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

October 19, 2023

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

Re: TDEC Comment Letter for Interim Record of Decision for Groundwater in the Main Plant Area at East Tennessee Technology Park, Oak Ridge, Tennessee (DOE/OR/01-2949&D1)

Dear Mr. Petrie

The Tennessee Department of Environment and Conservation (TDEC), Division of Remediation-Oak Ridge Office (DoR-OR), received the U.S. Department of Energy (DOE) letter transmitting the above referenced document on July 24, 2023. The Federal Facilities Agreement (FFA) protocol for review of this document is 60 days. On September 15, 2023, in accordance with Section XXI.G.2 of the FFA, TDEC submitted notification for an additional 30-day extension to complete review and provide comments on this Main Plant Area, D1 Interim Record of Decision (IROD). The revised due date for TDEC's D1 IROD comments is October 21, 2023.

This decision document selects an interim remedial action for six chlorinated volatile organic compound (CVOC) high concentration source areas at the East Tennessee Technology Park (ETTP) Main Plant Area (MPA). The interim remedy is intended to reduce the mass of CVOC contaminants in these most concentrated areas. The target treatment concentration goal is 1000 micrograms per liter (µg/L) for individual CVOCs and, where applicable, a concentration target for vinyl chloride in the groundwater at 400 µg/L.

The comments provided in this letter generally focus on two key areas that TDEC has identified. These should be addressed and resolved by the tri-parties, prior to resubmittal of this document, to support approval of the D2 document moving forward.

1. Provide additional detail and specificity regarding applicable or relevant and appropriate requirements (ARARs) [including those intended to be waived during this event] within the ARAR table (Table A.1. Numeric criteria for ORR groundwater) located in section A1.1. Please include:

a. Revisions to the numerical criteria table as requested/recommended in these provided comments. (See the specific comments below).
b. Inclusion of the ARARs that are expected to be relevant to the selected remedy during construction, operation, and management, such as industrial derived waste (IDW) waste management ARARs, monitoring well construction ARARs and injection well ARARs.

2. Land Use Controls (LUCs) directly applicable to this groundwater IROD and the selected remedy should be clearly defined in this IROD. Where overlap or redundancy of LUC requirements may occur from multiple RODs addressing the same area on this site, the FFA/Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) record should clearly designate which LUC requirements are correlated with which IROD. This IROD is a great first step in our ongoing goal to manage groundwater at ETTP and across the reservation in accordance with all state and federal requirements.

TDEC looks forward to working with the tri-parties to continue to move groundwater remediation work forward at ETTP in a timely and mutually satisfactory manner. Questions or comments concerning the contents of this letter should be directed to Heather Lutz at heather.lutz@tn.gov or (865) 310-0474.

Sincerely

Randy C Young
Digitally signed by Randy C Young
Date: 2023.10.17 16:02:30 -04'00'

Randy C. Young
FFA Project Manager
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GENERAL COMMENTS

Comment 1: Final ROD vs. ROD(s)
DOE reiterates throughout this document the intent is that this Interim ROD will be followed by a "Final ROD." It is not our agreement that the next document will necessarily be a final ROD. Whether the document is another Interim ROD or Final ROD will be guided by the work scope completed and the additional data collected in the follow-on work that remains for the MPA.

Please replace "Final ROD" where referenced throughout this document with "Final ROD(s)".

Comment 2: Clarification of approved or unapproved documents
In all places where documents are listed, please clearly identify those documents as "approved" or "unapproved" by the FFA tri-parties.

Comment 3: Clarification for the "prohibition of groundwater use" text
For all areas where "prohibition of groundwater" use is discussed, please expand the statement to state "prohibits groundwater use, extraction, consumption, and exposure" to be consistent with the tri-party approved language in the final Covenant Deferral Requests (CDRs) for this area.

