11, this comment is directed to the EPA program to confirm.* Please confirm whether the "**clean fill dike**" and the "**mechanically stabilized earth**" were part of the alternative presented to the public. If not, consider and determine whether it is a significant change to the remedy, and could the public have reasonably anticipated it? If the public could not have reasonably anticipated this change based on the Proposed Plan and Administrative Record published at the time of public comment, this could trigger an additional public comment period under 40 CFR 300.430(f)(3)(ii).

X. Section 2.12.2, Description of the Selected Remedy, p. 2-38. Last bullet. The text states that the remedy includes "Change of the initial land use designation used to set remediation goals in BCV Zone 2 to future DOE-controlled industrial land use of the area." Additional text should be added to indicate that the land use designation for BCV Zone 1 is also being changed, in this case, from unrestricted to restricted recreational.

X. Section 2.12.2.2, Construction activities, p. 2-38. "The EMDF construction will be conducted in phases over the cleanup time frame." What is that time frame?

X. Section 2.12.2.1, (Conceptual design of EMDF and infrastructure). p. 2-38. "The landfill will not be constructed over NT-10 or NT-11, but the berm may be placed over D-10W," yet Figure 2.5 (EMDF conceptual site layout) indicates that the support facilities [i.e., landfill wastewater treatment system (LWTS), storage area, leachate/contact water storage] and Site 7b Borrow Area will be constructed over an unnamed creek. The ROD includes no discussion regarding the short- and long-term impact on this creek or how Applicable and Relevant and Appropriate Requirements (ARARs) will be met. It should be noted that diversion ditches are discussed in the ROD for rerouting D-10W but not for this creek. Revise the ROD to discuss the short- and long-term impact of constructing support facilities and Site 7b Borrow Area over this unnamed creek and how it will comply with ARARs.

X. Section 2.12.2.2, Construction activities, p. 2-38 and 2-39. Section 2.12.2.2 states, "Borrow material

for EMDF will be obtained from the knoll just east of the facility and other locations at ORR, which will be developed during this early phase;" however, it is unclear why borrowing materials from an adjacent knoll is proposed when borrow material will be available from the EMDF site. As noted in the Phase 1 Construction subsection of Section 2.12.2.2, "The site will be graded to the top of the geologic buffer and the perimeter berm will be constructed to support the first cell(s)." If the materials excavated from the EMDF site are suitable, they should be reused. Revise Section 2.12.2.2 to clarify why borrowing materials from an adjacent knoll is proposed when borrow material will be available from the EMDF site.

X. Section 2.12.2.2, Construction activities, p. 2-39. "As the overall design of the landfill progresses, the scope of activities in the site preparation phase may be modified." Add timelines for each phase of construction.

X. Section 2.12.2.3, Waste acceptance criteria, p. 2-39. The text states:

> These criteria are derived from various constraints placed upon EMDF, such as specific risk **or dose limits** and design elements in regulatory-based laws and guidance, as well as constraints on waste acceptance that are established through discussion and agreement among the FFA parties (DOE, EPA, and TDEC). (Bold and underlining added)

Remove the words "or dose limits" since CERCLA is based solely on risk. The DOE-based dose limits will not be considered or used to make decisions in this CERCLA ROD.

X. Section 2.12.2.3, Waste acceptance criteria, p. 2-39. Waste Acceptance Criteria. This section will be updated consistent with the agreements currently being negotiated by FFA parties.

X. Table 2.4. EMDF administrative WAC, p. 2-41. It is EPA's understanding that mercury waste that is also RCRA hazardous waste by characteristic (i.e. toxicity) will be prohibited; please add to the table.

X. Section 2.12.2.3, Waste acceptance criteria, p. 2-40. The text states:

> These two elements of the WAC (**along with additional procedures for implementing those WAC**) must be met before waste may be placed in the EMDF for disposal. (Bold added)

What are the "additional procedures" highlighted in bold text? Please add text to clarify and explain what this entails.

X. Section Analytic WAC, p. 2-42. The text states:

> The inventory (WAC) limits are the maximum values allowed per the ARAR dose for protection of the public, which has been deemed protective under CERCLA by EPA.[5]

Footnote 5 states:

> [5] **EPA Administrator, Dispute Resolution Decision on radiological discharge limits for the Oak Ridge Reservation, December 31, 2020.** (Bold added)

Footnote 5 citing the 12/31/20, EPA Administrator decision addresses wastewater discharge and not the WAC. It is unclear if this statement is citing the old ARAR of NRC 10 CFR61, the 25/75/25 NRC dose and state rules 10 CFR 61.41/TDEC 0400-20-11-.16(2), or something different. Note that EPA considers the appropriate dose limit of 12 mrem as acceptable and nothing higher. Rewrite this sentence and modify the footnote to clarify the issue being discussed consistent with CERCLA risk.

X. Section 2.12.2.3, Waste acceptance criteria, p. 2-42. "The inventory (WAC) limits are the maximum values allowed per the ARAR dose for protection of the public, which has been deemed protective under CERCLA by EPA." This section refers only to dose limits under the TDEC equivalents of NRC regs, not to protective limits under CWA regs.

Commented [AK45]: HQ Comment: Consolidate with other comments

X. Section 2.12.2.3, Waste acceptance criteria, p. 2-42, Table 2.5. Are these the levels we expect to see at closure? If so, what are the corresponding risk?

X. Section 2.12.2.3, Waste acceptance criteria, p. 2-44, Table 2.6. Are these discharge or exposure limits?

X. Section 2.12.2.3, Waste acceptance criteria, p. 2-45. "All discharge water from EMDF will be treated as necessary to meet the most stringent applicable instream water quality criteria, including recreational, with consideration of the stream mixing zone at the point of discharge". Is this comment only regarding mercury management or all COCs? It should apply to all COCs (including chemicals and radionuclides). It seems this is broader than mercury and should have its own heading in this section to avoid confusion. Discharge water should be treated to meet ARARs as well.

X. Section 2.12.2.3, Waste acceptance criteria, p. 2-45. "All discharge water from EMDF will be treated as necessary to meet the most stringent applicable instream water quality criteria, including recreational, with consideration of the stream mixing zone at the point of discharge". It is unclear if this comment is only regarding mercury management or all COCs. It should apply to all It COCs (including chemicals and radionuclides). It seems this is broader than mercury and should have its own heading in this section to avoid confusion. Discharge water should be treated to meet ARARs as well.

X. Section 2.12.2.3, Waste acceptance criteria, Page 2-45.

A. Ambient water quality criterion for protection of aquatic life of 1,400 ppt represents the criterion maximum concentration (CMC) or the concentration aquatic organisms can be exposed to for brief intervals typically less than 48 hours without suffering detrimental effects. The 1,400 ppt CMC could apply to a short-term release of mercury to surface water, but it is not protective of chronic exposures. Revise this section to discuss the point of compliance and frequency of monitoring in terms of how the criteria will be applied.

B. Substantive requirements of TDEC surface water quality standards (WQS) include, in addition to numerical standards, anti-degradation requirements, which means DOE must not degrade waters such that they no longer meet their designated uses. There are no chemical specific EPA National Recommended Water Quality Criteria (NRWQC) for radionuclides in the CWA. However, TDEC has narrative WQS.

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"The waters shall not be modified through the addition of pollutants or through physical alteration to the extent that the diversity and/or productivity of aquatic biota within the receiving waters are substantially decreased or adversely affected."

Although there is no chemical specific Tennessee WQS for radionuclides, the discharge must not violate TDEC narrative WQS. This means that radioactivity or other releases to the environment from the EMDF cannot cause damage to the diversity or productivity of benthic macroinvertebrate communities or fish communities. Radionuclides have long-half lives, and bioaccumulate in the environment. Monitoring for remedy effectiveness should include benthic macroinvertebrate and

fish community surveys and measuments of mercury, PCBs, uranium, and radionuclides in forage fish and benthic macroinvertebrates to assess exposure. To the degree that baseline data are unavailable, data will be necessary to characterize the health of aquatic communities and their contaminant body burdens prior to the landfill construction to provide a point of comparison.

C. Text on Page 2-45 does not discuss control of mercury methylation although methylmercury is more mobile in the environment and is 90% of the total mercury in fish tissue. A study by Mathews et al. (2013) indicated that surface water concentration would likely need to be less than 51 ppt to achieve the tissue-residue based NRWQC for mercury in fish tissue of 0.5 ppm. Revise the text to discuss the effects of the proposed remedy on mercury methylation and how the proposed remedy will ~~restore water quality in Bear Creek to~~ meet ARARs ~~and meet anti-degradation provisions of TDEC 0400-40-03.~~

~~D. In response to public comments regarding the disposal of mercury in the EMDF, DOE has indicated the Department will meet all regulatory requirements pertaining to mercury treatment and onsite disposal of waste, including Resource Conservation and Recovery Act of 1976 requirements that dictate WAC for mercury. The ROD is deficient because the selected remedy lacks a remedial action objective to reduce the concentrations of mercury in Bear Creek to meet ARARs and restore beneficial uses nor has a waiver of the standards in the TDEQ WQS been included in the selected remedy.~~

Commented [CF46]: Hold for internal discussion – possibly relocate comments to another section?

X. Section Mercury Management Approach, p. 2-45. Replace the text in this section with the approach agreed to by the FFA parties.

X. **Decision Summary, Section 2.12.2.3, Mercury Management Approach, page 2-45**. EPA is aware that the mercury management approach is underdevelopment and will review the next version of the ROD accordingly.

X. **Decision Summary, Section 2.12.2.3, Mercury Management Approach, page 2-45**. In the second bullet, there are inaccuracies in both sub-bullets. In the first sub-bullet, please note that the limits must be established consistent with TDEC's "Antidegradation Statement" at TDEC 0400-40-03-.06 as well a technology-based effluent limit (if it is more stringent than the recreational water quality criterion-based limit 0.51 ng/L). If DOE pursues remediation of Bear Creek addressing sources of methylation such that the non-attainment status of mercury in fish tissue is corrected and reduced below the 0.3 mg/kg level, then the antidegradation-based limits would not be based on an "unavailable parameter," and the discharge limits could be revised depending on the assimilative capacity via a post-ROD modification. The language in this section should be revised to be consistent with any Mercury Management approach agreed upon by all the FFA parties. EPA is aware that the mercury management approach is under development and will review the next version of the ROD accordingly.

X. **Decision Summary, Section 2.12.2.3, page 2-45**. This section states that mercury waste water will be discharged at 0.51 ppt (WQBEL). Please note that there are three ARARs that apply to the discharge of mercury (as well as PCBs) since Bear Creek is designated by TDEC as non-attainment for these pollutants. In order to meet the CWA requirements and be consistent with the NCP, the discharge must meet the most stringent of either the TBEL (which has yet to be determined), a WQBEL, or an antidegradation-based limit. Please revise the text accordingly to reflect that establishment of effluent limit for mercury will meet the most stringent of a technology-based, water quality-based, or antidegradation-based effluent limit consistent with the Mercury management approach being discussed between the FFA parties. Please note, the FFA parties are developing a proposed Mercury Management

Approach for Discharges to Bear Creek. This document includes a process for establishing and modifying effluent limits for mercury that hinges on whether non-attainment can be removed as result of addressing sources of methylation, if approved by the FFA parties, that would be summarized in this Section of the ROD.

X. Section 2.12.2.4, p. 2-45. The term "wastewater" should be defined in the ROD as "leachate and contaminated stormwater (also known as contact water)." For example: **Landfill wastewater from EMDF, defined as landfill leachate and contaminated stormwater (also referred to as contact water), will be stored and sampled.** This section may be the appropriate place for this clarification.

X. **Decision Summary, Section 2.12.2.4, page 2-46**. In the second paragraph, the lack of discharge criteria (i.e., effluent limits) in the ROD illustrates a problem for not only this statement, but with the ROD itself. While DOE states that it will create those limits, not having them for EPA to review in the D1 ROD delays EPA's ability to evaluate whether the ROD is protective and complies with ARARs. Currently, without the radiological discharge limits and a scientifically-valid basis for those limits, it is neither. In addition, the discharge criteria would, at least for non-radiological pollutants, include technology-based effluent limits; references in the ROD are to only AWQCs as discharge criteria (see Section 2.12.2.3, ***Mercury Management Approach***). In contrast, non-radiological pollutants must have discharge criteria or limits that are applied at the point of discharge and are based on the most stringent among limits based on technology, water quality, and for the unavailable parameters (mercury and PCBs), the antidegradation statement consistent with the CWA and TDEC Water Quality Standards regulations.[12] Please note that for the TBELs, non-treatment techniques such as in-stream aerators and flow augmentation are generally is not an acceptable "treatment" to achieve TBELs for non-radiological pollutants unless a non-treatment technique is approved by EPA and TDEC. Landfill waste water will need to be measured for compliance with effluent limits prior to any commingling of waste water with storm water.[13]

X. **Decision Summary, Section 2.12.2.4, page 2-46**. The fourth paragraph gives inaccurate information about the discharge ARARs for radionuclides. First, it omits Clean Water Act requirements as relevant and appropriate requirements for the discharge to surface water of radionuclides as identified in the Wheeler Decision. It errs further in suggesting that complying with ARARs (namely water quality based effluent limits for radionuclides) is at any point other than at the end of pipe where it discharges into surface water.[14] In addition, it is premature to state that the discharge will meet the ARAR of AWQCs for radionuclides being developed at a 10-5 risk level because there are neither AWQCs or

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[12] Ref. TDEC 0400-40-03.02(4), TDEC 0400-40-03.05(6), TDEC 0400-40-03.06(2) and CWA §§ 301(b)(1)(C), 401(a)(1); see also 40 CFR § 122.44(d), "No permit may be issued...[w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States."

