



Very Low-Level Waste Disposal in the US: NRC's Proposed Interpretation

William R Roy*

Editorial

In March of 2020, the U.S. Nuclear Regulatory Commission (NRC) published a proposed interpretation of its regulations for the disposal of low-level radioactive wastes [1]. The main topic of the proposed interpretation is Very Low-Level Waste (VLLW). The NRC did not formally define VLLW as a new category of the low-level radioactive waste (LLRW) classification system as given in Part 61 (U.S.NRC, 2020) [2]. As the term implies it would be either a subdivision of the current Class A LLRW, or a new category. The NRC described their experience with VLLW as being “waste that includes some residual activity, including naturally occurring radionuclides”

The waste category VLLW is not a new idea. The International Atomic Energy Agency (IAEA) provided guidelines for radioactive waste classification [3]. The IAEA classification system has been widely adopted by several countries that produce and manage radioactive wastes. The IAEA describes VLLW as “wastes from the operation and decommissioning of nuclear facilities naturally occurring radionuclides and that (the disposal of such wastes) requires consideration from the perspective of radiation protection and safety” (IAEA, 2009) [3].

The proposed interpretation for the management of VLLW in the U.S. by the NRC was unclear. The NRC stated that they have been approving the disposal of VLLW in the municipal, county, and commercial landfills since 2000 [4]. The NRC considers requests for VLLW disposal under the LLRW exemption process outlined in 10 CFR 20.0002 with a period of performance of 1,000 years. The NRC described previous requests as consisting of concrete and soil with “very low levels of radioactivity.” However, there appears to be no easily accessible information about the levels of radioactivity accepted for disposal in landfills located in the Agreement States. The NRC stated “a few millirems per year” as the standard used under 10 CFR 20.2002 to grant exemptions [5] where under the proposed VLLW process, they have called out a new standard of 25 mrem per year. Currently, there are options for disposal of VLLW at facilities in the U.S. that are not located in municipal, county landfills. One such facility operated by Waste Control Specialists (WCS) currently has a Hazardous Waste facility with a VLLW-like licensed LLRW disposal program that is co-

located near their LLRW disposal facilities. The facility is licensed by the Texas regulators and is compatible with 10 CFR 20.2001.

The NRC held a public Teleconference/Webinar on March 30 of this year about the proposed interpretation. The participants included members of the public and they provided input. The participants who were not associated with the NRC were not in favor of the proposed rule. Most of the participants on the Teleconference/Webinar objected to the concept of placing VLLW in municipal landfills across the country. NIMBY (not in my backyard) became NIMCL (not in my county's landfill).

The NRC could benefit from the experiences in other countries. The French Republic is a world leader in managing all types of radioactive wastes. The French radioactive waste classification system includes VLLW. These wastes are not placed in municipal landfills. A near-surface repository is in operation specifically for VLLW. The repository is called Centre Industriel de Regroupement, d'Entreposage et de Stockage. It is also known as the Morvilliers repository. It is a near-surface, 45-ha facility composed of disposal cells. A clay-rich soil acts as a liner to retard the movement of long-lived radionuclides into groundwater.

Some participants of the NRC Teleconference correctly pointed out that the U.S. already has regulated and monitored facilities available for the disposal of VLLW. Low Activity Waste is informally defined by the U.S. EPA as radioactive wastes that contain very small concentrations of radionuclides. The concentrations are small enough that protection of public health and the environment from these wastes may not require all of the radiation protection measures necessary to manage higher-activity radioactive material [6]. Today we have sites such as the WCS Hazardous Waste facility where VLLW-like waste is disposed of as an option for the safe disposal of VLLW without needing the additional risk of potentially adding VLLW to publicly accessible landfills. The author also thinks that if the NRC wishes to move forward with a VLLW process, the formal adoption and creation of waste disposal criteria by means of a formal rulemaking for VLLW by the NRC would be a positive step forward.

References

1. Federal Register (2020) Nuclear Regulatory Commission. Transfer of Very Low-Level Wastes to Exempt Persons for Disposal, pp: 13076-13079.
2. U.S. NRC (2020) Part 61-licensing requirements for land disposal of radioactive waste. U.S. Nuclear Regulatory Commission.
3. IAEA (2009) Classification of radioactive waste. International atomic energy agency. General Safety Guide Number GSG-1.
4. U.S. NRC (2017a) Disposal of very low-level waste under 10 CFR 20.002. Backgrounder, Office of Public Affairs. U.S. Nuclear Regulatory Commission, p: 2.
5. U.S. NRC (2017b) Low-level waste disposal under 10 CFR 20.002.
6. U.S. EPA (2020) Low-activity radioactive wastes.

*Corresponding author: WR Roy, Department of Nuclear, Plasma, and Radiological Engineering, University of Illinois at Urbana-Champaign, USA, E-mail: wroy@illinois.edu

Received: January 13, 2021; Accepted: January 15, 2021; Published: January 25, 2021

Author Affiliation

Top

Department of Nuclear, Plasma, and Radiological Engineering, University of Illinois at Urbana-Champaign, USA