

# PUBLIC SUBMISSION

As of: 5/18/18 9:40 AM  
Received: May 15, 2018  
Status: Pending Post  
Tracking No. 1k2-935u-ltmi  
Comments Due: May 15, 2018  
Submission Type: Web

**Docket:** NRC-2018-0026  
Very Low-Level Radioactive Waste Scoping Study

**Comment On:** NRC-2018-0026-0001  
Very Low-Level Radioactive Waste Scoping Study

**Document:** NRC-2018-0026-DRAFT-0024  
Comment on FR Doc # 2018-03083

**SUNSI Review Complete**  
**Template = ADM-013**  
**E-RIDS=ADM-03**  
**ADD= Kellee Jamerson**

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## Submitter Information

**Name:** Anonymous Anonymous  
**Submitter's Representative:** Ruth McBurney  
**Organization:** Conference of Radiation Control Program Directors

COMMENT #24  
PUBICATION DATE:  
2/14/2018  
CITATION # 83 FR 6619

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## General Comment

On behalf of the Board of Directors of the Conference of Radiation Control Program Directors, we submit the following comments regarding the Low-Level Radioactive Waste Scoping Study:

As indicated in the Federal Register Notice, coordination with other agencies, particularly the US Environmental Protection Agency (EPA), in this process will be vital to assuring that any rulemaking that is proposed as a result of the NRCs study takes into consideration all aspects of the potential disposal pathways and current standards for oversight of the disposal facilities.

An alternative disposal method is needed for large volumes of very low level radioactive waste, as well as diffuse naturally occurring radioactive material, and slightly contaminated debris from a [potential] radiological incident or accident. The current licensed commercial low-level radioactive waste disposal sites would not necessarily have the capacity for such high volumes, and ramping up for a new site could take years to accomplish. The provision of safe alternatives for this very low-level activity waste is needed. The attached are the CRCPD Board of Directors responses to the specific questions in the notice.

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## Attachments

NRC-Request-for-Comments\_re-VLLW\_CRCPD\_May2018

## **Re: Very Low-Level Radioactive Waste (VLLW) Scoping Study**

**Docket ID NRC-2018-0026.**

On behalf of the Board of Directors of the Conference of Radiation Control Program Directors, we submit the following comments regarding the Low-Level Radioactive Waste Scoping Study:

As indicated in the Federal Register Notice, coordination with other agencies, particularly the US Environmental Protection Agency (EPA), in this process will be vital to assuring that any rulemaking that is proposed as a result of the NRC's study takes into consideration all aspects of the potential disposal pathways and current standards for oversight of the disposal facilities.

An alternative disposal method is needed for large volumes of very low level radioactive waste, as well as diffuse naturally occurring radioactive material, and slightly contaminated debris from a [potential] radiological incident or accident. The current licensed commercial low-level radioactive waste disposal sites would not necessarily have the capacity for such high volumes, and ramping up for a new site could take years to accomplish. The provision of safe alternatives for this very low-level activity waste is needed.

**The following are the CRCPD Board of Director's responses to the specific questions in the notice.**

1. The United States does not have a formal regulatory definition of VLLW. What should the NRC consider in developing its own regulatory definition for VLLW? Is there another definition of VLLW that should be considered? Provide a basis for your response.

Comment. The general definition of VLLW given by the International Atomic Energy Agency is a good starting point, but to avoid having to completely re-vamp the current categorical structure for low-level radioactive waste in the United States, there should be a lower boundary for Class A Waste that would be re-defined as VLLW, for waste that could be disposed of in alternate disposal facilities.

Since the scope of the NRC study is not to include scrap for recycle or release for unrestricted use, a dose based system using conservative modeling for EPA Resource Conservation and Recovery Act (RCRA) permitted solid waste and hazardous waste landfills would be appropriate.

2. The existing regulatory framework within 10 CFR 61.55 divides low-level radioactive waste into four categories: Class A, Class B, Class C, and Greater Than Class C. Should the NRC revise the waste classification system to establish a new category for VLLW?

Comment. Yes

What criteria should NRC consider in establishing the boundary between Class A and VLLW categories?