[13] See 40 CFR § 125.3(f) Technology-based treatment requirements cannot be satisfied through the use of "non-treatment" techniques such as flow augmentation and instream mechanical aerators. However, these techniques may be considered as a method of achieving water quality standards on a case-by-case basis when: (1) The technology-based treatment requirements applicable to the discharge are not sufficient to achieve the standards;
(2) The discharger agrees to waive any opportunity to request a variance under section 301 (c), (g) or (h) of the Act; and (3) The discharger demonstrates that such a technique is the preferred environmental and economic method to achieve the standards after consideration of alternatives such as advanced waste treatment, recycle and reuse, land disposal, changes in operating methods, and other available methods.

[14] The ROD states that the nearest point of public exposure is downstream from the discharge point. While this may be how DOE measures compliance under its Orders for dose-based limits, in a CERCLA action, where there are multiple ARARs, it is a fundamental principle of CERCLA that the most stringent ARAR must be met. 55 Fed Reg 8741.

discharge limits to meet those AWQCs (or antidegradation-based limits, as appropriate) in the ROD.[15] EPA is aware that AWCQ-equivalents for radionuclides and associated effluent limits are being developed and the FFS is being revised. The next draft of the ROD will be reviewed accordingly.

X. Section 2.12.2.4, Description of EMDF operations, p. 2-46. Dilution and Distance Inappropriate (Page 2-46) -- Inappropriate use of dilution and distance – Dilution and distance are being used (see p. 2-46: "Compliance with the ARARs is required at the nearest point of public exposure, which is downstream from the facility." (also, in FFS Appendix K-20.) This use is inconsistent with CERCLA and the NCP.

X. Section 2.12.2.4 Description of EMDF operations, p. 2-46. The text states:

> "Compliance with these discharge limits will assure human health and the environment are fully protected to the requirements of CERCLA."

The discharge limits pertain to compliance with the 10^{-5} risk specified in the Dispute Resolution Decision (footnote 6) and consistent with TDEC 0400-40-03-.03(4)(j) Footnote C, as determined based on site-specific exposure assumptions. These pertain to radionuclides and state that WACs should comply with a risk specified in TDEC rules. However, this provision may not be fully protective under CERCLA because risks of exposure to the environment to chemicals like mercury that bioaccumulate in biota were not considered. Please revise the text by removing the word "fully" and replacing it with a description of current/future risks, receptors, exposure pathways, and hazardous chemicals that are protected by the proposed remedy and the degree of protection provided, i.e., 10^{-5} risk, and any assumptions related to exposures that define the degree of protection afforded.

X. Section 2.12.2.4, Description of EMDF operations, p. 2-46, 4th paragraph discussing rad discharge. We wanted to ensure that this paragraph is consistent with the Decision. They only refer to ARARs with dose-based limits and don't mention CWA ARARs for rad discharge. The paragraph says that the standard applies at the point of public exposure, then later says that discharge limits (in compliance with 10-5) will be implemented at the point of discharge. This creates some ambiguity about whether 10-5 will be met throughout the water body.

Commented [H47]: HQ Comment:

Edit comment to state "The paragraph discussing rad discharge is ambiguous and not fully consistent with the Adminstrator dispute decision. For example, ..

X. Section 2.12.2.4, Description of EMDF operations, p. 2-46, 4th paragraph discussing rad discharge. The paragraph discussing rad discharge is ambiguous and not fully consistent with the Administrator dispute decision. For example, they only refer to ARARs with dose-based limits and don't mention CWA ARARs for rad discharge. The paragraph says that the standard applies at the point of public exposure, then later says that discharge limits (in compliance with 10-5) will be implemented at the point of discharge. This creates some ambiguity about whether 10-5 will be met throughout the water body.

X. Section 2.12.2.4, Description of EMDF operations, p. 2-46. Dilution and distance are being used (see p. 2-46: "Compliance with the ARARs is required at the nearest point of public exposure, which is downstream from the facility." see also, similar statements in June, 2021 revised FFS Appendix K, at K-20). This approach is not consistent with relevant and appropriate CWA regulations, is not consistent with CERCLA and the NCP (for example, compliance with substantive requirements in ARARs), and

[15] The D3 FFS does not contain AWQCs, and the discharge limits in the D3 FFS are based on exposure assumptions (1 meal per year of fish of approximately 170 grams) that do not have a factual or scientifically-defensible basis (consistent with Clean Water Act guidance on how to conduct a fish consumption survey).

does not ensure protectiveness of human health and the environment as required by CERCLA.

X. Section 2.12.2.4, Description of EMDF operations, p. 2-46. NRC regulations (not CWA regulations) are the ARARs being used for purposes of wastewater discharge effluent limits (see p. 2-46 and 2-50). To the extent the NRC regulations are not as stringent as the relevant and appropriate CWA regulations, this approach is not consistent with the NCP and as discussed in the preamble to the final NCP, this approach does not ensure protectiveness of human health and the environment as required by CERCLA.

X. Section 2.12.2.4, Description of EMDF operations, p. 2-46. The text refers to a "…wastewater treatment system…sized to accommodate the estimated wastewater volume to be treated and designed to remove contaminants projected to exceed discharge criteria". There should be some statement in the ROD about how the wastewater volume to be treated has been (or will be) estimated and how contaminants projected to exceed discharge criteria have been (or will be) identified. Additionally, text should be added that explains the plans to minimize leachate or contact water generation during later phases of landfill operation.

X. Section 2.12.2.4, Description of EMDF operations, p. 2-46. "As part of the remedy, a wastewater treatment system will be provided adjacent to the EMDF facility. The system will be sized to accommodate the estimated wastewater volume to be treated and designed to remove contaminants projected to exceed discharge criteria." Is this the same as the LWTS referenced earlier in the document? If so, the same jargon should be used throughout the document.

X. Section 2.12.2.6, Maintenance activities and environmental monitoring, p. 2-47. "Surveillance and maintenance (S&M) and performance monitoring will be implemented during operation and after facility closure." If performance monitoring shows that the landfill is not functioning properly, not meeting ARARs and/or posing an unacceptable risk to human health and the environment, what are the specific criteria to trigger the need to revisit the remedy? Have contingency plans been considered in the event the landfill impacts groundwater? It may be helpful to identify these triggers in the ROD so that the FFA parties have a clearer understanding of potential future actions.

X. **Decision Summary, Section 2.12.2.7, page 2-47.** These comments are provided in order to ensure that the land use controls selected in the EMDF are consistent with EPA's guidance, [HYPERLINK "about:blank"], *OSWER* Directive 9355.6-12, January 4, 2013.

a. Please include a (labeled) map or figure showing boundaries and/or location of the land use controls. (Checklist Item 1)
b. In the list of LUC objectives, please substitute the phrase "DOE-controlled industrial use (waste management)" for "alternate" to ensure that the concise list of objectives effectively communicates the objectives. (Checklist Item 4)
c. Please include a LUC objective to "Maintain the integrity of any current or future remedial monitoring system such as monitoring wells, permeable reaction barriers." (Checklist Item 4)
d. Please add a LUC objective to "maintain the soil cover once it is put in place at each waste cell to limit ecological impact." (Checklist Item 4)
e. Please add a LUC objective to "maintain a cover at landfill closure that prevents inadvertent intrusion into the waste." (Checklist Item 4)
f. Please clarify whether ORR will put a notice in its facility plan that includes a description of the allowed and prohibited uses at the site. (Checklist Item 5)

g. Please include the following statement, "Land Use Controls will be maintained until the concentration of hazardous substances in the soil and groundwater are at such levels to allow for unrestricted use and exposure." (Checklist Item 6)
h. Please include a statement that "DOE is responsible for implementing, maintaining, reporting on, and enforcing the land use controls." (Checklist Item 7)
i. Please include the following language, "A LUC Remedial Design will be prepared as the land use component of the Remedial Design. Within 90 days of ROD signature, or as part of the Remedial Design for the EMDF, DOE shall prepare and submit to EPA for review and approval a LUC remedial design that shall contain implementation and maintenance actions, including periodic inspections." (Checklist Item 9)

Commented [AC48]: Another option is to refer to the enforceable schedule in the IAG for the RD or RAWP

X. Section 2.12.2.7, Land use controls, p. 2-47. To Region 4: Please apply the LUC Checklist, and clearly differentiate Zones 1-3. Since the LUCs are being modified for Zones 1 and 2, the LUC Checklist items should be memorialized in this ROD.

X. Section 2.12.2.7, Land use controls, p. 2-47. To Region 4: Please apply the LUC Checklist, and clearly differentiate Zones 1-3. Since the LUCs are being modified for Zones 1 and 2, the LUC Checklist items should be memorialized in this ROD. This section is missing the following items from the LUC Checklist: Items 6-9; list of prohibited activities relating to industrial use (day cares, schools, recreation areas, etc.).

X. Section 2.12.2.7, Land use controls, p. 2-47. It is not clear what the Performance Action Objectives are for Zone 1, 2, and 3. Please clearly differentiate the LUC for each area. Please note that EPA's 1999 ROD Guidance states "Present a clear statement of the specific RAOs for the operable unit or site and reference a list or table of the individual performance standards."

X. Section 2.12.2.7, Land use controls, p. 2-47. It is not clear what the LUC instrument will be. Please provide more information on the LUC instrument, how it will be implemented and enforced.

X. Section 2.12.2.7, Land use controls, p. 2-47. Please add language that DOE is responsible for implementing, maintaining, reporting on, and enforcing the land use controls.

X. Section 2.12.2.7, Land use controls, p. 2-47. Please include the following language: "Although DOE may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, DOE shall retain ultimate responsibility for remedy integrity."

X. Section 2.12.2.7, Land use controls, p. 2-47. *Description of land use controls.* This section is missing the following items from the LUC Checklist: Items 6-9; list of prohibited activities relating to industrial use (day cares, schools, recreation areas, etc.). We recommend providing the LUC Checklist to DOE.

Commented [AK49]: HQ Comment: Consolidate with other comments.

X. Section 2.12.2.7, Land use controls, p. 2-48, Table 2.7. The table states that the Federal government or its contractors will implement the LUCs. More information/language is required in the ROD. Provide more details on how LUCs will be implemented for access controls.

X. Section 2.12.2.7, Land use controls, p. 2-48, Table 2.7. Cost should be updated…these are 9 years old.

X. Section 2.12.3, Cost Estimate for the Selected Remedy, p. 2-48 and Table 2.8, Total estimated project costs, p. 2-49. Based on Section 2.12.3 and Table 2.8, present worth costs for the alternatives were

calculated using a real discount rate of 1.5 percent according to the Office of Management and Budget (OMB) Circular No. A-94, dated November 2016; however, it is unclear why the OMB Circular No. A-94, dated December 2020 was not utilized. Revise the ROD to utilize the current real discount rate.

X. Section 2.12.3, Cost Estimate for the Selected Remedy, p. 2-49. Table 2-8 (Total estimated project costs) includes the costs associated with the construction of Cell 5; however, the ROD, including Section 2.12.3 (Cost Estimate for the Selected Remedy), does not propose construction of five cells. Based on Figure 2.5 (EMDF conceptual site layout) and the text, only four cells are proposed. If Cell 5 will not be constructed, revise Table 2-8 to only include the costs associated with the construction of Cells 1-4. If Cell 5 will be constructed, revise the ROD to consistently present construction of five cells.

X. X. Section 2.12.3, Cost Estimate for the Selected Remedy, p. 2-49. Table 2-8 (Total estimated project costs) includes costs based on 2012 dollars which were updated to 2016 dollars; however, all costs in the ROD should be based on 2021 dollars. This is of particular concern given that the post-ROD groundwater field demonstration (GWFD) will take at least two years, after which the costs will be even more out of date. Please revise the ROD to include 2021 costs to ensure the ROD meets the costing requirements outlined in the ROD Guidance.

X. Section 2.12.3, Cost Estimate for the Selected Remedy, p. 2-49 and Table 2-8. Costs are in FY 2016 dollars (page 2-28) and in FY 2012 dollars (page 2-50). Costs should be consistent and should be updated since it is now 4th Quarter FY 2021.

Commented [H50]: TechLaw Comment: 2-49 is the correct page number.