Comment 4: Vinyl Chloride (VC)
Vinyl Chloride (VC) is intended to be considered in this work scope; however, VC is left out of the descriptions in areas where it may exist in proximity to this IROD's six areas of concern. Please ensure the VC component of this treatment remedy and its 400 ug/L goal is included where appropriate.

SPECIFIC COMMENTS

Comment 1: Section 1.2 Statement of Basis and Purpose, 3rd paragraph, Page 1-3
Please revise the sentence that states "land use restrictions are in place until a final ROD(s) for the MPA is in place" to state that land use restrictions are in place "until groundwater is restored to beneficial use and the RAOs are met."

Comment 2: Section 2.6 Current and Potential Future Land and Resource Uses, 4th paragraph, Page 2-32
The vapor intrusion (VI) language in the CDRs varies between the CDRs depending on which Exposure Unit(s) the CDRs covered. Please propose new language that will capture all the VI requirements for the ETTP MPA.

Comment 3: Section 2.9.5 Common Components of Alternatives, LUCs, Page 2-44
As specified in the ORR Land Use Control Assurance Plan (LUCAP), when a remedial action that includes LUCs is selected for an area, a Land Use Control Implementation Plan (LUCIP) must be developed. Once the LUCIP has been developed and approved, the LUCs can be rolled into the ETTP Remedial Action Report (RAR) Comprehensive Monitoring Plan (CMP). The ETTP RAR CMP is the document that compiles all the LUCs for the different decision documents for ETTP. Please revise this section as follows:

- Remove the sentences that states "LUCs will be implemented in accordance with the ETTP RAR CMP, which includes the LUC Implementation Plan ...and includes the following applicable LUCs (Table 2.5):"
- Replace those sentences with the following sentences: *"A LUCIP will be developed in accordance with the ORR LUCAP, will be included as an appendix to the RDWP, and will specify how the DOE will implement, maintain, and monitor the LUC elements of this remedy. The following LUCs are included as part of the MPA selected interim groundwater remedy."*
- Follow these two sentences with a list of the LUCs associated with the MPA selected interim groundwater remedy and include a description, their objectives, and the conditions of their use per the ORR LUCAP section 2.5.

Comment 4: Section 2.9.5, Common Components of Alternatives, LUCs, Page 2-44, Table 2.5 LUCs for MPA in place during preferred alternative

The generic ETTP RAR CMP LUC table appearing as Table D.1 in the East Tennessee Technology Park Administrative Watershed Remedial Action Report Comprehensive Monitoring Plan, Oak Ridge, Tennessee, DOE/OR/01-2477&D4 seems to have been duplicated in this ROD document as Table 2.5. Using this table is not suitable for documenting the specific LUCs associated with this Main Plant Area selected groundwater remedy, because it is not specifically tailored to the selected remedy. Please revise Table 2.5 to be specific to the LUCs associated with the MPA selected interim groundwater remedy (for example, there are references to Waste Management Area (WMA) and Zone 1 in Table 2.5, neither of which apply to the MPA area).

Given the reliance on land use controls within the scope of this IROD and the importance of those controls to protect human health in the area, TDEC expects to work closely with DOE to develop land use control language which represents TDEC interests regarding long-term land use control commitments.

Comment 5: Section 2.2 Site History and Enforcement Activities, First paragraph after bullets, Page 2-4

This statement reads "All of the buildings at ETTP have been demolished under CERCLA removal authority." This is not completely correct. Certain buildings are still standing. Suggest revision of the sentence. Consider "All of the buildings at ETTP under CERCLA removal authority have been demolished," if that is accurate.

Comment 6: Figure 2.3 Average Potentiometric Surface for MPA ETTP, Page 2-14

As consistently requested by TDEC, please provide the date range that was used to construct the average potentiometric surface map.

Comment 7: Section 2.5.1.4 COCs, Page 2-15

Please revise the sentence "There are also additional COCs (e.g., chromium in the Mitchell Branch area, and other potential COCs detected in the plume source areas) that are not being directly addressed by this interim action" to state "There are also additional COCs including, but not limited to, metals, radionuclides, and inorganics, that are not being directly addressed by this interim action".