Comment. As indicated above, a dose-based system for classifying VLLW by radionuclide, using modeling specific for disposal in solid waste or hazardous landfills could be established. The dose basis should be few millirem (1-5) using conservative modeling for a typical landfill. This was done to establish a rule in Texas in the early

1990's that allowed short-lived radioactive material to be disposed of in sanitary landfills. This TX rulemaking used a one millirem per year criterion. The modeling could be expanded to include longer lived isotopes. The state has also provided for certain concentrations of Cs-137 in ash from the inadvertent smelting of a source to be disposed of in an authorized hazardous waste landfill.

Once a dose basis for landfills in the U.S. has been established, radionuclide concentration limits could be derived and listed in an appendix. For diffuse radium, uranium or thorium, the production of radon or thoron and doses from respective decay products would also need to be taken into consideration.

References: Chapter 25 Texas Administrative Code, §289.202(fff) and §289.202(ff)(2).

3. The NRC's alternative disposal request guidance entitled, "Review, Approval, and Documentation of Low-Activity Waste Disposals in Accordance with 10 CFR 20.2002 and 10 CFR 40.13(a)," which is undergoing a revision, allows for alternative disposal methods that are different from those already defined in the regulations and is most often used for burial of waste in hazardous or solid waste landfills permitted under the RCRA. Should the NRC expand the existing guidance to include VLLW disposal or consider the development of a new guidance for VLLW disposal? Why or why not?

Comment. Yes, the expansion of this guidance could assist with a basis for more expanded rulemaking. Specifically, having pre-modeled radionuclides at limited concentrations and total source term, disposed in RCRA landfills constructed and maintained to national EPA standards, could possibly forgo the costly and extensive regulatory requirements now in place for 10CFR20.2002 'alternate disposals.'

4. If the NRC were to create a new waste category for VLLW in 10 CFR Part 61, what potential compatibility issues related to the approval of VLLW disposal by NRC Agreement States need to be considered and addressed? How might defining VLLW affect NRC Agreement State regulatory programs in terms of additional responsibilities or resources?

Comment. This is a difficult question. As NRC proceeds with their Study, they should capture any individual state or LLRW Compact statutory or regulatory language that may be counter to disposal of VLLW in RCRA landfills.

5. Following the Low-Level Radioactive Waste Policy Amendments Act of 1985, states formed regional compacts for the disposal of low-level radioactive waste. If the NRC were to create a new waste category for VLLW, does it fall within regional compact authority to control VLLW management and disposal? How might defining VLLW affect regional compacts in terms of additional responsibilities or resources?

Comment. Similar to the above question, as NRC proceeds with their Study, they should capture the potential impact on any individual state or LLRW Compact.

6. Environmental Protection Agency imposed waste analysis requirements for facilities that generate, treat, store, and dispose of hazardous wastes are defined in 40 CFR Parts 264 through 270. How would NRC incorporate and apply waste analysis requirements for VLLW at RCRA Subtitle C and D facilities? Should the NRC impose concentration limits and/or treatment standards for VLLW disposal?

Comment. Waste analysis should be applied similarly to that going to licensed low-level waste sites to assure that any derived concentration limits and respective public dose constraints are met; and any otherwise hazardous material is properly managed in the waste stream. Radionuclide concentration limits should be included in standards for VLLW disposal.

7. Are there any unintended consequences associated with developing a VLLW waste category?

Comment. There is the potential financial impact on currently licensed LLRW disposal sites.

8. What analytical methods/tools should be used to assess the risk of disposing of VLLW at licensed LLW disposal facilities or RCRA Subtitle C and D facilities (*i.e.*, generic or site specific)?

Comment. Sampling, analysis and modeling of new radiological waste streams being mixed with hazardous material and chemicals may be a challenge. The NCRP may have guidance in this area.

9. How should economic factors be considered in the VLLW Scoping Study?

Comment. Cost of disposing of large volumes of VLLW in RCRA Class C or D landfills vs. commercial low-level radioactive waste site should be reviewed. The cost and impact of 10CFR20.2002 'alternate [LLRW] disposal' or pre-approved VLLW disposal, versus the cost of Class A, B, and C LLRW disposal in licensed low-level waste facilities should be examined.