



DEPARTMENT OF ENERGY

High-Level Radioactive Waste Interpretation Limited Change to DOE Manual 435.1-1, Radioactive Waste Management Manual and Administrative Change to DOE Order 435.1, Radioactive Waste Management

AGENCY: Office of Environmental Management, Department of Energy.

ACTION: Notice.

SUMMARY: The Department of Energy (Department or DOE) announces the availability of a limited change to DOE Manual 435.1-1, *Radioactive Waste Management Manual*, to formally incorporate the Department's interpretation of the statutory definition of high-level radioactive waste (HLW). In support of that effort, DOE made an administrative change to DOE Order 435.1, *Radioactive Waste Management*. The HLW interpretation was described in the *Supplemental Notice Concerning U.S. Department of Energy Interpretation of High-Level Radioactive Waste*, published in the *Federal Register* on June 10, 2019 (Supplemental Notice). The revised Manual includes DOE's interpretation of the statutory term HLW as defined in the Atomic Energy Act of 1954, as amended (AEA), and the Nuclear Waste Policy Act of 1982, as amended (NWPA).

ADDRESSES: This *Federal Register* Notice (Notice), the Supplemental Notice (which contains responses to public comments on the HLW interpretation) and other documents relevant to DOE's HLW interpretation are available on the Department's website at:

<https://www.energy.gov/em/high-levelradioactive-waste-hlw-interpretation>. The revised Order and Manual are available at the DOE Office of Management's DOE Directives website at: https://www.directives.doe.gov/directives-browse#c8-operator=or&b_start=0.

FOR FURTHER INFORMATION CONTACT: Theresa Kliczewski and/or James Joyce, U.S. Department of Energy, Office of Environmental Management, Office of Waste and Materials Management (EM-4.2), 1000 Independence Avenue SW, Washington, DC 20585. Emails: *Theresa.Kliczewski@em.doe.gov* and *James.Joyce@em.doe.gov*. Phone number: (202) 586-5000.

SUPPLEMENTARY INFORMATION:

I. Background

DOE Order 435.1, *Radioactive Waste Management*, establishes the requirements that DOE programs must follow in managing DOE radioactive waste to protect human health, safety, and the environment. The Order is accompanied by DOE Manual 435.1-1, *Radioactive Waste Management Manual*, which establishes the requirements that DOE must follow in managing DOE radioactive waste.

In October 2018, the Department issued a *Federal Register* notice¹ (October 10, 2018, FRN) seeking public comments on its HLW interpretation. The 90-day public comment period, including a 30-day extension to submit comments, invited public input in order to better understand stakeholder perspectives. The *Federal Register* notice sought to enhance public understanding of DOE's views of its legal authority and to increase transparency. DOE received a total of 5,555 comments from a variety of stakeholders: members of the public, Native American tribes, members of Congress, numerous state and local governments, and one federal agency, the Nuclear Regulatory Commission (NRC). Of that number, there were roughly 360 distinct comments (that is, excluding duplicative form comments). DOE received both critical and supportive comments, with the majority of comments expressing concerns or questions relating to health and safety and environmental outcomes associated with the interpretation. Positive comments on the HLW interpretation were received from, among others, the NRC; the

¹ 83 FR 50909.

nuclear industry; DOE contractors; the Energy Facility Contractors Group; the city of Carlsbad, NM; Nye County, NV; Idaho Falls, ID, stakeholder groups such as Energy Communities Alliance; Savannah River Site (SRS) Community Reuse Organization; Tri-Cities Washington Economic Development Council; Hanford Communities; DOE National Laboratories; and individuals. Critical or negative comments were received from, among others, the Washington Department of Ecology; the Yakama Nation; the Consolidated Tribes of the Umatilla Indian Reservation; the Seneca Nation; the Shoshone-Bannock Tribes; and stakeholder groups such as the Natural Resources Defense Council, Nuclear Watch New Mexico, and Alliance for Nuclear Accountability; and individuals.