X. **Decision Summary, Section 2.12.4, page 2-49.** The first paragraph states that the remedy will meet RAOs, will be protective of human health and the environment, will protect human and ecological receptors, and will prevent adverse impacts to surface water. As noted in other comments, it is premature to there is no factual basis in the ROD or the Administrative Record for this ROD to support any of these statements. Until there is a factual record to support them, the ROD is inconsistent with CERCLA, the NCP and the FFA. EPA is aware that AWCQ-equivalents for radionuclides and associated effluent limits are being developed and the FFS is being revised. The next draft of the ROD will be reviewed accordingly.

X. Section 2.12.4, Expected Outcomes of the Selected Remedy, p. 2-49 ~~and Table A-2, Location Specific ARARs. Please include Clean Water Act (CWA) 404(b)(1) as an ARAR~~. Text in Section 2.12.4 indicated wetlands mitigation would be implemented as required by ARARs. However, the text did not describe controls to prevent disruption of, impact to, or alteration of wetlands and how effectiveness of such controls would be measured using EPA's wetlands guidance with the goal of "no net loss": [HYPERLINK "https://www.epa.gov/cwa-404/background-about-compensatory-mitigation-requirements-under-cwa-section-404"]. ~~Revise the text to cite the rules that require wetlands mitigation and refer to Table A-2.~~ If loss is anticipated, outline the process by which on-site or off-site compensatory mitigation will be proposed.

Commented [CF51]: Hold for internal discussion. Clear with Martha.

X. Section 2.12.4, Expected Outcomes of the Selected Remedy, p. 2-49. "The RAOs will be met by implementing the selected remedy." How is this statement supported?

X. Section 2.13.1, Overall Protection of Human Health and the Environment, p. 2-50. Please add reference to the groundwater RAO in this paragraph.

X. Section 2.13.2, Compliance with ARARs, p. 2-50. NRC regulations (not CWA regulations) are the

ARARs being used for purposes of wastewater discharge effluent limits (see p. 2-46 and 2-50). To the extent the NRC regulations are not as stringent as the relevant and appropriate CWA regulations, this approach is not consistent with the NCP and as discussed in the preamble to the final NCP, this approach does not ensure protectiveness of human health and the environment as required by CERCLA.

X. **Decision Summary, Section 2.13.1, page 2-50.** This section states that the remedy is protective. See earlier comments and note that there is no factual support in the record or in the ROD for this statement.

X. **Decision Summary, Section 2.13.2, page 2-50.** The fourth paragraph states that waste may be accepted for disposal even if it is not located at the NPL site. ~~NOTE to Program – please confirm that EPA has agreed. It appears that DOE would be utilizing an "on-site" landfill for disposal of waste that is not generated on-site, that is, would be inconsistent with the definition of on-site.~~ The term *on-site* means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action" 40 CFR 300.400(e)(1). Any decision to dispose of DOE legacy waste must be made through the CERCLA remedy selection process under the ORR FFA including a CERCLA decision document that is approved by EPA and TDEC.

Commented [AC52]: I'm unaware that EPA has agreed to this. We have no details re DOE's plan.

X. **Decision Summary, Section 2.13.2, page 2-50.** The fifth paragraph states, "The following NRC-based TDEC regulations are relevant and appropriate: TDEC 0400-20-11-.16(2) [equivalent to 10 CFR 61.41] and TDEC 0400-20-11-.16(4) [equivalent to 10 CFR 61.43]. These ARARs are used along with site-specific parameters to develop limits on radiological discharges during operations that ensure protection of human health and the environment." While this statement is consistent with the Wheeler Decision, it also omits a key principle of that Decision that Clean Water Act requirements are **also** relevant and appropriate requirements for the development of AWQC equivalents and discharge limits for radionuclides. The sentence should be revised to acknowledge that identified CWA NPDES regulations and TDEC Water Quality Stanards are also ARARs used to derive water quality based effluent limits. As noted above, where there are multiple ARARs, the most stringent requirement must be met.

X. Section 2.13.2, Compliance with ARARs, p. 2-50. The text states:

> The following NRC-based TDEC regulations are relevant and appropriate: TDEC 0400-20-11-.16(2) [equivalent to 10 CFR 61.41] and TDEC 0400-20-11-.16(4) [equivalent to 10 CFR 61.43]. These ARARs are used along with site-specific parameters to develop limits on radiological discharges during operations that ensure protection of human health and the environment.

The text should be revised to state that Tennessee and the EPA NPDES regulations that pertain to water-quality based effluent limitations and the Tennessee Water Quality Standards regulations establishing designated uses and criteria to protect those uses are also relevant and appropriate requirements used to develop limits for the discharge of radionuclides to surface water.

This position is consistent with the EPA Administrator's decision (December 30, 2020) which states:

> …regulations that establish water quality based effluent limitations under the Clean Water Act National Pollutant Discharge Elimination System program as well as Tennessee's NPDES regulations for establishing water quality-based effluent limitations, certain Tennessee Water Quality Standards regulations and certain Nuclear Regulatory Commission regulations for low-level radioactive waste disposal are relevant and appropriate requirements for purposes of establishing preliminary remediation goals…for addressing discharges containing radionuclides

from two CERCLA on-site landfills at ORR.

X. Section 2.13.2, Compliance with ARARs, p. 2-50. Refers to NRC-based TDEC regs as ARARs that "are used along with site-specific parameters to develop limits on radiological discharges during operations that ensure protection fo human health and the environment." DOE refers only to NRC ARARs here, with no mention of CWA ARARs.

X. Section 2.13.2, Compliance with ARARs, p. 2-50. Refers to NRC-based TDEC regs as ARARs that "are used along with site-specific parameters to develop limits on radiological discharges during operations that ensure protection fo human health and the environment." DOE refers only to NRC ARARs here, with no mention of CWA ARARs. CWA needs to listed as an ARAR for radiological discharges.

X. **Decision Summary, Section 2.13.2.1, page 2-51.** This section describes the basis of the waivers from the TSCA requirements, including the requirement that "[t]*he bottom of the landfill liner system or natural in-place soil barrier shall be at least fifty feet from the historical high-water table."*

In addition, this section states that certain TSCA requirements in 40 CFR § 761.75(b) have been met because DOE concludes that this is a post-construction requirement. Part of the RI/FS dispute was on this very point. EPA did not agree at that time and negotiated an agreed Appendix G as an attachment to the December 7, 2017 Dispute Resolution Agreement. Please confirm that the project team has agreed with this and then discuss with ORC. This DOE assertion that it meets a requirement that it concluded it would not meet and warranted a waiver represents a post-Proposed Plan change to the action and should be evaluated whether it is a significant change and whether the public has had an opportunity to comment on this.

Commented [AC53]: ? I'm not following.

Further, the ARAR waiver discussion in the RI/FS Appendix G appears to have had significantly more information than is presented in the ROD. Please compare to ensure that information has not been omitted that EPA would consider to be necessary or helpful in demonstrating the basis for the waiver as well as the additional requirement that, despite the waiver, the remedy is protective. I have attached the DRA with Appendix G with my comments.

Commented [AC54]: Carl

Lastly, DOE suggested on an August 12, 2021 call that the waiver might be granted after the ROD was signed. That is inconsistent with the NCP at 40 CFR § 300.430(f)(5)(ii), "The ROD shall describe the following statutory requirements, [including t]he applicable or relevant and appropriate requirements of other federal and state laws that the remedy will not meet, the waiver invoked, and the justification for invoking the waiver."[16] This does not prevent DOE from making its demonstration that it may want a different landfill design, but at that point, DOE will, again, have to justify a waiver, and EPA and TDEC will need to approve it. ORC recommends that Region include a comment that a post ROD waiver of any identified ARAR would require another EPA approved decision document AROD or ESD providing justification for invoking a waiver as required by the aforementioned NCP provision.

Commented [AC55]:

X. Section 2.13.2.1, Waiver to TSCA 40 CFR 761.75(c)(4), p. 2-51. ARARs Waivers (2.13.2.1 and Responsiveness Summary Part 3) – this document uses the term "equivalent standard of performance" throughout as the ARARs waiver. It appears this usage is incorrect but rather we should be citing the

[16] 40 CFR § 300.430(f)(5)(ii)(B) and (C) – "The ROD shall describe the following statutory requirements as they relate to the scope and objectives of the action: (B) The federal and state requirements that are applicable or relevant and appropriate to the site that the remedy will attain; (C) The applicable or relevant and appropriate requirements of other federal and state laws that the remedy will not meet, the waiver invoked, and the justification for invoking the waiver."

TSCA regulation and the TN waiver provisions.

X. Section 2.13.2.1, Waiver to TSCA 40 CFR 761.75(c)(4), p. 2-51. The ARARs waiver for TSCA says we will not achieve the 50-foot level but rather achieve 15-foot distance. The July submittal by the Southern Environmental Law Center provides a diagram that the proposed landfill is at times beneath the groundwater level. Please explain.

Commented [H56]: HQ Comment:

Suggest not to keep as it cites a letter from SELC. Given the RAO on maintaining at 15 foot buffer, the region is aware of this information.

X. Section 2.13.2.1, Waiver to TSCA 40 CFR 761.75(c)(4), p. 2-51. For Region 4: The waiver request appears to have been submitted appropriately, in accordance with the TSCA PCB regulations at 40 CFR 761.75(c)(4). In general, we believe a waiver can be appropriate, provided the engineering design and site specific conditions allow for a finding of no unreasonable risk. The impacts of extreme weather and climate change were likely not considered when the referenced guidance was issued in 1990, so we encourage those considerations to be included in the design of the landfill. If waivers have been requested for similar circumstances at other CERCLA sites in the past, we encourage a review of those decisions and whether any relevant precedential information should be applied to this scenario as well.

X. Section 2.13.2.1, Waiver to TSCA 40 CFR 761.75(c)(4), p. 2-51. The text states:

> DOE justifies a waiver of the TSCA hydrologic conditions requirement on the basis that the EMDF will be at least as protective due to the following design elements, which provide protectiveness exceeding that provided through the siting requirements (please note that floodplains and shorelands are being avoided and that the site will have monitoring wells and leachate collection):
> • More stringent liner and leachate detection and collection requirements under RCRA
> • Low permeability vadose zone geologic buffer material as committed to in this ROD.

A third bullet must be added which states:

- A groundwater monitoring network around the EMDF compliant with RCRA requirements.

X. **Decision Summary, Section 2.13.2.2, page 2-53**. This section describes the basis of the waivers from the TDEC Department of Radiation Health requirements, including the requirement that "[*The hydrogeologic unit used for disposal shall not discharge groundwater to the surface within the disposal site.*" NOTE to Program: Please confirm that EPA has confirmed with a landfill expert that operation of the landfill as designed "will not result in undue hazard to public health and safety or property." **In addition to supporting a waiver, EPA must confirm that the remedy will be protective**, consistent with the December 7, 2017, Dispute Resolution Agreement, including its attachment, RI/FS Appendix G.[17]

Commented [AC57]: omit

X. Section 2.13.2.3, Radiological Discharge Limits, p. 2-54. All of the data to be collected under the EPA Administrator's decision is to be documented in the revised *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&D3) Brackets added.. This FFS is to remain open and run parallel to the completion of the D2 EMDF ROD. The FFS will be approved once all the radionuclide-specific fish data have been collected, analyzed, and the radiological discharge limits derived. This FFS will then be placed in the Administrative Record for public availability. The public will be informed of the contents

[17] DRA Attachment RI/FS Appendix G, page G-19 ("The exemption to the DRH requirement shall be made as part of the CERCLA Record of Decision process. The CERCLA remedy protectiveness standard will apply in addition to the DRH standard.")

of the FFS through specific public outreach activities before the D2 EMDF ROD is approved and signed by the EPA Administrator. All of the information stated above must be included in this section of the EMDF ROD to inform the public.

X. Section 2.13.2.3, Radiological Discharge Limits, p. 2-54. The draft ROD does not include final effluent discharge numbers (see p. 2-54: "RDLs will be established by the FFA parties and will be included in this ROD prior to its approval."). This approach is inconsistent with CERCLA section 117 and the NCP in that it does not provide a meaningful opportunity for public participation in the CERCLA remedy selection process.

Commented [H58]: HQ Comment:

Addressing through public involvement comments.

X. Section 2.13.2.3, Radiological Discharge Limits, p. 2-54. The draft ROD does not include final effluent discharge numbers (see p. 2-54: "RDLs will be established by the FFA parties and will be included in this ROD prior to its approval."). This approach is inconsistent with CERCLA section 117 and the NCP in that it does not provide a meaningful opportunity for public participation in the CERCLA remedy selection process.

X. **Decision Summary, Section 2.13.2.3, page 2-54 and 2-55.** This section notes that radiological discharge limits will be included in the ROD prior to its approval. Without these discharge limits, there is no current basis for evaluation of the ROD's assertions that it is protective and attains ARARs, or, therefore, that it is consistent with CERCLA and the NCP. See General Comments #1, #2 and #3.