Comment 8: Section 2.6 Current and Potential Future Land and Resource Uses, second paragraph, Page 2-32

Please revise the sentence "The State of Tennessee designates groundwater at ETTP as general use, per State of Tennessee Water Quality Criteria General Use Ground Water (0400-40-03-.07(4)(b) requirements; however, currently, there are prohibitions against groundwater use at ETTP" to state "The State of Tennessee designates groundwater at ETTP as general use, per State of Tennessee Water Quality Criteria General Use Ground Water (0400-40-03-.07(4)(b) requirements." Strike the "however...." text.

Comment 9: Section 2.6 Current and Potential Future Land and Resource Uses, third paragraph, Page 2-32

Please revise the last sentence to state: "The goal will remain in place until groundwater is cleaned up to meet State and Federal numerical criteria or until such time in the future that an ARAR waiver may be requested and granted."

Comment 10: Section A1.1 Chemical-Specific Applicable or Relevant and Appropriate Requirements, Table A.1. Numerical criteria for ORR groundwater (mg/L or parts per million), Page A-5

TDEC recommends revision of the Numeric Criteria Table to better represent the numerical criteria for the site based on the defined ARARs, and the selection basis for the values selected.

Please revise Table A.1 to emulate the formatting example and information in the table presented below for the Contaminants of Concern (COCs) currently listed in Table A.1.

A general format example is shown below that has been used by TDEC in the past and is included for consideration. This alternate formatting is intended to make clearer the selection of the numerical criteria associated with this IROD and to help address the excessive footnotes on the current Table 2.5 and Table A.1 portions of this document.

Numeric Criteria for K31/33 Area Groundwater (draft example)

Chemical of Concern	*TDEC 0400-40-03 General Water Quality Rule ug/L*	*TDEC DW MCLs 0400-45-01-.06 and 0400-45-01-.25 ug/L*	*SDWA EPA MCLs*	*EPA RSLs if no MCL available*	*Remediation goal*	*Selection basis*
Gross alpha			*15 pCi/L*		*15pCi/L*	*EPA- SDWA*
antimony	*6*	*6*	*6*		*6*	*EPA- SDWA & TDEC*
arsenic	*10*	*10*	*10*		*10*	*EPA – SDWA & TDEC*
lead	*5*		*.015 TT5action level*		*5*	*TDEC 0400-40-03*
nickel	*100*	*100*			*100*	*TDEC 0400-40-03 and 0400-45-01*

Include footnotes as appropriate.

Comment 11: Section A1.1 Chemical-Specific Applicable or Relevant and Appropriate Requirements, Table A.1. Numerical criteria for ORR groundwater (mg/L or parts per million), Page A-5

Uranium is not currently listed in the existing table, please include uranium and all currently known COCs in the A.1 table.

Comment 12: Section 2.12.2, Summary of Rationale for Preferred Alternative, p. 2-63. ARAR waiver vs ARAR compliance

DOE states the remedy complies with ARARs (because it is using an ARAR waiver). Please revise the statement to read "because the remedial action is utilizing an ARAR waiver under CERCLA 121(d), it does not comply with ARARs."

Comment 13: Section A1.1 Chemical-Specific Applicable or Relevant and Appropriate Requirements, Table A.2. page A-6

TDEC recommends including the following Text in table A.1 on page A-6 under the 2nd listing for "Remediation of contaminated groundwater" under the Chemical-specific section:

	The waters shall not contain toxic substances, whether alone or in combination with other substances, which will produce toxic conditions that materially affect the health and safety of man or animals, or impair the safety of conventionally treated water supplies. Available references include, but are not limited to: Quality Criteria for Water (Section 304(a) of Public Law 92-500 as amended); Federal Regulations under Section 307 of Public Law 92-500 as amended; and Federal Regulations under Section 1412 of the Public Health Service Act as amended by the Safe Drinking Water Act, (Public Law 93-523).		TDEC 0400-40-03-.03(1)(j)	All groundwater alternatives
	The waters shall not contain other pollutants in quantities that may be detrimental to public health or impair the usefulness of the water as a source of domestic water supply.		TDEC 0400-40-03-.03(1)(k)	All groundwater alternatives