In June 2019, after careful consideration of all comments received on the October 2018 FRN, DOE issued the *Supplemental Notice Concerning U.S. Department of Energy Interpretation of High-Level Radioactive Waste*² (June 10, 2019 FRN). The Supplemental Notice provided additional explanation of DOE's interpretation as informed by public review and comment and further consideration by DOE following the October 2018 FRN. The Supplemental Notice also provided responses to significant comments received through the public comment process. In the Supplemental Notice, DOE did not make any changes or revisions to current policies, legal requirements, or agreements with respect to HLW.

In its Supplemental Notice, DOE explained its interpretation of the term HLW, as defined in the AEA and NWPA³. DOE has the long-standing authority and responsibility under the AEA to ensure that all DOE radioactive waste—including reprocessing waste—is managed and disposed of in a safe manner. The AEA and NWPA define HLW as:

- (A) The highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material

² 84 FR 26835.

³ 42 U.S.C. 10101 et seq.

derived from such liquid waste that contains fission products in sufficient concentrations; and

(B) Other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation.

42 U.S.C. 10101(12); see 42 U.S.C. 2014(dd). In Paragraph A, Congress limited HLW to those materials that are “highly radioactive.” This limiting term applies to all reprocessing waste, including the “liquid waste produced directly in reprocessing” and “any solid material derived from such liquid waste.” The use of the limiting term “highly radioactive” demonstrates that Congress intended to distinguish between reprocessing waste that is “highly radioactive” and waste that is not. If Congress had intended to define all reprocessing waste as HLW regardless of its radiological characteristics, it would not have included the “highly radioactive” requirement and instead defined HLW as “all waste material resulting from the reprocessing of spent nuclear fuel.” Similarly, for “any solid material derived from” the “liquid waste produced directly in reprocessing,” Congress also specified that in addition to being “highly radioactive” it must also contain fission products in “sufficient concentrations.” The terms “highly radioactive” and “sufficient concentrations” are not defined in the AEA or the NWPA. By providing in Paragraph A that liquid reprocessing waste is HLW only if it is “highly radioactive,” and that solid material derived from liquid reprocessing waste is HLW only if it is “highly radioactive” and contains fission products in “sufficient concentrations” without further defining these standards, Congress left it to DOE, for its reprocessing wastes, to determine when the standards are met. That is what DOE has done through its interpretation. DOE has evaluated the meaning of those terms based on its historical knowledge, experience, and expertise in managing reprocessing wastes. DOE's interpretation is an articulation of the technical criteria that can be applied to individual waste streams on a case-by-case basis to determine whether the standard for HLW has been met. DOE also notes that in their comments on the interpretation, the NRC staff stated that they “agree with the concept proposed in *Federal Register* October 10 Notice (83 FR

50909) that radioactive waste may be classified and disposed of in accordance with its radiological characteristics.” DOE places significant weight on the NRC's views of matters relating to the safe management and disposal of radioactive waste, including this HLW interpretation.

As explained in the Supplemental Notice, DOE has the legal authority to interpret the term HLW in these statutes to determine that certain of its reprocessing wastes are not HLW based on their radiological characteristics. Accordingly, DOE interpreted those statutes to provide that reprocessing wastes are properly classified as non-HLW where the radiological characteristics of the waste, in combination with appropriate disposal facility requirements for safe disposal demonstrate that disposal of such waste are fully protective of human health and the environment. DOE revised the interpretation set forth in the October 2018 FRN after consideration of public comments, in particular those of the NRC and affected state and local stakeholders, in order to clarify its meaning and import. Based on comments received in response to the October 2018 FRN, DOE interpreted the statutes to provide that a reprocessing waste may be determined to be non-HLW if the waste meets either of the following two criteria:

- (I) Does not exceed concentration limits for Class C low-level radioactive waste as set out in section 61.55 of title 10, Code of Federal Regulations, and meets the performance objectives of a disposal facility; or
- (II) Does not require disposal in a deep geologic repository and meets the performance objectives of a disposal facility as demonstrated through a performance assessment conducted in accordance with applicable requirements.