X. **Decision Summary, Section 2.13.5, page 2-55.** This section states that treatment of CERCLA waste is not a component of the remedy. This is inaccurate. This action will generate CERCLA waste as waste water and possibly other wastes, and as noted in the last sentence, at least this CERCLA waste water will be treated. Please delete the first sentence.

X. Section 2.13.2.3, Radiological Discharge Limits, p. 2-55. "RDLs will be established by the FFA parties and will be included in this ROD prior to its approval." Is there a schedule for established RDLs that can be shared with the group? Is it anticipated this will be draft in D2 or will these be discussed in a parallel effort.

X. Section 2.13.2.3, Radiological Discharge Limits, p. 2-55. For Region 4: "RDLs will be established by the FFA parties and will be included in this ROD prior to its approval." Is there a schedule for established RDLs that can be shared with EPA? EPA understands these will be in the final ROD. When will the RDLs be shared with the public?

X. Section 2.13.2.3, Radiological Discharge Limits, p. 2-55. "RDLs will be established by the FFA parties and will be included in this ROD prior to its approval." Is there a schedule for established RDLs that can be shared with the group? Is it anticipated this will be draft in D2 or will these be discussed in a parallel effort.

X. Section 2.13.3, Cost Effectiveness, p. 2-55. The total present worth cost is based on a 2016 estimate; please update for 2021.

X. Section 2.13.6, 5-Year Reviews, p. 2-56. Revise text to state when the five-year reviews will start to clarify whether it is during the time when the landfill is open to receiving wastes or only upon landfill closure. Revise to discuss frequency of monitoring and to whom and in what format the monitoring results will be reported in years between the five-year reviews. Revise the text to describe the entities

that will be responsible for reviewing the monitoring data and deciding whether the remedy remains protective of human health and the environment. Explain by what criteria or standards protectiveness will be gauged. Include the point of compliance and list parameters that will be monitored.

X. Section 2.14, p. 2-56. Documentation of Significant Changes. The Proposed Plan was released in September 2018; the date provides context for the rest of the discussion in this section. Please add the public review release date and approval dates to this section.

X. Section 2.14.1, Impacts to Reindustrialization, Page, 2-56, Paragraph 1: Include general text that presents the economic relationship between DOE, CROET and the City of Oak Ridge regarding reindustrialization and how the city participates in the reindustrialization decision-making at the DOE site.

X. Section 2.14, Documentation of Significant Changes, p. 2-56. According to Section 2.14, a slight modification to the eastern boundary of the landfill was made as part of the conceptual design process "but it does not change any of the evaluation of alternatives including demonstration of protectiveness or compliance with ARARs;" however, the reason for this modification is not discussed. This modification is of particular note given the location of the Douglas Chapel Cemetery, as shown on Figure 2.3 (Phase I characterization and site characteristics of the EMDF site), to the eastern boundary. Revise the ROD to clarify the reason for the modification to the eastern boundary of the landfill and to explain how it remains protective and compliant with ARARs.

X. Section 2.14.1, Impacts to Reindustrialization, p. 2-57. The text states:

> **DOE's current goal is to transfer all of ETTP out of DOE ownership and for it to be beneficially reused.** The creation of a waste handling facility is inconsistent with this goal and a deterrent to future beneficial reuse of the site. (Bold added)

Figure 2.6. Proposed Rail Waste Route at ETTP, p. 2-58. The figure identies three separate areas across ETTP as "Retained By DOE." All three sites are former landfills and collectively they comprise approximately 63 acres. These sacrifice areas will require perpetual DOE controls on both the land surface and any groundwater contamination originating from these areas. This is inconsistent with the italicized sentence above. Please rewrite the italized sentence to more accurately reflect DOE's own anticipated Final Heritage Center End State Vision (with airport) shown in Figure 2.6.

X. Section 2.14.1, Impacts to Reindustrialization, p. 2-57. One statement in this section reads "…daily hauling of radioactive waste is inconsistent with the development of the National Historic Park." This statement is unquestionably factual but would it not likewise in some sense apply to the removal and hauling of waste material and soils by truck from at least some of the same source areas to the EMDF? If so, then citing the movement of radioactive or other waste materials by rail as a negative aspect of the off-site disposal option would seem to be a misplaced argument for favoring onsite over offsite disposal unless it is presented in a comparative analysis to the waste handling and hauling elements of the onsite disposal option. Please clarify.

X. Section 2.14.3, Groundwater Field Demonstration, p. 2-60. This should be moved to the selected remedy section.

X. RESPONSIVENESS SUMMARY, SUMMARY OF COMMENTS AND RESPONSES,

X. **Responsiveness Summary.** There are several instances in the responsiveness summary and elsewhere that state waivers are being conducted under CERCLA Section 121(d)(4), the "equivalent standard of protectiveness" ARAR wavier. This is not correct and was one of the issues raised by EPA and dealt with under the resolution of the RI/FS dispute (in the DRA attachment Appendix G). Please correct any responses by removing discussion of waivers under CERCLA 121(d)(4) and clarify that the waivers are being evaluated under TSCA (40 CFR 761.73(c)) and the Department of Radiation Health (TDEC 0400-20-04-.08)).

X. Part 3. Responsiveness Summary: –The ROD text of Section 2.10.5 notes: "The greatest impact would be installation of EMDF in CBCV or WBCV, where up to 94 acres of forested land would be expected to be impacted. The other onsite alternatives had less, but still notable, impact on environmental habitat." We are unduly impacting forested lands. Some of the responses asked why we are building this landfill in a green area and there was not a cogent response.

X. Part 3, Responsiveness Summary. ARARs Waivers (2.13.2.1 and Responsiveness Summary Part 3) – this document uses the term "equivalent standard of performance" throughout as the ARARs waiver. It appears this usage is incorrect but rather we should be citing the TSCA regulation and the TN waiver provisions.

X. Part 3, Responsiveness Summary. Many commenters noted the need for a reopened public comment period since key information on WAC, ARARs, release criteria, etc. since this information was not made available to the public. Also, there were repeated questions related to why we did not consider an already contaminated area for the disposal area. The responses to comment need to be rewritten to ensure we are addressing the specific comment raised.

X. Part 3, Responsiveness Summary. Based on the draft ROD it seems that the majority of the public engagement activities regarding this decision were mainly conducted in 2015 and 2016 and then engagement in 2018 during the public comment only. Nothing since the close of the public comment period in January 2019. That is a significant length of time since the issuance of the Proposed Plan for public comment. DOE should consider re-issuing the Propose Plan to the public for comment with the full set discharge levels/PRGs/WAC for all contaminants.

X. Part 3, Responsiveness Summary, Page 3-3. First paragraph in this section. Suggest starting the paragraph with a new sentence which states: "This responsiveness summary was prepared in accordance with the requirements of Section 117(b) of CERCLA, as amended. The purpose of this responsiveness summary is to summarize and respond to significant public comments on the Proposed Plan (2018a)."

X. Part 3, Responsiveness Summary, Page 3-3. "The U.S. Department of Energy's (DOE's) Oak Ridge Office of Environmental Management (OREM) is committed to conducting all of the robust communication efforts listed in its Environmental Management Disposal Facility (EMDF) Community Outreach Plan, which was approved by the U.S. Environmental Protection Agency (EPA) and State of Tennessee." What is the year this document was issued/updated? Is it accessible by the public? Add the document to the references section if not already there and incorporate a hyperlink to the document. .

X. Part 3, Responsiveness Summary, Page 3-3. "The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) public comment periods are only required to span 30 days. OREM's public comment period for the Proposed Plan was 120 days (September 10, 2018 – January 9, 2019) to ensure all interested parties had time to review and provide comments on the

document. Two extensions were granted while the original comment period was set at 45 days." This comment is misleading. Please update with the language from the NCP. NCP 40 C.F.R. §300.430(f)(3)(i)(C) (C)Provide a reasonable opportunity, not less than 30 calendar days, for submission of written and oral comments on the proposed plan and the supporting analysis and information located in the information repository, including the RI/FS..Upon timely request, the lead agency will extend the public comment period by a minimum of 30 additional days.

X. Part 3, Responsiveness Summary, Page 3-3. "The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) public comment periods are only required to span 30 days. OREM's public comment period for the Proposed Plan was 120 days (September 10, 2018 – January 9, 2019) to ensure all interested parties had time to review and provide comments on the document. Two extensions were granted while the original comment period was set at 45 days." This comment is misleading. Please update with the language from the NCP. NCP 40 C.F.R. §300.430(f)(3)(i)(C) (C) states "Provide a reasonable opportunity, not less than 30 calendar days, for submission of written and oral comments on the proposed plan and the supporting analysis and information located in the information repository, including the RI/FS. Upon timely request, the lead agency will extend the public comment period by a minimum of 30 additional days."

X. Part 3, Responsiveness Summary, Page 3-3. "Participants were able to obtain valuable information from posters, fact sheets, and speaking with all of the project managers associated with EMDF". If there is an estimate of number of members of the public who participated, please include that here.

X. Part 3, Responsiveness Summary, Page 3-3, Bullet 6: Please add the date(s) of the tours provided for the EQAB and the Tennessee Citizens for Wilderness Planning.

X. Summary of Comments and Responses, Page 3-4: If comments were issued separately by the City of Oak Ridge that were not included with the Oak Ridge Environmental Quality Advisory Board, please add the City of Oak Ridge.

X. Summary of Comments and Responses, Page 3-5: If comments were issued separately by the City of Oak Ride that were not included with the Oak Ridge Environmental Quality Advisory Board, please add a reference to those City of Oak Ridge comments as also submitted.

X. Summary of Comments and Responses, Geology and Rainfall, Page 3-6, Paragraph 4: Clarify the text regarding rainfall as the historical average rainfall of 54 inches/year but in recent years that has increased to 77 inches/year. Provide information on any potential climate change forecasting associated with the selected remedy and impacts on the community.

Socioeconomic impact, pp. 3-6 and 3-7. The text states:

> To the contrary, jobs associated with construction and operation of the facility, and the acceleration of cleanup enabled by onsite disposal and subsequent opportunities that **[it]** would present to the Y-12 and Oak Ridge National Laboratory, are expected to benefit both the economy and perception issues associated with environmental conditions in Oak Ridge. (Bold added)

Please insert the word "it" where indicated by brackets above or rewrite for better clarity.

Socioeconomic impact, p. 3-7. The text states:

> Each of the comments received on the Proposed Plan was considered as to its potential

implications to the ROD.

Please rewrite the sentence for clarity. For example," Each comment received on the Proposed Plan was considered for its individual perspective for the ROD."

Part 3, Responsiveness Summary, Page 3-55. "*DOE says several times throughout the comment section: The developed WAC are anticipated to require nearly 90 percent of the radiological content in the low volume/highly contaminated waste streams to be sent offsite for disposal while the lower contaminated/high volume waste streams remain onsite.*" Confirm the criteria for waste that will be sent off site so that it is clear what type of waste and the estimated amounts.

Part 3, Responsiveness Summary, Page 3-55. "*DOE says several times throughout the comment section: The developed WAC are anticipated to require nearly 90 percent of the radiological content in the low volume/highly contaminated waste streams to be sent offsite for disposal while the lower contaminated/high volume waste streams remain onsite.*" Confirm the criteria for waste that will not be allowed into the landfill and will be sent off site and the estimated amounts. This may be addressed be providing definitions for LLW and HLW in the ROD.

Part 3, Responsiveness Summary, Pages 3-68 – 3-70. The Responsiveness Summary is not responsive to many of the comments and concerns. In particular the request for additional public comment on materials that were previously unavailable requires some dialogue.

X. Part 3, Responsiveness Summary. The draft ROD (see e.g., p. 3-153) includes responses to comments received from the public on the proposed plan. Some commenters raised concerns about the lack of information, and as a result the absence of a meaningful opportunity for the public to comment, regarding wastewater discharges from the landfill in the proposed plan. The draft ROD does not provide meaningful responses to those comments.

X. Part 3, Responsiveness Summary: This section of the ROD provides a summary of outreach commitments previously met to ensure public awareness and DOE's response to comments received from the public review and comment period. The comments from 194 individuals along with DOE's response is included in this section. In summary, the DOE identified the four general areas of supportive comments and responded with a standard response. Many of the unsupportive or opposing comments requested additional information such as:

- "Opportunity to review and comment on the waste acceptance criteria (WAC) prior to issuing with the ROD'
- Concerns with mercury-contaminated waste
- Need for waivers for regulatory compliance
- Oak Ridge's underlying geology and rainfall
- Overestimation of offsite disposal cost and risk
- Impact of hazardous waste disposal site in Oak Ridge on home values and attracting people/businesses to Oak Ridge."

The DOE developed a standard response addressing each of the concerns listed above. For several comments, the DOE provided the standard responses and included additional language specific to the public comment. However, not every response addressed the concerns raised by public comment. The following responses lack specificity and may not fully address the comment:

- The standard responses provided did not address the subject or concern(s) of the public comment: Comments 114, 144, 149, 155, and 180.