Comment 14: Section A1.1 Chemical-Specific Applicable or Relevant and Appropriate Requirements, Table A.2, page A-6

TDEC recommends including the specific numerical criteria associated with any COCs identified in this IROD scope into the table. For example, include in the table a statement such as:

	Shall not exceed the Safe Drinking Water Act National Primary Drinking Water Regulations MCLs for *inorganic* site related contaminants of concern, specified in 40 Code of Federal Regulations (CFR) 141.62(b), or criteria specified in TDEC 0400-40-03.03. Inorganic Contaminants of Concern: • Lead – 5 µg/L	Class GU ground waters which are an existing or potential drinking water source - **applicable**	TDEC 0400-45-01-.06(1)(b) 40 CFR 141.62(b)	All groundwater alternatives
	Shall not exceed the Safe Drinking Water Act National Primary Drinking Water Regulations MCLs for *organic and volatile organic* site related contaminants of concern, specified in 40 CFR 141.61 Organic/Volatile Organic Contaminants of Concern: • Trichloroethylene - 5 µg/L • 1,2-Dichloroethane - 5 µg/L • Benzene - 5 µg/L • 1,1 Dichloroethylene 7 µg/L • 1,1,1-Trichloroethane - 200 µg/L • cis 1,2-Dichloroethylene - 70 µg/L • Tetrachloroethylene - 5 µg/L		TDEC 0400-45-01-.06(2)(a) TDEC 0400-45-01-.25(2) 40 CFR 141.61	All groundwater alternatives

Comment 15: Section A1.1 Action Specific Applicable or Relevant and Appropriate Requirements, Table A.2, page A-14
Under header: Site preparation, construction, and excavation activities

TDEC recommends including:

Activities causing storm water runoff (*e.g.*, clearing, grading, excavation)	Implement good construction management techniques (including sediment and erosion controls, vegetative controls, and structural controls) in accordance with the substantive requirements of *General Permit No. TNR100000* to ensure that storm water discharge:	Dewatering or storm water runoff discharges from land disturbed by construction activity— disturbance of ≥1 acre of total land —**applicable**	40 CFR §122.26(c)(1)(ii)(C) and (D) Tennessee Water Quality Control Act (TCA) 69-3-108(j) TDEC 0400-40-10-.03(2)	All Alternatives

Action	**Requirements**	**Prerequisite**	**Citation(s)**	**Remedial Alternative**
Activities causing storm water runoff (e.g., clearing, grading, excavation)	Discharge quality: (a) The construction activity shall be carried out in such a manner that will prevent violations of water quality criteria as stated in the Tennessee Rules, Chapter 0400-40-03-.03. This includes, but is not limited to, the prevention of any discharge that causes a condition in which visible solids, bottom deposits or turbidity impair the usefulness of waters of the state for any of the uses designated for that water body by Tennessee Rules, Chapter 0400-40-04. Construction activity carried out in the manner required by this permit shall be considered in compliance with the Tennessee Rules, Chapter 0400-40-03-.03. (b) There shall be no distinctly visible floating scum, oil or other matter contained in the stormwater discharge. (c) The stormwater discharge must not cause an objectionable color contrast in the receiving stream. (d) The stormwater discharge must result in no materials in concentrations sufficient to be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life or fish and aquatic life in the receiving stream. This provision includes species covered under Subpart 1.3.	Storm water discharges from construction activities –**TBC**	General Permit No. TNR100000 Section 5.3.2(a)-(d)	All Alternatives

