Independent Reports Supporting a Risk-Based Approach to Radioactive Waste Management

Summary

DOE's HLW interpretation is consistent with multiple independent reports from recognized experts supporting a risk-based approach to radioactive waste management.

Blue Ribbon Commission (BRC)

The BRC was a group of independent experts tasked in 2012 by the Secretary of Energy at the request of the President with reviewing the existing policies for managing the back end of the nuclear fuel cycle.

The BRC issued its report titled: Blue Ribbon Commission on America's Nuclear Energy Future, Report to the Secretary of Energy, January 26, 2012.

The BRC report concluded:

- "[t]he most important overarching criticism of the U.S. waste classification system is that it is not sufficiently risk-based. Rather, it is (for the most part) directly or indirectly source-based – that is, based on the type of facility or process that produces the waste rather than on factors related to human health and safety risks."
- "the definition of HLW, in particular, has attracted the most criticism" for being insufficiently risk-based, and "to the extent that terms such as 'highly radioactive,' 'sufficient concentrations,' and 'requires permanent isolation' are used to define HLW, they have not been quantified."
- The BRC noted this is "potentially problematic because the liquid waste stream from the front end of a reprocessing plant can have a broad range of characteristics—including characteristics that may be altered by time (decay) or by subsequent processing (which DOE has done with many of its defense wastes). The waste that remains after these changes, while still classified as HLW, may have characteristics similar to TRU [transuranic] waste or LLW [low-level waste]." [page 97]

Massachusetts Institute of Technology (MIT)

MIT is an internationally recognized university committed to generating, disseminating, and preserving knowledge, and to working with others to bring this knowledge to bear on the world's great technological and scientific challenges.

In 2011, MIT published a study on the nuclear fuel cycle, including waste management, and issued its report titled: The Future of the Nuclear Fuel Cycle, An Interdisciplinary MIT Study (2011).

The MIT study noted that:

- "Because the U.S. has not updated its waste classification system, the United States today has an inconsistent, unstructured, and ad hoc waste classification system." [page 57]

As one of several recommendations on waste management, MIT recommended:

- "A risk-based waste management strategy should be adopted with (1) a waste classification system based on the radionuclide, chemical, and physical characteristics of each waste stream with (2) corresponding disposal facilities for each category of wastes." [Page 55]

National Research Council

The National Research Council is part of the National Academies of Sciences, Engineering, and Medicine, which are private, nonprofit institutions whose missions are to improve government decision making and public policy, increase public understanding, and promote the acquisition and dissemination of knowledge in matters involving science, engineering, technology, and health.

In 2005, the National Research Council issued a report titled Risk and Decisions About Disposition of Transuranic and High-Level Radioactive Waste, which analyzed whether the U.S. should pursue alternatives to deep geologic disposal for some of the waste classified as transuranic waste or high-level radioactive waste.

The National Research Council report concluded:

- "Some waste currently classified as TRU or HLW may not warrant disposal in a deep geologic repository, either because (1) it is infeasible to recover and dispose of every last bit of waste that might conceivably be classified as TRU or HLW, or (2) the effort, exposures, and expense associated with retrieval, immobilization, and disposition in a repository may be out of proportion with the risk reduction achieved, if any." [page 139]

Government Accountability Office (GAO)

GAO, an independent, nonpartisan agency that works for Congress, has issued multiple reports aimed at improving DOE's environmental cleanup activities.

GAO's 2017 report, titled GAO-17-317, High Risk Series – Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others, concluded:

- "DOE's environmental cleanup decisions are not risk-based and its risk-based decision-making is sometimes impeded by selection of cleanup remedies that are not appropriately tailored to the risks presented, and inconsistencies in the regulatory approaches followed at different sites." [page 240]

Energy Communities Alliance (ECA)

ECA is the only non-profit, membership organization of local governments adjacent to or impacted by DOE activities. ECA brings together local government officials to share information, establish policy positions, and promote community interests to address an increasingly complex set of constituent, environmental, regulatory, and economic development needs.

In 2017, ECA issued a report titled Waste Disposition: A New Approach to DOE's Waste Management Must Be Pursued, which made several findings and recommendations including:

- "DOE must create a new approach to waste management. For too long, costly treatment and disposal decisions have been made based on artificial standards, ones that base waste classification on origin rather than the actual characteristics and risk to human health arising from the waste." [page 2]
- "DOE must immediately revise its radioactive waste management policy (DOE Order 435.1) to clarify that waste will be managed and dispositioned according to its characteristics, not its origin, consistent with 10 CFR Part 61 regulations. This will allow some waste currently managed as high-level waste to be more appropriately dispositioned as transuranic (TRU) or low-level waste (LLW).)" [page 3]

Other Relevant References

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