- Comment 107: Bullet 3: Add text that provides summary information from the Technical Memo 1 and 2, since this information was not formally presented in detail during the public comment period or at the Proposed Plan meeting.
- Comment 115: The response does not address the citizen's concern. For example, the DOE chose not to respond to the statement that, "Choosing a solution before all ground water impact testing is complete (per David Adler) just screams that a decision has already been made regardless of environmental impact." The response should explain why shipping wastes to an area with an extremely low water table would not be preferable.
- Comment 117: The response does not address the request for a required environmental impact statement (similar to Comment 128) and provides an insufficient response to questions regarding hydrogeology. Also, a better response to the reference to inappropriate disposal of waste at the EMWMF is to acknowledge these instances occurred and identify corrective measures implemented to preclude future occurrences.
- Comment 118: The response does not address concerns that engineering design components (diversion structures, the gravel drains, the pipes, the liners, the caps) can be expected to fail. . Also, a better response to the reference to inappropriate disposal of waste at the EMWMF is to acknowledge these instances occurred and identify corrective measures implemented to preclude future occurrences (similar to EPA review of response to Comment 117). DOE should provide an explanation of why the Country Club Estates, did not experience direct DOE outreach efforts prior to issuance of the Propose Plan as other residents or organizations, since this community is nearest to the selected site. The DOE should revisit the response regarding the BCV ROD future use designation compared to setting remediation levels for cleanup for uncontaminated areas. Modify the DOE response to acknowledge site-specific characterization for Site 7c to fully support the selected remedy was not conducted at the time of the RI/FS, although generalized characterization information existed for Bear Creek Valley; however, information obtained from the Field Sampling Plan and reported in Technical Memorandum 1 and Technical Memorandum 2 provides more site information, but may not have been clearly presented in the Proposed Plan. Discuss the approach to mercury disposal being discussed between the FFA parties.
- Comment 120: The DOE response did not address the concern regarding that the EMDF is outside areas where already dedicated to waste management and is not consistent with the community's plan for future use of the area. Please revise the DOE response.
- Comment 122: The response does not address socioeconomic concerns or address the request for a cost-benefit analysis.
- Comment 124: The response does not address socioeconomic concerns.
- Comment 128: The response does not address concerns regarding siting, harm to an undisturbed area, or proximity of residences.
- Comment 129: The response do not address the preference for disposal in a dry area (such as Utah).
- Comment 130: The response do not address the preference for disposal in a dry area (such as Utah).
- Comment 132: The response does not address concerns regarding siting or mercury contamination.
- Comment 134: The response does not address concerns regarding unstable geology, groundwater, or proximity to population.
- Comment 135: The response does not address concerns regarding the preference for disposal elsewhere.
- Comment 136: The response does not address concerns regarding the preference for disposal elsewhere (Yucca Mountain).

- Comment 138: The response does not address concern regarding the performance of the liners and impact of landfill close to residence.
- Comment 146: The response does not address concern of impact to downstream communities and comparison with municipal landfills. The DOE response should acknowledge some inappropriate disposal occurred and identify corrective measures implemented to preclude these occurrences in the future (similar to EPA review of response to Comment 117).
- Comment 147: The response does not address the concerns regarding mercury contamination.
- Comment 154: The response does not address the concerns regarding mercury contamination.
- Comment 155: The response does not address the concerns of well water contamination and shipment to a western facility (Utah).
- Comment 156: The response does not address the concerns of well water contamination and shipment to a western facility (Utah).
- Comment 160.2: The response does not address the concerns of site selection and the lack of characterization not presented at the time of site selection. Modify the DOE response to acknowledge site-specific characterization for Site 7c to fully support the selected remedy was not conducted at the time of the RI/FS, although generalized characterization information existed for Bear Creek Valley; however, information obtained from the Field Sampling Plan and reported in Technical Memorandum 1 and Technical Memorandum 2 provides more site information, but may not have been clearly presented in the Proposed Plan. Modify the DOE response to acknowledge site-specific characterization for Site 7c to fully support the selected remedy was not conducted at the time of the RI/FS, although generalized characterization information existed for Bear Creek Valley; however, information obtained from the Field Sampling Plan and reported in Technical Memorandum 1 and Technical Memorandum 2 provides more site information, but may not have been clearly presented in the Proposed Plan.
- Comment 160.11: The response does not address the concerns including, but not limited to underdrains, mercury contamination, or separation of waste from groundwater.
- Comment 160.17: The response does not address the comment. For example, the citizen requests an update on when the Environmental Management Waste Management Facility will be 100 percent full and the current contingency plan if this Proposed Plan is not approved by that time. None of the numerous and detailed technical concerns are addressed.
- Comment 162: The response does not fully address the concerns regarding future rainfall amounts and how this may impact the design.
- Comment 165: The response does not fully address the comment. Additional response is warranted.
- Comment 167: The response does not address concerns regarding hydrogeology or the use of underdrains.
- Comment 168.24: The comment warrants a response to clarify the status of the administrative record supporting the proposed plan.
- Comment 174: The response does not fully address the comment.
- Comment 175, Part 2: The DOE does not provide a response to Part 2 of the comment.
- Comment 179: The response does not adequately address the comment, including the proximity of residences with private wells. Additional response is warranted.
- Comment 184: The response does not address several items including: 2.d (PDF page 292), 2.e (PDF page 292), 2.b (PDF 294), and 2.c (PDF 294).

The DOE should reevaluate their responses to the comments listed above and determine what additional information can be added to address the public concern.

X. **Appendix A, ARARs**. The RI/FS Appendix G attached to the Dispute Resolution Agreement included the following table of AWQCs as the first table in the tables of ARARs. Please include and add rows for any radionuclides that are likely to be in the waste stream, along with associated AWQC-equivalents for recreational use (EPA is aware that these criteria are currently under development and will review the next draft of the ROD accordingly).
[SHAPE * MERGEFORMAT]

X. Appendix A, Table A.1, p. A-3, 2nd row: Radionuclide releases to the environment. This row only lists NRC regs (and TDEC equivalents) as RAR - CWA should be included here.

X. **Appendix A, ARARs, Table A-1, pages A-3 through A-5**. The table does not identify the state water quality criteria as relevant and appropriate to radionuclides. Please add the following notation to the "Prerequisite" column, for all the water quality criteria: "Point source discharge of radionuclides into surface water – **relevant and appropriate.**" As with pollutants, this notation can be added in the first row only (but applies to all the similar citations below). In addition, please add the following note to the "Prerequisite" column for these citations, "NOTE: under TDEC 0400-40-03-.05 INTERPRETATION OF CRITERIA, mixing zones shall not apply to the discharge of bioaccumulative pollutants to waters of the state where the risk-based factors in Rule 0400-40-03-.03(4)(l) are exceeded for the pollutant group."

Appendix A, ARARs, Table A-2 Location-specific ARARs, page A-6. Please include the following citations prior to 10 CFR 1022.13(a)(3).

	Project Description. This section shall describe the proposed action and shall include a map showing its location with respect to the floodplain and/or wetland. For actions located in a floodplain, the nature and extent of the flood hazard shall be described, including the nature and extent of hazards associated with any high-hazard areas.		10 CFR 1022.13(a)(1)
	Floodplain or Wetland Impacts. This section shall discuss the primary and secondary, direct and indirect, and long- and short-term effects of the proposed action on the floodplain and/or wetland. This section shall evaluate impacts on the natural and beneficial floodplain and wetland values (§ 1022.4) appropriate to the location under evaluation. In addition, the effects of a proposed floodplain action on lives and property shall be evaluated. For an action proposed in a wetland, the effects on the survival, quality and function of the wetland shall be evaluated.		10 CFR 1022.13(a)(2)

Appendix A, ARARs, Table A-2, Wetlands Requirements page A-6. As mentioned by EPA R4 attorneys during ARARs meetings with DOE and TDEC, the EPA *Compensatory Mitigation for Losses of Aquatic Resources* rule at 40 CFR part 230 et. seq. may be considered ARARs for this remedy considering the anticipated removal of wetlands prior to construction of the EMDF. These regulations establish performance standards and criteria for the use of permittee-responsible compensatory mitigation, mitigation banks, and in-lieu programs to improve the quality and success of compensatory mitigation projects that should be evaluated along with the DOE and TDEC wetlands requirements that are currently included in the Location-specific ARARs table. Examples of these regulations are provided in a separate MS Word document.

Appendix A, ARARs, Table A-2, page A-7. DOE has added a citation to TDEC 0400-40-07-.04(7)(a) in the first row. Please remove it at this location, as this row discusses mitigation required for wetlands. This citation to subparagraph (a) is included on page A-13. In addition, please change the second "Citation" to TDEC 0400-40-07-.04(7)(b) (not (c)).

~~X. Appendix A APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, Table A-2, Location-Specific ARARs, p. A-3. The text considers the presence of floodplains as defined in 10 CFR 1022.4. However, not all executive orders and FEMA regulations pertaining to floodplains were considered. Federally-approved projects must comply with Executive Order 11988 (Floodplain~~

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~~Management) as amended by Executive Orders 13690 and 11990 (Protection of Wetlands). The Federal Emergency Management Agency (FEMA) regulations in 44 CFR Part 9 set forth the responsibilities to implement and enforce Executive Order 11988, as amended by Executive Orders 13690 and 11990. Likewise, FEMA regulations found at 44 CFR 60.3(d)(2) and (3) prohibit encroachments that would result in any increase in flood levels during occurrence of base flood discharge. Please revise the ROD to discuss any long-term impacts of altered surface water hydrology and wetlands filling on potential for flooding. Please revise Table 2.1 comparing alternatives to consider potential long-term impacts on hydrology and flood retention.~~

Commented [CF59]: Hold for internal discussion – clear w/ Martha.

X. **Appendix A, ARARs, Table A-2, page A-9.** The following citation was included in RI/FS Appendix G ARARs. Please include or explain why it is being removed.

Within as were potentially impacting "waters of the State" as defined in TCA 69-3-103(43)	• Must comply with the [substantive] requirements of the ARAP for erosion and sediment control to prevent pollution of waters of the state. Pollution control requirements are detailed in each particular General Permit.	Action potentially affecting the properties of any "waters of the State"—**applicable**	TCA 69-3-108(1) TDEC 0400-40-07-.01

Appendix A, ARARs, Table A-2, page A-9 to A-10. The requirements for Bank Stabilization have been changed/reworded since the RI/FS Appendix G ARARs. Please explain the basis for the change. Please note in the last bullet that it should be revised to read: "Hard armoring bank stabilization treatment shall not exceed 300 linear feet for the treatment of one bank, or 200 linear feet per bank if the treatment includes both banks."

Appendix A, ARARs, Table A-2, page A-12. The citation to TCA 69-3-108(q) seems to be unnecessary unless waters within the scope of this project have been designated by the state as wet weather conveyances. To EPA's knowledge, this has not been done.

Appendix A, ARARs, Table A-2, page A-13. In the row with the citation to TDEC 0400-40-07-.04(7)(a), the "Requirements" column should be revised to reflect the language in the regulation: "If an applicant proposes an activity that would result in an appreciable permanent loss of resource value of a state water, the applicant must provide mitigation which results in no overall net loss of resource values. For any mitigation involving the relocation or re-creation of a stream segment, to the extent practicable, the applicant shall complete the mitigation before any impact occurs to the existing state waters. Mitigation measures include but are not limited to: 1. Restoration of degraded stream reaches and/or riparian zones; 2. New (relocated) stream channels; 3. Removal of pollutants from and hydrologic buffering of stormwater runoff; and 4. Any other measures which have a reasonable likelihood of increasing the resource value of a state water." In addition, the existing language may be helpful, but its source/citation is not clear. Please clarify. Lastly, please remove the citation to TDEC 0400-40-07-.04(7)(b), as this requirement is addressed on page A-7.

Appendix A, ARARs, Table A-2, page A-13 Discharge of Dredge and Fill. Please revise existing entries and add the following CWA Section 404(b) requirements to the Location-specific ARARs.

Location encompassing aquatic ecosystem as defined in 40 CFR 230.3(c)	No discharge of dredged or fill material into an aquatic ecosystem is permitted if there is a practicable alternative that would have less adverse impact on the aquatic ecosystem or if will cause or contribute significant degradation of the waters of the US.	Action that involves the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands – **Applicable**	40 CFR § 230.10(a) and (c) Clean Water Act Regulations – Section 404(b) Guidelines

	Except as provided under [CWA] section 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps [in accordance with 40 C.F.R. 230.70 *et seq. Actions To Minimize Adverse Effects*] have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.		40 CFR § 230.10(d) Clean Water Act Regulations – Section 404(b) Guidelines
	No discharge of dredged or fill material shall be permitted if it: Causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard; Violates any applicable toxic effluent standard or prohibition under section 307 of the CWA; Jeopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973, as amended, or results in likelihood of the destruction or adverse modification of a habitat which is determined by the Secretary of Interior or Commerce, as appropriate, to be a critical habitat under the Endangered Species Act of 1973, as amended. If an exemption has been granted by the Endangered Species Committee, the terms of such exemption shall apply in lieu of this subparagraph; (4) Violates any requirement imposed by the Secretary of Commerce to protect any marine sanctuary designated under title III of the Marine Protection, Research, and Sanctuaries Act of 1972.		40 CFR Part 230.10(b)

Appendix A, ARARs, Table A-2, page A-17. The citation notes that a waiver will be requested for a requirement or requirements in 40 CFR 761.75(b)(3). In the 12.7.17 Dispute Resolution Agreement attachment, RI/FS Appendix G, it noted that a waiver would be requested for some part of the following requirement: "The landfill must be located above the historical high groundwater table. Floodplains, shorelands, and groundwater recharge areas shall be avoided. The site shall have monitoring wells and leachate collection. There shall be no hydraulic connection between the site and standing or flowing surface water." Please clarify if it is DOE's position that a waiver is not being requested for requirements in this part, or if the one note applies to both paragraphs.