Comment 15 (cont.): Recommended additions to the ARAR table are continued here

Action	Requirements	Prerequisite	Citation(s)	Remedial Alternative
Activities causing storm water runoff (e.g., clearing, grading, excavation)	Design, install and maintain effective erosion prevention and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed and maintained to: (1) Control stormwater volume and velocity to minimize soil erosion in order to minimize pollutant discharges; (2) Control stormwater discharges, including both peak flowrates and total stormwater volume, to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points; (3) Minimize the amount of soil exposed during construction activity; (4) Minimize the disturbance of steep slopes; (5) Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site; (6) Provide and maintain natural buffers as described in Section 4.1.2, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce pollutant discharges, unless infeasible; (7) Minimize soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted; and (8) Unless infeasible, preserve topsoil. Preserving topsoil is not required where the intended function of a specific area of the site dictates that the topsoil be disturbed or removed.	Storm water discharges from construction activities –TBC	General Permit No. TNR100000 Section 4.1.1(1)-(8)	All Alternatives

Comment 16: Section A1.1 Action Specific Applicable or Relevant and Appropriate Requirements, Table A.2, page A-14
Under header: Groundwater Monitoring activities

TDEC recommends including the following in addition to the To Be Considered (TBC) Specifications already listed:

Construction of groundwater monitoring well	All monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole; this casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples; the annular space above the sampling depth must be sealed to prevent contamination of samples and the groundwater.	Construction of Resource Conservation and Recovery Act (RCRA) groundwater monitoring well—relevant and appropriate	40 CFR §264.97(c) TDEC 0400-12-01-.06(6)(h)3	All Alternatives

Comment 17: Section A1.1 Action Specific Applicable or Relevant and Appropriate Requirements, Table A.2, page A-14, A-15, A-16, A-17. Under header: Groundwater Monitoring activities

While page A-14, A-15, A-16, and A-17 do address some Action Specific ARARs for Groundwater Monitoring Activities, TDEC recommends that Groundwater Monitoring ARARs be split out from the Injection Well ARARs in this table for clarity.

Comment 18: Section A1.1 Action Specific Applicable or Relevant and Appropriate Requirements, Table A.2, page A-15 Under header: Groundwater Monitoring activities – Reinjection of contaminated groundwater amended with treatment reagents

TDEC recommends including the following for Injection Well ARARs:

Injection of nutrients (or other treatments) into groundwater	The use of any Class V injection well in such a manner as to cause any underground source of drinking water (USDW) to contain any substances that are toxic, carcinogenic, mutagenic, or teratogenic, other than those of natural origin, at levels and conditions which violate primary drinking water standards as given in Chapter 0400-45-01 or adversely affect the health of persons is prohibited. Per 0400-45-06-.02 (3): "Injection well" means structure or device which is used for the emplacement of fluids into a subsurface stratum including, but not limited to: (a) a well used for the emplacement of fluids; (b) a subsurface fluid distribution system; (c) an improved sinkhole; or (d) infiltration cell and any other structures or devices designed, constructed or used to emplace fluids into the subsurface, except as provided in paragraph (3) of Rule 0400-45-06-.03; or (e) modified recharge point.	Class V "injection well" associated with remedial activity and/or innovative or experimental technologies as defined in TDEC 0400-45-06-.06(5)—applicable	TDEC 0400-45-06-.14(1)(b)
	No injection activity can allow the movement of fluid containing any contaminant into USDWs, if the presence of that contaminant may cause a violation of any primary drinking water standard, or other health based standards, or may otherwise adversely affect the health of persons. This prohibition applies to well construction, operation, maintenance, conversion, plugging, closure or any other injection activity.		TDEC 0400-45-06-.14(12)(a)1

Comment 19: Section A1.1 Action Specific Applicable or Relevant and Appropriate Requirements, Table A.2, page A-14/15
Under header: Groundwater Monitoring activities – Construction, Operation and Monitoring Standards for Class V Injection wells
TDEC recommends including:

Construction Standards for Class V injection wells	The variety of Class V well and their uses dictate a variety of construction designs consistent with those uses and precludes specific construction standards. However, a well must be designed and constructed for its intended use, in accordance with good engineering practices, and the design and construction must be approved by the Commissioner. Class V wells shall be constructed so that their intended use does not violate the water quality standards.	Construction of Class V injection wells – applicable	TDEC 0400-45-06-.14(7)(a) and (b)
Operating Requirements for Class V injection wells	All Class V injection wells shall be operated in such a manner that they do not violate the provisions of TDEC 0400-45-06-.14(1) [i.e., prohibition against using UIC well in such a manner as to cause USDW to contain substances that are toxic, carcinogenic, mutagenic, or teratogenic at levels and conditions which violate primary drinking water standards].	Operation of Class V injection wells – applicable	TDEC 0400-45-06-.14(8)(a)
Monitoring Requirements for Class V Injection Systems	The Commissioner may require monitoring of Class V injection wells; the nature of which will be determined by the type of well, nature of the injected fluid, and water quality of the receiving aquifer. The Commissioner shall determine the extent and frequency of monitoring based on the type of injection well and the nature of the injected fluid. Note: Monitoring of any injection wells will be conducted pursuant to a CERCLA Remedial Design or Remedial Action Work Plan after review by TDEC and approval by the EPA.	Monitoring of Class V injection wells – applicable	TDEC 0400-45-06-.14(9)(a) and (b)

Comment 20: Section A1.1 Action Specific Applicable or Relevant and Appropriate Requirements, Table A.2, page A-17
It is unclear what ARARs will correlate to waste characterization for the contaminated media and debris that may be generated during this action. Waste management for excavated soils, drill cuttings, waste waters and spent treatment materials etc. should also be addressed where appropriate for this selected remedy. These ARARS may include staging of contaminated waters, alternate dispersal of fluids etc. Please provide the appropriate ARARs for waste management associated with this selected remedy.

Potentially relevant citations may include but are not limited to:

- Rules of the Tennessee Department of Environment and Conservation Division of Solid / Hazardous Waste Management previously listed as 1200-02-11 – now renumbered as 0400-12-01-(.01) through (.12) where appropriate.
- 40 CFR 261, 40 CFR 262, 40 CFR 264, 40 CFR 265, 40 CFR 268, 40 CFR 761 etc.
- DOE M 435.1-1

Comment 21: Section A1.1 Action Specific Applicable or Relevant and Appropriate Requirements, Table A.2, page A-17.
Please see the IDW and Waste Management ARARs taken from the Record of Decision for Soil, Buried Waste and Subsurface Structure Actions in Zone 2, East Tennessee Technology Park, Oak Ridge TN DOE/OR/01-2161&D2. These are provided for discussion and recommended potential inclusion in this IROD ARAR table:

Waste generation, characterization, segregation, and storage—excavated soils, buried wastes, slabs, and subsurface structures, and secondary wastes			
Characterization of solid waste *(all primary and secondary wastes)*	Must determine if solid waste is hazardous waste or if waste is excluded under 40 *CFR* 261.4(b); and	Generation of solid waste as defined in 40 *CFR* 261.2 and which is not excluded under 40 *CFR* 261.4(a)—**applicable**	40 *CFR* 262.11(a) Rules of the TDEC Chap. 1200-1-11-.03(1)(b)(1)
	Must determine if waste is listed under 40 *CFR* Part 261; or		40 *CFR* 262.11(b) Rules of the TDEC Chap. 1200-1-11-.03(1)(b)(2)
	Must characterize waste by using prescribed testing methods or applying generator knowledge based on information regarding material or processes used, and must manage waste in accordance with 40 *CFR* 260-272 if determined to be hazardous waste		40 *CFR* 262.11(c) Rules of the TDEC 1200-1-11-.03(1)(b)(3)
	Must refer to Parts 261, 262, 264, 265, 266, 268, and 273 of Chapter 40 for possible exclusions or restrictions pertaining to management of the specific waste	Generation of solid waste which is determined to be hazardous—**applicable**	40 *CFR* 262.11(d); Rules of the TDEC Chap. 1200-1-11-.03(1)(b)(4)
Characterization of hazardous waste *(all primary and secondary wastes)*	Must obtain a detailed chemical and physical analysis on a representative sample of the waste(s), which at a minimum contains all the information that must be known to treat, store, or dispose of the waste in accordance with pertinent sections of 40 *CFR* 264 and 268	Generation of RCRA-hazardous waste for storage, treatment, or disposal—**applicable**	40 *CFR* 264.13(a)(1) Rules of the TDEC Chap. 1200-1-11-.06(2)(d)(1)