Reprocessing waste meeting either I or II of the above criteria is non-HLW, and—pursuant to appropriate processes—may be classified and disposed in accordance with its radiological characteristics in an appropriate disposal facility provided all applicable requirements of the disposal facility are met.

During 2019-2020, in determining whether and how to implement the HLW interpretation specific to a particular waste stream, DOE initiated a public process pursuant to the National Environmental Policy Act (NEPA) to analyze the potential environmental impacts associated with disposing of that waste. DOE completed its environmental analysis and decided to apply the HLW interpretation to a specific waste stream, shipping eight gallons of the SRS Defense Waste Processing Facility (DWPF) recycle wastewater to the Waste Control Specialists, LLC Federal Waste Facility, a licensed commercial low-level radioactive waste facility located near Andrews, Texas, for stabilization and disposal as non-HLW.⁴

Each reprocessing waste stream has unique radiological characteristics and, accordingly, the interpretation will continue to be implemented for subsequent proposed actions on a case-by-case basis, following consideration of: evaluation and characterization of specific reprocessing waste streams in conjunction with the waste acceptance criteria and requirements of a specific waste disposal facility; input from affected stakeholders (e.g., federal, state, local and tribal officials; and members of the public); and compliance with applicable federal and state laws, regulations, and agreements.

II. Summary Description of Changes.

DOE Manual 435.1-1 has been updated to include as Departmental policy DOE's interpretation of the statutory term HLW, as defined in the AEA and NWPA and consistent with the Supplemental Notice. Specifically, Chapter II of the Manual is revised to include a new Section C that sets forth the HLW interpretation and provides a basis for its use by DOE. DOE Manual 435.1-1 also is revised to set forth the roles and responsibilities of Field Managers and the Deputy Assistant Secretary for Waste and Materials Management with respect to the application of the HLW interpretation.

⁴ <https://www.energy.gov/nepa/doeea-2115-commercial-disposal-defense-waste-processing-facility-recycle-wastewater-savannah>

The HLW interpretation limited change to DOE Manual 435.1-1 does not affect DOE's current policies and practices relating to determinations under Chapter II.B of the Manual or under Section 3116 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005.⁵ Section 3116 will continue to apply to reprocessing waste covered under Section 3116. Chapter II.B of the Manual will continue to be used for tank closures not covered by Section 3116 and may be used in other cases determined to be appropriate by DOE.

In addition, DOE is canceling DOE Guide 435.1-1, *Implementation Guide for Use with DOE Manual 435.1-1*, as it is out of date. The cancellation of DOE Guide 435.1-1 is recognized in the administrative change to DOE Order 435.1. The definition of "reprocessing waste" in the Guide has now been incorporated in DOE Manual 435.1-1.

These directives can be viewed at <https://www.directives.doe.gov/>.

III. Reviews Under the National Environmental Policy Act

The objective of the limited change to DOE Manual 435.1-1 is to continue to ensure that all DOE radioactive waste, including reprocessing waste, is managed in a manner that protects worker and public health and safety, and the environment. When proposing to apply the HLW interpretation to future waste streams, DOE will prepare the necessary environmental analyses and documentation in accordance with Council on Environmental Quality regulations and DOE NEPA implementing procedures at 40 CFR parts 1500 through 1508 and 10 CFR part 1021, respectively, as was done with the application of the interpretation to the disposal of SRS DWPF recycle wastewater⁶ (August 10, 2020 FRN).

Signing Authority

This document of the Department of Energy was signed on January 13, 2021, by William I. White, Senior Advisor for Environmental Management to the Under Secretary for Science, Office of Environmental Management, pursuant to delegated authority from the Secretary of

⁵ Public Law 108-375.

⁶ 85 FR 48236.

Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed in Washington, D.C. January 13, 2021.

Treena V. Garrett,
Federal Register Liaison Officer,
U.S. Department of Energy.

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