U.S. DEPARTMENT OF ENERGY | OFFICE OF ENVIRONMENTAL MANAGEMENT

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Classifying Radioactive Tank Waste

Why it Matters: Safe, efficient and effective treatment of tank waste is a top priority for DOE. The classification of tank waste impacts how the waste can be treated and where it can be disposed. Proper classification helps ensure tank waste can be addressed in a timely manner commensurate with sound science and real risks.

How it's Done: Three approaches[1] are available to determine whether tank waste from the reprocessing of spent nuclear fuel can be classified and disposed of as non-high-level radioactive waste (non-HLW). DOE's interpretation of the definition of HLW in the Atomic Energy Act of 1954, as amended, and Nuclear Waste Policy Act of 1982, as amended, aligns with international guidelines for management and disposal of radioactive waste based on radiological risk rather than the source of the waste.

Key Attributes	Tank Waste Classification Approaches[1]		
	Waste Incidental to Reprocessing Evaluation	2005 NDAA Section 3116	HLW Interpretation
Where Applicable?	▪ Hanford ▪ West Valley Demonstration Project ▪ Idaho Site[2] ▪ Savannah River Site (SRS)[2]	▪ Idaho Site ▪ SRS	▪ Currently, SRS Defense Waste Processing Facility Recycle Wastewater only
Key Technical Criteria	▪ Remove key radionuclides to the maximum extent technically and economically practical ▪ Comply with requirements comparable to Nuclear Regulatory Commission (NRC) 10 CFR 61, Subpart C performance objectives ▪ Comply with Atomic Energy Act of 1954 ▪ Comply with DOE Manual 435.1-1 low-level radioactive waste (LLW) or transuranic waste requirements ▪ Requires a solid physical form ▪ Comply with 10 CFR 61.55; or meets alternative requirements	▪ Remove highly radioactive radionuclides to the maximum extent practical ▪ Comply with 10 CFR 61, Subpart C performance objectives ▪ Requires State-approved closure plan or permit ▪ If regulatory concentration limits exceeded, requires plans developed by DOE in consultation with the NRC ▪ NRC and State shall monitor disposal actions ▪ Cannot be applied to waste transported out of state	▪ Comply with 10 CFR 61.55 and meets the performance objectives of a disposal facility; or, ▪ Meets the performance objectives of a disposal facility as demonstrated through a performance assessment
Examples of Application	▪ Hanford WM Area-C Tank Farm (ongoing) ▪ Hanford Vitrified Low-Activity Waste (ongoing) ▪ Hanford Test Bed Initiative (3-gal) (2016) ▪ WVDP Concentrator Feed Makeup Tank and Melter Hold Tank (2013) ▪ WVDP Melter (2012)	▪ SRS H Tank Farm (2014) ▪ SRS F Tank Farm (2012) ▪ SRS Saltstone Disposal Facility (2006) ▪ Idaho Nuclear Technical and Engineering Center Tank Farm Facility (2006)	▪ SRS DWPF Recycle Wastewater (ongoing)
Regulatory Oversight	▪ Must comply with all applicable state and federal regulations ▪ Optional NRC consultation	▪ Must comply with all applicable state and federal regulations ▪ Requires NRC consultation	▪ Must comply with all applicable state and federal regulations ▪ NRC consultation not required – DOE to maintain its strong relationship with NRC, and continue that relationship in the future

[1] A fourth approach is Waste Incidental to Reprocessing (WIR) citation under DOE Manual 435.1-1, *Radioactive Waste Management Manual*, Chapter II, Section B.(1). This approach is not shown in the table. It allows a limited number of secondary solid waste items to be excluded from HLW (e.g., contaminated clothing, tools, and equipment).

[2] For the Idaho Site and SRS, the WIR evaluation approach applies to tank waste that is transported from Idaho and South Carolina, respectively; 2005 NDAA Section 3116 applies when tank waste at these two sites is disposed in-state.