Table B.3. Action-specific ARARs and TBC guidance for the selected alternative, ETTP Zone 2 soils, Oak Ridge, Tennessee (continued)

Action	Requirements	Prerequisite	Citation(s)
Use and management of hazardous waste in containers	If container is not in good condition (e.g., severe rusting, structural defects) or if it begins to leak, must transfer waste into container in good condition	Storage of RCRA hazardous waste in containers—**applicable**	40 *CFR* 264.171; Rules of the TDEC Chap. 1200-1-11-.05(9)(b)
	Use container made or lined with materials compatible with waste to be stored so that the ability of the container is not impaired		40 *CFR* 264.172; Rules of the TDEC Chap. 1200-1-11-.05(9)(c)
	Keep container closed during storage, except to add/remove waste		40 *CFR* 264.173(a); Rules of the TDEC Chap. 1200-1-11-.05(9)(d)(1)
	Open, handle, and store containers in a manner that will not cause containers to rupture or leak		40 *CFR* 264.173(b); Rules of the TDEC Chap. 1200-1-11-.05(9)(d)(2)
Storage of hazardous waste in container area	Area must have a containment system designed and operated in accordance with 40 *CFR* 264.175(b)	Storage in containers of RCRA-hazardous waste with free liquids—**applicable**	40 *CFR* 264.175(a); Rules of the TDEC, Chap. 1200-1-11-.06(9)(f)(1)
	Area must be sloped or otherwise designed and operated to drain liquid from precipitation, or	Storage in containers of RCRA-hazardous waste that does not contain free liquids—**applicable**	40 *CFR* 264.175(c); Rules of the TDEC Chap. 1200-1-11-.06(9)(f)(3)
	Containers must be elevated or otherwise protected from contact with accumulated liquid		
Characterization and management of universal wastes (*e.g., buried batteries, pesticides, thermostats*)	A large quantity handler of universal waste must manage universal waste in accordance with 40 *CFR* 273 (TDEC 1200-1-11-.12) in a way that prevents releases of any universal waste or component of a universal waste to the environment.	Generation of universal waste [as defined in TDEC 1200-1-11-.12(1)(a)] for disposal—**applicable**	40 *CFR* 273 Rules of the TDEC Chap. 1200-1-11-.12
Characterization of LLW (*e.g., contaminated PPE, burned waste and debris, basements, foundation slabs*)	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 or disposal at a DOE facility—TBC	DOE M 435.1-1(IV)(I)

Table B.3. Action-specific ARARs and TBC guidance for the selected alternative, ETTP Zone 2 soils, Oak Ridge, Tennessee (continued)