Appendix A, ARARs, Table A-2, page A-17. In the citation to 40 CFR 761.75(c), please add the following note, which was included in the 12.7.17 Dispute Resolution Agreement attachment, RI/FS Appendix G, at the bottom of the description in the "Requirements" column:

Note: Waiver of any technical requirement shall be made as part of the CERCLA Record of Decision process. The CERCLA remedy protectiveness standard will apply in addition to the TSCA standard.

Appendix A, ARARs, Table A-2, page A-19. In the citation to TDEC 0400-20-04-.08, part of the note that was included in the 12.7.17 Dispute Resolution Agreement attachment, RI/FS Appendix G, has been removed. Please restore the second sentence in the note below, copied from that Appendix G:

Note: The exemption, variance or exception from the requirement shall be made as part of the CERCLA Record of Decision process. The CERCLA remedy protectiveness standard will apply in addition to the DRH standard.

Appendix A, ARARs, Table A-2, page A-23 and where appropriate. The following RCRA tank systems, surface impoundments, and container storage area requirements have been removed from the ROD, but were included in the 12.7.17 Dispute Resolution Agreement attachment, RI/FS Appendix G. Please explain the basis for not including those previously identified ARARs and how DOE intends to manage both contact wastewater from within the landfill and collected leachate. DOE is building a RCRA Subtitle C landfill, and EPA maintains that for prudent and protective operation of this landfill, these requirements should be included in case management of hazardous wastes generated by the landfill requires use of these types of units. As stated during several of the ARARs meetings with DOE and TDEC, the leachate collection system should include a tank compliant with the RCRA requirements in order to hold leachate for characterization prior to disposal in an NPDES permitted CWA waste water treatment facility or disposal elsewhere in accordance with RCRA requirements for hazardous waste. While some of these requirements have been identified as relevant and appropriate to the operation of the landfill, others are considered legally applicable and may not be removed unless agreed to by EPA as part of the remedy selection for the EMDF.

RCRA Tank System and Impoundment Designs			
Design of a RCRA Tank System	Must prepare an assessment showing that the tank system design has sufficient structural integrity and is acceptable for the storage/treating of hazardous waste. The assessment must include the information specified in 40 CFR 264.192(a)(1)-(5) [TDEC 0400-12-01-.05(10)(c)(1)-(5)].	Storage of RCRA hazardous waste in a new tank system---**relevant and appropriate**	40 CFR 264.192(a) TDEC 0400-12-01-.05(10)(c)(1)
	Ancillary equipment (i.e., piping) must be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.		40 CFR 264.192(e) TDEC 0400-12-01-.05(10)(c)(3)
	Must provide the degree of corrosion protection based upon the information in 40 CFR 264.192(a)(3) (TDEC 0400-12-01-.05(10)[c]) [[illegible]] to ensure the integrity of the tank system during use. Installation of field fabricated corrosion protection system must be supervised by an independent corrosion expert.		40 CFR 264.192(f) TDEC 0400-12-01-.05(10)(c)(6)
	Must provide secondary containment in order to prevent release of hazardous waste or constituents into the environment.		40 CFR 264.193(a)(1) TDEC 0400-12-01-.05(10)(d)(1)
	Secondary containment systems must be: • Designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the tank system; and • Capable of detecting and collecting releases and accumulated liquids until the collected material is removed.		40 CFR 264.193(a) TDEC 0400-12-01-.05(10)(d)(2)
	Secondary containment systems must be at a minimum: • Constructed of or lined with materials that are compatible with the waste(s) to be placed in the tank system and must have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrostatic forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including stresses from nearby vehicular traffic); • Placed on a foundation or base capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift; • Provided with a leak-detection system that is designed and operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours, or at the earliest practicable time if the owner or operator can demonstrate to the Regional Administrator that existing detection technologies or site conditions will not allow detection of a release within 24 hours; and • Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. Spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within 24 hours, or in as timely a manner as is possible to prevent harm to human health and environment, if the owner or operator can demonstrate to the Regional Administrator that removal of released waste or accumulated precipitation cannot be accomplished within 24 hours.		40 CFR 264.193(c) TDEC 0400-12-01-.05(10)(d)(3)
	Secondary containment for tanks must include one or more of the following devices: • a liner external to the tank; • a vault; • a double-walled tank; or • an equivalent device as approved by the EPA.		40 CFR 264.193(d) TDEC 0400-12-01-.05(10)(d)(4)

	External liner systems must be: • designed and operated to contain 100 percent of the capacity of the largest tank within its boundary; • designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. (Such additional capacity must be sufficient to contain precipitation from a 25 year, 24-hour rainfall event); • free of cracks or gaps; and • designed and installed to surround the tank completely and to cover all surrounding earth likely to come into contact with the waste if the waste is released from the tank(s) (i.e., capable of preventing lateral as well as vertical migration of the waste).		40 CFR 264.193(b)(1) TDEC 0400-12-01-.06(10)(d)(5)(i)
	Vault system must be: • designed or operated to contain 100 percent of the capacity of the largest tank within its boundary; • designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. (Such additional capacity must be sufficient to contain precipitation from a 25 year, 24-hour rainfall event); • constructed of chemical-resistant water stops in all joints (if any); • provided with an impermeable interior coating or lining that is compatible with the stored waste and that will prevent migration of the waste into the concrete; • provided with a means to protect against formation of and ignition of vapors within the vault if the waste being stored or treated meets the definition of ignitable or reactive waste under 40 CFR 261.21 or 261.23; and • provided with an exterior moisture barrier or otherwise designed or operated to prevent migration of moisture into the vault if the vault is subject to hydraulic pressure.		40 CFR 264.193(b)(2) TDEC 0400-12-01-.06(10)(d)(5)(ii)
	Double-walled tanks must be: • designed as an integral structure (i.e., an inner tank completely enveloped within and outer shell) so that any release from the inner tank is contained by the outer shell; • protected, if constructed of metal, from both corrosion of the primary tank interior and of the external surface of the outer shell; and • provided with a built-in continuous leak detection system capable of detecting a release within 24 hours, or at the earliest practicable time.		40 CFR 264.193(b)(3) TDEC 0400-12-01-.06(10)(d)(7)(ii)
	Ancillary equipment must be provided with secondary containment (e.g., trench, jacketing, double-walled piping) that meets the requirements of 40 CFR 264.193(b) and (c) (TDEC 0400-12-01-.06[10][d][2] and [3]), except for: • aboveground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected for leaks on a daily basis; • welded flanges, welded joints and welded connections, that are visually inspected for leaks on a daily basis; • sensitive or magnetic coupling pumps and seal-less valves, that are visually inspected for leaks on a daily basis; and • pressurized aboveground piping systems with automatic shut-off devices (e.g., excess flow check valves, flow metering shutdown devices, loss-of-pressure actuated shut-off devices) that are visually inspected for leaks on a daily basis.		40 CFR 264.193(g) TDEC 0400-12-01-.06(10)(d)(6)
Design and installation of a RCRA surface impoundment	Must install a liner system consisting of two or more liners with a leachate collection and removal system, constructed in accordance with 40 CFR 264.221(c)(1)-(4) (TDEC 0400-12-01-.06[12][c][1][iii]-[iv])	Storage of RCRA hazardous waste in a new surface impoundment—relevant and appropriate	40 CFR 264.221(c) TDEC 0400-12-01-.06(12)(c)(1)
	Must implement a leak detection system capable of detecting, collecting and removing leaks of hazardous constituents from all areas of the top liner during the active life and post-closure care period		40 CFR 264.221(c)(2) TDEC 0400-12-01-.06(12)(c)(2)
	Must design, construct and maintain dikes with sufficient structural integrity to withstand operative forces.		40 CFR 264.221(h) TDEC 0400-12-01-.06(12)(c)(8)
	Alternative design practices to those in 40 CFR 264.221(c) (TDEC 0400-12-01-.06[12][c][1]) may be approved by the Regional Administrator		40 CFR 264.221(d) TDEC 0400-12-01-.06(12)(c)(4)

Design and operation of a RCRA container storage area	Storage areas that store containers holding only wastes that do not contain free liquids need not have a containment system defined by paragraph (b) of this section, except as provided by paragraph (d) of this section or provided that: (1) Area must be sloped or otherwise designed and operated to drain liquid from precipitation, or (2) The containers must be elevated or otherwise protected from contact with accumulated liquid.	Storage of RCRA hazardous waste in containers that do not contain free liquids—**applicable**	40 CFR 264.175(c) TDEC 0400-12-01-.06(9)(c)(3)
	Area must have a containment system designed and operated in accordance with 40 CFR 264.175(b) as follows: • A base must underlie the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills and accumulated precipitation until the collected material is detected and removed; • base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids; • must have sufficient capacity to contain 10 percent of the volume of containers or volume of largest container, whichever is greater; • run-on into the system must be prevented unless the collection system has sufficient capacity to contain any run-on which might enter the system along with volume required for containment immediately above; and • spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in a timely manner as or necessary to prevent overflow of the collection system.	Storage in Containers: Storage of RCRA hazardous waste with free liquids at F020, F021, F022, F023, F026 and F027 in containers—**applicable**	40 CFR 264.175(a), (b), and (d) TDEC 0400-12-01-.06(9)(f)
Pre-operation-operation of a RCRA tank system (tanks and piping)	Prior to use, must ensure that proper handling procedures are adhered to in order to prevent damage to the system during installation.		40 CFR 264.192(b) TDEC 0400-12-01-.06(10)(b)(2)
	Prior to use, must inspect the system for the presence of weld breaks, punctures, scrapes of protective coatings, cracks, corrosion, other structural damage, or inadequate construction/installation. All discrepancies must be remedied before the system is covered, enclosed or placed in use.		40 CFR 264.192(b)(1)-(6) TDEC 0400-12-01-.06(10)(c)(1)(i)-(vi)
	Prior to use, tanks and ancillary equipment must be tested for tightness. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) must be performed prior to the system being placed into use.		40 CFR 264.192(d) TDEC 0400-12-01-.06(10)(c)(4)
Control of air emissions from an above-grade RCRA tank system	The requirements of 40 CFR 264 Subpart CC do not apply to a waste management unit that is used solely for on-site treatment or storage of hazardous waste that is generated as a result of implementing remedial activities required under CERCLA authorities	Storage of RCRA hazardous waste in a new tank system—**relevant and appropriate**	40 CFR 264.1030(b)(7) TDEC 0400-12-01-.02(a)(2)(v)
	Must comply with the requirements of 40 CFR 264.196 (TDEC 0400-12-01-.06[10][g]) if a leak or a spill occurs in the tank system.		40 CFR 264.196(c) TDEC 0400-12-01-.06(10)(e)(3)
Operation of a RCRA surface impoundment	Design and operate facility to prevent overtopping resulting from normal or abnormal operations, overfilling, wind and wave actions, rainfall, run-on, malfunctions of level controllers, alarms and other equipment, and human error.	Storage of RCRA hazardous waste in a surface impoundment—**relevant and appropriate**	40 CFR 264.221(g) TDEC 0400-12-01-.06(11)(b)(7)
	Remove surface impoundment from operation if the dike leaks or if there is a sudden drop in liquid level.		40 CFR 264.227 TDEC 0400-12-01-.06(11)(b)
Closure of a RCRA tank system	Must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste, unless 40 CFR 261.3(d) (TDEC 0400-12-01-.02[1][c][4]) applies. If all contents cannot be practically removed or decontaminated, consider the tank system a landfill and close in accordance with the landfill closure requirements of 40 CFR 264.310 (TDEC 0400-12-01-.06[14][g]).	Closure of a RCRA hazardous tank system—**relevant and appropriate** if wastewater is determined to be hazardous	40 CFR 264.197(b) and (c) (TDEC 0400-12-01-.06(10)(h)(1) and (2)
Closure and post-closure care of a surface impoundment	Must remove or decontaminate all waste residues and contaminated materials otherwise free liquids must be removed. The remaining wastes indicated to a floating cap sufficient to support final cover, and the facility closed and covered with a final cover designed in accordance with 40 CFR 264.228(a)(2)(ii)(A)-(E) (TDEC 0400-12-01-.06[11][b][1][c][iii]). If some waste residues or contaminated materials are left in place at final closure, must comply with all postclosure requirements contained in §§264.117 through 264.120 (TDEC 0400-12-01-.06[7][a] through [d]), including maintenance and monitoring throughout the postclosure period. Must also: • maintain integrity and effectiveness of final cover, including repairs to the cap as necessary; • maintain and operate leak detection system; • maintain and monitor groundwater monitoring system; • prevent run-on and runoff from eroding or otherwise damaging final cover.	Closure of a hazardous waste surface impoundment—**relevant and appropriate** if wastewater is determined to be hazardous	40 CFR 264.228(a) and (b) TDEC 0400-12-01-.06(11)(b)(1) and (2)

Appendix A, ARARs, Table A-2, page A-23. The following relevant and appropriate requirement has been removed from the ARAR table. Please restore or explain why it is not relevant and appropriate for this action.