Action	Requirements	Prerequisite	Citation(s)
	Characterization data shall, at a minimum, include the following information relevant to the management of the waste:		DOE M 435.1-1(IV)(I)(2)(a)
	• physical and chemical characteristics;		DOE M 435.1-1(IV)(I)(2)(a)
	• volume, including the waste and any stabilization or absorbent media;		DOE M 435.1-1(IV)(I)(2)(b)
	• weight of the container and contents;		DOE M 435.1-1(IV)(I)(2)(c)
	• identities, activities, and concentration of major radionuclides;		DOE M 435.1-1(IV)(I)(2)(d)
	• characterization date;		DOE M 435.1-1(IV)(I)(2)(e)
	• generating source; and		DOE M 435.1-1(IV)(I)(2)(f)
	• any other information that may be needed to prepare and maintain the disposal facility performance assessment, or demonstrate compliance with performance objectives		DOE M 435.1-1(IV)(I)(2)(g)
Temporary storage of LLW *(e.g., soil, contaminated PPE, basement and foundation materials, debris)*	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)(N)(1)
	Shall be stored in a location and manner that protects the integrity of waste for the expected time of storage		DOE M 435.1-1 (IV)(N)(3)
	Shall be managed to identify and segregate LLW from mixed waste		DOE M 435.1-1 (IV)(N)(6)
Packaging of solid LLW *(e.g., soil, contaminated PPE, equipment, scrap metal, surface feature materials, debris)*	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)

Treatment/disposal of waste—excavated soils, buried waste, slabs, and subsurface structures, and secondary wastes			
Disposal of RCRA-hazardous waste in a land-based unit	May be land disposed if it meets the requirements in the table "Treatment Standards for Hazardous Waste" at 40 *CFR* 268.40 before land disposal	Land disposal, as defined in 40 *CFR* 268.2, of restricted RCRA waste—**applicable**	40 *CFR* 268.40(a) Rules of the TDEC Chap. 1200-1-11-.10(3)(a)
	May be land disposed if it meets the requirements in the table "Alternative Treatment Standards for Hazardous Debris" at 40 *CFR* 268.45 before land disposal or is treated to the waste-specific treatment standard provided in 40 *CFR* 268.40 for the waste contaminating the debris	Land disposal, as defined in 40 *CFR* 268.2, of restricted RCRA-hazardous debris—**applicable**	40 *CFR* 268.45(a) Rules of the TDEC Chap. 1200-1-11-.10(3) (f)(1)
	Must be treated according to the alternative treatment standards of 40 *CFR* 268.49(c) or according to the UTSs specified in 40 *CFR* 268.48 applicable to the listed and/or characteristic waste contaminating the soil prior to land disposal	Land disposal, as defined in 40 *CFR* 268.2, of restricted hazardous soils—**applicable**	40 *CFR* 268.49(b) Rules of the TDEC Chap. 1200-1-11-10(3)(j)(2)
	Are not prohibited if the wastes no longer exhibit a characteristic at the point of land disposal, unless the wastes are subject to a specified method of treatment other than DEACT in 40 *CFR* 268.40, or are D003 reactive cyanide	Land disposal of restricted RCRA characteristically hazardous wastes—**applicable**	40 *CFR* 268.1(c)(4)(iv) Rules of the TDEC Chap. 1200-1-11-.10(1) (a)(3)(iv)(IV)

Action	Requirements	Prerequisite	Citation(s)
Disposal of RCRA waste waters	Are not prohibited, unless the wastes are subject to a specified method of treatment other than DEACT in 40 *CFR* 268.40, or are D003 reactive cyanide	Restricted RCRA characteristic hazardous wastes managed in a wastewater treatment system which is CWA NPDES permitted—**applicable**	40 *CFR* 268.1(c)(4)(iv); Rules of the TDEC Chap. 1200-1-11-10(1)(a)(3)(iv)(IV)
Packaging of LLW for disposal *(e.g., contaminated PPE, foundation slab debris, excavated soils)*	Must have structural stability either by processing the waste or placing the waste in a container or structure that provides stability after disposal	Generation of LLW for disposal at a LLW disposal facility—**relevant and appropriate**	Rules of the TDEC Chap. 1200-2-11-.17(7)(b)(1)
	Void spaces within the waste and between the waste, and its package must be reduced to the extent practicable		Rules of the TDEC Chap. 1200-2-11-.17(7)(b)(3)
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 to meet the performance objectives of the disposal facility	Generation of LLW for disposal at a LLW disposal facility—**TBC**	DOE M 435.1-1(IV)(O)