Pre-construction activities	Prior to excavation, all bore holes drilled or dug during subsurface investigation of the site, piezometers, and abandoned wells which are either in or within 100 feet of the areas to be filled must be backfilled with a bentonite slurry or other sealant approved by the Commissioner to an elevation at least ten feet greater than the elevation of the highest point of the landfill base (including any liner), or to the ground surface if the site will be excavated less than ten feet below grade.	Construction of a solid waste disposal facility—**relevant and appropriate**	TDEC 0400-11-01-.06(2)(d)

Appendix A, ARARs, Table A-2, page A-27. This applicable requirement has been removed from ARARs table. Please restore and include the following language in the "Prerequisite" column: "Generation of RCRA hazardous waste for storage, treatment or disposal – **applicable.**" It is possible that DOE thought that 40 CFR 262.11(d)(2) could be substituted. Please restore the citation below.

	Must obtain a detailed chemical and physical analysis of a representative sample of the waste(s) which at a minimum contains all the information which must be known to treat, store, or dispose of the waste in accordance with 40 CFR 264 and 268.		40 CFR 264.13(a)(1) TDEC 0400-12-01-.05(2)(d)(1)

Appendix A, ARARs, Table A-2, page A-30. The following solid waste landfill requirements were determined by the three FFA parties to be relevant and appropriate to the operation of EMDF, especially given DOE's assertion that it will not dispose of hazardous waste in the EMDF. Please restore or explain why DOE does not consider them relevant and appropriate.

Operation of a Subtitle D solid waste landfill	A facility must be operated and maintained in a manner to minimize litter. Fencing, diking and/or other practices shall be provided as necessary to confine solid waste subject to dispersal. All litter must be collected for disposal in a timely manner.	Operation of a Subtitle D solid waste landfill—**relevant and appropriate**	TDEC 0400-11-01-.04(2)(d)
	There must be maintained reserve operating equipment capable of operating and properly compacting the volume of solid waste received, and capable of handling the earthwork required. Back-up equipment must be available within 24 hours of primary equipment breakdown.		TDEC 0400-11-01-.04(2)(g)
	Cover material sufficient to meet the initial and intermediate cover requirements of this rule must be available at the facility. If such material must be hauled in from off-site *[i.e., off of ORR]*, at least a 30-day supply must be maintained on site at all times. *[Note: off-site, as referred to here, is assumed to mean off of the ORR.]*		TDEC 0400-11-01-.04(2)(h)
	Collection and holding facilities associated with run-on and run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system. Run-on and run-off must be managed separately from leachate. Other control measures (e.g. temporary mulching or seeding, silt barriers) must be taken as necessary to control erosion of the site.		TDEC 0400-11-01-.04(2)(i)
	The operator must take dust control measures as necessary to prevent dust from creating a nuisance or safety hazard to adjacent landowners or to persons engaged in supervising, operating, and using the site. The use of any dust suppressants (other than water) must be approved prior to use.		TDEC 0400-11-01-.04(2)(j)
	There must be installed on-site a permanent benchmark (e.g., concrete marker) of known elevation.		TDEC 0400-11-01-.04(2)(o)
Waste handling activities at a solid waste landfill	Solid waste disposal activities shall be confined to the smallest practicable area. Compaction will be performed as necessary to ensure a stable fill.	Land disposal of solid waste—**relevant and appropriate**	TDEC 0400-11-01-.04(2)(b)(1)
	Emplaced solid waste shall be covered with soil or other material of such depth and at such intervals as is necessary to prevent fire hazards, promote a stable fill, minimize potential harmful releases of solid waste or solid waste constituents.		TDEC 0400-11-01-.04(2)(b)(2)

Appendix A, ARARs, Table A-2, page A-34 and where appropriate. The following DOE Order Manual citations were included in the 12.7.17 Dispute Resolution Agreement attachment, RI/FS Appendix G ARARs table. No agreement was reached among the three FFA parties, but EPA believes that these citations are useful in ensuring protective handling of low-level radioactive waste at the EMDF. Please restore. See Footnote 11 in these comments, which indicates that the FFA Parties agreed in the December 7, 2017, Dispute Resolution Agreement on the EMDF RI/FS that this issue would be resolved prior to signature of the ROD. Note that the reference to EMWMF should be changed to EMDF. This error is an artifact because it was extracted from the EMWMF ROD, where the requirement is noted as a TBC.

Characterization of LLW (e.g., wastewater, contaminated PPE)	Shall be characterized using direct or indirect methods and the characterization documented in sufficient detail to ensure safe management and compliance with the WAC of the receiving facility.	Generation of LLW for storage and disposal at a DOE facility—TBC	DOE M 435.1-1(IV)(E)
	Characterization data shall, at a minimum, include the following information relevant to the management of the waste: • physical and chemical characteristics; • volume, including the waste and any stabilization or absorbent media; • weight of the container and contents; • identities, activities, and concentrations of major radionuclides; • characterization date; • generating course.		DOE M 435.1-1(IV)(E)(2)

Temporary storage of LLW	Shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water.	Management of LLW at a DOE facility---**TBC**	DOE M 435.1-1(IV)(B)(1)
	Shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.		DOE M 435.1-1(IV)(N)(1)
	Shall be managed to identify and segregate LLW from mixed waste.		DOE M 435.1-1(IV)(G)(6)
	Shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste has been removed from the container.	Storage of LLW in containers at a DOE facility---**TBC**	DOE M 435.1-1(IV)(L)(1)(a)
	Vents or other measures shall be provided if the potential exists for pressurizing or generating flammable or explosive concentrations of gases within the waste container.		DOE M 435.1-1(IV)(L)(1)(b)
	Containers shall be marked such that their contents can be identified.		DOE M 435.1-1(IV)(L)(1)(c)
Treatment of LLW	Treatment to provide more stable waste forms and to improve the long-term performance of a LLW disposal facility shall be implemented as necessary.	Generation for disposal of LLW at a DOE facility---**TBC**	DOE M 435.1-1(IV)(O)
Disposal of LLW at an off-site disposal facility or in the LMWMP	LLW shall be certified as meeting waste acceptance requirements before it is transferred to the receiving facility.		DOE M 435.1-1(IV)(J)(2)
Transportation of LLW off-site	LLW waste shall be packaged and transported in accordance with DOE O 1460.1A and DOE O 460.2	Preparation of off-site shipment of LLW---**TBC**	DOE M 435.1-1(I)(D)(E)(11)
	To the extent practicable, the volume of waste and number of shipments shall be minimized.		DOE M 435.1-1(IV)(L)(2)

Appendix A, ARARs, Table A-2, page A-46. The following requirement related to closure of a low-level waste landfill was included in the 12.7.17 Dispute Resolution Agreement attachment, RI/FS Appendix G ARARs table but was removed from the ROD. Please restore.

Closure of a LLW landfill	Covers must be designed to minimize to the extent practicable water infiltration, to direct percolating or surface water away from the disposed waste and to resist degradation by surface geologic processes and biotic activity.	Closure of a LLW disposal landfill---**relevant and appropriate**	TDEC 0400-20-11-.17(2)(d)

Appendix A, ARARs, Table A-2, page A-47. The following requirement relating ot the abandonment of groundwater monitoring wells was included in the 12.7.17 Dispute Resolution Agreement attachment, RI/FS Appendix G ARARs table but was removed from the ROD. Please restore.

Closure of groundwater monitoring wells	Shall be accomplished by a licensed driller.	Permanent plugging and abandonment of a well...	TDEC 0400-45-09-.16(2)

Appendix A, ARARs, Table A-2, page A-48 and where appropriate. The following requirements were included in the January 19, 2021, letter to DOE from Peter Wright, as additional water discharge-related ARARs that should be included in the FFS. They should also be included in the ROD, per the discussion in the December 31, 2020, Wheeler Decision in the FFS dispute.

Use of Reporting Limits	In instances where permit limits established through implementation of these criteria are below analytical capabilities, compliance with these limits will be determined using the following reporting limits, unless in specific cases, other reporting limits are demonstrated to be the best	Point source discharge of pollutants as defined in 40 CFR 122.2 into surface water – **Applicable**	TDEC 0400-40-03-.05(8)

Development of effluent limitations	For new sources, technology-based effluent limitations shall require the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, which shall be new source performance standards, if available.	Discharges of pollutants as defined in 40 CFR 122.2 from "new sources" - **Applicable**	TDEC 0400-40-05-.08(1)(h)
	Toxic effluent limitations shall be based on consideration of the toxicity of the pollutant, its persistence, its degradability, the usual or potential presence of the affected organisms in any waters, the importance of the affective organisms and the nature and extent of the effect of the toxic pollutant on such organisms.	Discharge of toxic pollutants as defined in 40 CFR 122.2 into surface water - **Applicable** Point source discharge of radionuclides into surface water - **Relevant and Appropriate**	TDEC 0400-40-05-.08(1)(m)
	All effluent limitations or standards shall meet or exceed any minimum standards promulgated by the Administrator and currently effective under the Federal Water Pollution Control Act, P.L. 92-500 as amended or any subsequent applicable acts.		TDEC 0400-40-05-.08(1)(i)
	All pollutants shall receive treatment or corrective action to insure compliance with effluent limitations established by the US EPA pursuant to Section 301 and 302 and standards of performance for new sources pursuant to Section 306, effluent limitations and prohibitions and pretreatment standards pursuant to Section 307 of the Federal Water Pollution Control Act, P.L. 92-500 as amended; also to insure compliance with any approved water quality standard.		TDEC 0400-40-05-.08(1)(j)

Appendix A, ARARs, Table A-2, page A-50. See the citation to 40 CFR 122.44(i)(1). The table omitted a requirement from subpart iii, noted in the January 19, 2021, letter to DOE from Peter Wright. Please include in the "Requirements" column along with (i) and (ii).

(iii) Other measurements as appropriate including pollutants in internal waste streams under § 122.45(i); pollutants in intake water for net limitations under § 122.45(f); frequency, rate of discharge, etc., for non-continuous discharges under § 122.45(e); pollutants subject to notification requirements under§ 122.42(a); and pollutants in sewage sludge or other monitoring as specified in 40 CFR part 503; or as determined to be necessary on a case-by-case basis pursuant to section 405(d)(4) of the CWA.

Appendix A, ARARs, Table A-2, page A-52. In the "Prerequisite" cell for the citation to 40 CFR 122.45(e), it should contain the following text: "Point source discharge of radionuclides into surface water—**relevant and appropriate.**" Please include. Also, please delete the phrase "if water is released on a non-continuous batch basis rather than continuously" after "**applicable.**" It is not necessary as the text already describes it as non-continuous discharge.

Appendix A, ARARs, Table A-2, page A-52. In the row of citations regarding bypass (TDEC 0400-40-05-.07(2)(l) and (m)), in the "Prerequisite" column please add the following text, since these requirements should be noted as relevant and appropriate to radionuclides in the waste stream: "Bypass, as defined in TDEC 0400-40-05-.02(15), of waste stream—**relevant and appropriate** to radionuclides)."

Appendix A, ARARs, Table A-2, page A-52. The following citation was included in the D2 FFS. When DOE prepared the D3 FFS, it omitted the citation to TDEC 0400-40-05-.09(1)(b). This should be

restored to the FFS. It does not need to be included as shown below, grouped with the other TN CWA requirements. It must, however, be included because there are no effluent guidelines for discharge into surface water of pollutants contained in Superfund waste water; and the applicable requirement below directs how to develop technology-based effluent limits in this situation. The last sentence in the text box below is the appropriate text to include in the "Requirement" column, and the "Action" and "Prerequisite" columns can use the text box language below.

Release of contact water and leachate into Bear Creek tributary	Shall receive the degree of treatment or effluent reduction necessary to comply with water quality standards and, where appropriate, will comply with the "Standard of Performance" as required by TN Water Quality Control Act at TCA §§69-3-101, et seq. For industrial discharges without applicable federal effluent guidelines, best professional judgment should be employed to determine appropriate effluent limitations and standards.	Point source discharge(s) of pollutants into waters of the U.S. —**applicable**	TCA §§69-3-101 *et seq.* TDEC 0400-40-03-.05(6) TDEC 0400-40-05-.09(1)(b)

<u>Appendix A, ARARs, Table A-2, page A-53.</u> The following requirements were included in the January 19, 2021, letter to DOE from Peter Wright, as additional RCRA landfill water discharge-related ARARs that should be included in the FFS. They should also be included in the ROD, per the December 31, 2020, Wheeler Decision in the FFS dispute.

Discharge of wastewater from RCRA hazardous waste landfills	Except as provided in 40 CFR § 125.30 through § 125.32, any existing point source subject to this subpart must achieve the Effluent Limitations listed in the regulation for each regulated parameter[1] which represent the application of *best practicable control technology* (BPT).	Discharge of wastewater[2] from landfills subject to 40 CFR Part 264, from an "existing" source – **Applicable**	40 CFR § 445.11 *Effluent limitations attainable by the application of BPT.*
	Except as provided in 40 CFR § 125.30 through § 125.32, any existing point source subject to this subpart must achieve the following effluent limitations which represent the application of *best available technology economically* (BAT): Limitations for ammonia (as N), a terpineol, aniline, benzoic acid, naphthalene, p-cresol, phenol, pyridine, arsenic, chromium		40 CFR § 445.13 *Effluent limitations representing the degree of effluent reduction attainable by the application of BAT*
	and they are the same as the corresponding limitations specified in §445.11.		
	Any new source subject to this subpart must achieve the following performance standards: Standards are the same as those specified in § 445.11.	Discharge of wastewater[2] from landfills subject to 40 CFR Part 264, from a "new" source – **Applicable**	40 CFR § 445.12 *New source performance standards*

[1] Radionuclides are not on the list of regulated parameters.

[2] "*Landfill wastewater* means all wastewater associated with, or produced by, landfilling activities except for sanitary wastewater, non-contaminated storm water, contaminated ground water, and wastewater from recovery pumping wells. Landfill wastewater includes, but is not limited to, leachate, gas collection condensate, drained free liquids, laboratory derived wastewater, contaminated storm water and contact wash water from washing trucks, equipment, and vehicle exterior and surface areas which have come in direct contact with solid waste at the landfill facility." 40 CFR 445.10(f). "*Contaminated storm water* means storm water which comes in direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater as defined in paragraph (f) of this section. Some specific areas of a landfill that may produce contaminated storm water include (but are not limited to), the open face of an active landfill with exposed waste (no cover added), the areas around wastewater treatment operations; trucks, equipment or machinery that has been in direct contact with the waste, and waste dumping areas." 40 CFR 445.10(g)

(End of Comments)

Table. Location-Specific Federal ARARs and TBCs for Wetlands [excludes CWA 404(b) requirements]

LOCATION–SPECIFIC ARARs/TBC			
Location	**Requirement**	**Prerequisite**	**Citation**
Wetlands			
Presence of wetlands	Shall take action to minimize the destruction, loss or degradation of wetlands and to preserve and enhance beneficial values of wetlands. *NOTE*: Federal agencies required to comply with E.O. 11990 requirements.	Federal actions that involve potential impacts to, or take place within, wetlands – **TBC**	Executive Order 11990 Section 1.(a) *Protection of Wetlands*
	Shall avoid undertaking construction located in wetlands unless: (1) there is no practicable alternative to such construction, and (2) the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.		Executive Order 11990, Section 2.(a) *Protection of Wetlands*
Presence of Wetlands (as defined in 44 C.F.R. § 9.4)	The Agency shall minimize[18] the destruction, loss or degradation of wetlands. The Agency shall preserve and enhance the natural and beneficial wetlands values.	Federal *actions affecting or affected by Wetlands* as defined in 44 C.F.R. § 9.4 – **Relevant and Appropriate**	44 C.F.R. § 9.11(b)(2) and (b)(4) *Mitigation*
	The Agency shall minimize: • Potential adverse impact the action may have on wetland values.		44 C.F.R. § 9.11(c)(3) *Minimization provisions*
General Compensatory Mitigation for Wetlands	Compensatory mitigation required to offset unavoidable impacts to waters of the United States authorized by DA permits. Compensatory mitigation requirements must be commensurate with the amount and type of impact that is associated with a particular DA permit. • Amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions. • Compensatory mitigation may be provided through mitigation banks or in-lieu fee programs.	Alteration of wetlands requiring compensatory mitigation to replace lost aquatic resource functions – **Relevant and Appropriate**	40 C.F.R. § 230.93(a)(1) *General compensatory mitigation requirements*

[18] *Minimize* means to reduce to smallest amount or degree possible. 44 C.F.R. § 9.4 Definitions.

Table. Location-Specific Federal ARARs and TBCs for Wetlands [excludes CWA 404(b) requirements]

LOCATION–SPECIFIC ARARs/TBC			
Location	**Requirement**	**Prerequisite**	**Citation**
	• Implementation of the compensatory mitigation project shall be, to the maximum extent practicable, in advance of or concurrent with the impact-causing activity. *NOTE*: Although permits are not required per CERCLA Section 121(e)(1), consultation with the USACE recommended to determine mitigation of any adverse impacts. Such mitigation would be performed as part of the remedial action.		
General Compensatory Mitigation for Wetlands	Compensatory mitigation may be performed using the methods of restoration, enhancement, establishment, and in certain circumstances preservation. Restoration should generally be the first option considered because the likelihood of success is greater and the impacts to potentially ecologically important uplands are reduced compared to establishment, and the potential gains in terms of aquatic resource functions are greater, compared to enhancement and preservation.	Alteration of wetlands requiring compensatory mitigation to replace lost aquatic resource functions – **Relevant and Appropriate**	40 C.F.R. § 230.93 (a)(2)
	All compensatory mitigation projects must comply with the standards in this part [40 CFR Part 230], if they are to be used to provide compensatory mitigation for activities authorized by DA permits, regardless of whether they are sited on public or private lands and whether the sponsor is a governmental or private entity. *NOTE:* Although permits are not required per CERCLA Section 121(e)(1), consultation with the USACE recommended to determine mitigation of any adverse impacts. Such mitigation would be performed as part of the remedial action.		40 C.F.R. § 230.93 (a)(3)
	Required compensatory mitigation should be located within the same watershed as the impact site, and should be located where it is most likely to successfully replace lost functions and services, taking into account such watershed scale features as aquatic habitat diversity, habitat connectivity, relationships to hydrologic sources (including the availability of water rights), trends in land use, ecological benefits, and compatibility with adjacent land uses.		40 C.F.R. § 230.93 (b) *Type and location of mitigation*

Table. Location-Specific Federal ARARs and TBCs for Wetlands [excludes CWA 404(b) requirements]

LOCATION–SPECIFIC ARARs/TBC			
Location	**Requirement**	**Prerequisite**	**Citation**
	Project site must be ecologically suitable for providing the desired aquatic resource functions. In determining the ecological suitability of the compensatory mitigation project site, the district engineer must consider, to the extent practicable, the factors in subsections (i) thru (vi). Applicants should propose compensation sites adjacent to existing aquatic resources or where aquatic resources previously existed.		40 C.F.R. § 230.93 (d)(1) and (3) *Site selection*
	In general, in-kind mitigation is preferable to out-of-kind mitigation because it is most likely to compensate for the functions and services lost at the impact site. Except as provided in paragraph (e)(2) of this section, the required compensatory mitigation shall be of a similar type to the affected aquatic resource.		40 C.F.R. § 230.93 (e)(1) *Mitigation type*
	The amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions. Where appropriate functional or condition assessment methods or other suitable metrics are available, these methods should be used where practicable to determine how much compensatory mitigation is required. If a functional or condition assessment or other suitable metric is not used, a minimum one-to-one acreage or linear foot compensation ratio must be used.		40 C.F.R. § 230.93 (f)(1) *Amount of compensatory mitigation*
	Implementation of the compensatory mitigation project shall be, to the maximum extent practicable, in advance of or concurrent with the activity causing the authorized impacts. The district engineer shall require, to the extent appropriate and practicable, additional compensatory mitigation to offset temporal losses of aquatic functions that will result from the permitted activity.		40 C.F.R. § 230.93 (m) *Timing*
Compensatory Mitigation Planning	Prepare a mitigation plan addressing objectives, site selection, site protection, baseline information, determination of credits, mitigation work plan, maintenance plan, performance standards, monitoring requirements, long-term management, and adaptive management.	Alteration of wetlands requiring compensatory mitigation to replace lost aquatic resource functions – **Relevant and Appropriate**	40 C.F.R. § 230.94(c) *Mitigation Plan*

Table. Location-Specific Federal ARARs and TBCs for Wetlands [excludes CWA 404(b) requirements]

LOCATION–SPECIFIC ARARs/TBC			
Location	**Requirement**	**Prerequisite**	**Citation**
	NOTE: Plan would be part of CERCLA document, such as a Remedial Action Work Plan. Plan to include items described in 40 C.F.R. § 230.94(c)(2) through (c)(14).[19]		
Compensatory Mitigation Performance Standards	The approved mitigation plan must contain performance standards that will be used to assess whether the project is achieving its objectives. Performance standards should relate to the objectives of the compensatory mitigation project, so that the project can be objectively evaluated to determine if it is developing into the desired resource type, providing the expected functions, and attaining any other applicable metrics (e.g., acres).	Alteration of wetlands requiring compensatory mitigation to replace lost aquatic resource functions – **Relevant and Appropriate**	40 C.F.R. § 230.95 (a) *Ecological Performance Standards*
	Performance standards must be based on attributes that are objective and verifiable. Ecological performance standards must be based on the best available science that can be measured or assessed in a practicable manner. Performance standards may be based on variables or measures of functional capacity described in functional assessment methodologies, measurements of hydrology or other aquatic resource characteristics, and/or comparisons to reference aquatic resources of similar type and landscape position. The use of reference aquatic resources to establish performance standards will help ensure that those performance standards are reasonably achievable, by reflecting the range of variability exhibited by the regional class of aquatic resources as a result of natural processes and anthropogenic disturbances. Performance standards based on measurements of hydrology should take into consideration the hydrologic variability exhibited by reference aquatic resources, especially wetlands.		40 C.F.R. § 230.95 (b) *Ecological Performance Standards*

[19] If mitigation obligations will be met by securing credits from approved mitigation banks or in-lieu fee programs, mitigation plan need include only items described in Section 230.94(c)(5) and (c)(6), and name of mitigation bank or in-lieu fee program. 40 C.F.R. § 230.94(c)(1).

Table. Location-Specific Federal ARARs and TBCs for Wetlands [excludes CWA 404(b) requirements]

LOCATION–SPECIFIC ARARs/TBC			
Location	**Requirement**	**Prerequisite**	**Citation**
Compensatory Mitigation Project Monitoring	Monitoring the compensatory mitigation project site is necessary to determine if the project is meeting its performance standards, and to determine if measures are necessary to ensure that the compensatory mitigation project is accomplishing its objectives. Compensatory mitigation project monitoring period shall be sufficient to demonstrate that project has met performance standards, but not less than five (5) years.	Alteration of wetlands requiring compensatory mitigation to replace lost aquatic resource functions – **Relevant and Appropriate**	40 C.F.R. § 230.96 (a) and (b) *Monitoring*
Compensatory Mitigation Project Management	The aquatic habitats, riparian areas, buffers, and uplands that comprise the overall compensatory mitigation project must be provided long-term protection through real estate instruments or other available mechanisms, as appropriate. For government property, long-term protection may be provided through federal facility management plans or integrated natural resources management plans. *NOTE:* Plan would be part of CERCLA document, such as a Remedial Action Work Plan and/or Operations & Maintenance Plan.	Alteration of wetlands on *government property* requiring compensatory mitigation to replace lost aquatic resource functions – **Relevant and Appropriate**	40 C.F.R. § 230.97 (a)(1) *Site Protection*
	Projects shall be designed, to the maximum extent practicable, to be self-sustaining once performance standards have been achieved. This includes minimization of active engineering features (e.g., pumps) and appropriate siting to ensure that natural hydrology and landscape context will support long-term sustainability. Where active long-term management and maintenance are necessary to ensure long-term sustainability (e.g., prescribed burning, invasive species control, maintenance of water control structures, easement enforcement), the responsible party must provide for such management and maintenance.		40 C.F.R. § 230.97 (b) *Sustainability*

ARAR = applicable *or* relevant and appropriate requirement
CFR = Code of Federal Regulations
NWP = Nationwide Permit

Table. Location-Specific Federal ARARs and TBCs for Wetlands [excludes CWA 404(b) requirements]

LOCATION–SPECIFIC ARARs/TBC			
Location	**Requirement**	**Prerequisite**	**Citation**

CWA = Clean Water Act
DA = Department of the Army
FL = State of Florida
TBC = To Be Considered
USACE = U.S. Army Corps of Engineers
U.S.C. = United States Code