



ENERGYSOLUTIONS

May 15, 2018

CD18-0092

May Ma
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

**Subject: Very Low-Level Radioactive Waste Scoping Study – 83 FR 6619; Docket ID
NRC-2018-0026**

Dear Ms. Ma:

EnergySolutions is submitting these comments in response to the subject notice. We appreciate the opportunity to comment on the U.S. Nuclear Regulatory Commission's (NRC's) scoping study to identify options to improve and strengthen the NRC's regulatory framework for the disposal of large volumes of very low-level radioactive waste (VLLW).

Our comments are summarized in the attachment. EnergySolutions is in favor of a rulemaking that would define a new category of radioactive waste for VLLW that is included in 10 CFR Part 61. We have identified considerations that would be important in such a rulemaking. Our comments are provided in response to the questions posed in the *Federal Register* notice.

Thank you again for this opportunity to comment. Questions regarding these comments may be directed to me at (801) 649-2109 or dshrum@energysolutions.com.

Sincerely,



Daniel B. Shrum
Senior Vice President
Regulatory Affairs

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

COMMENT (#53)
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Attachment

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COMMENTS ON VERY LOW-LEVEL RADIOACTIVE WASTE SCOPING STUDY

Question 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.

Answer 1. The NRC should define a category of low-level radioactive waste (LLW) that is lower than the existing Class A, but which still requires disposal in a manner that provides isolation from the biosphere. This new category of waste, referred to here as Class A' for the purposes of discussion, should be included in the classification tables contained in 10 CFR 61.55(a). The principle consideration in defining Class A' waste would be to define a waste category that could be safely disposed in a licensed facility that does not require the level and time of isolation required for the disposal of Class A LLW.

The basis for this conclusion is that the current exemption approach is an inefficient, time-consuming process that is disproportionate to the health and safety risks posed by the VLLW waste stream. The case-by-case evaluations performed under 10 CFR 20.2002 impose an unreasonable regulatory burden for evaluating the suitability of each individual disposal action. This approach is not risk-informed and will be even less suitable for the disposal of large quantities of VLLW from the decommissioning of nuclear power plants. Instead of evaluating individual disposal actions, NRC should determine the suitability of and license sites that provide the necessary level of protection.

The end result of this approach would be that Class A' waste is disposed of in a site licensed under Part 61. This would provide the advantage of leveraging the existing regulations regarding LLW disposal while at the same time relieving the unreasonable regulatory burden that currently exists for the disposal of waste at the very low end of the classification spectrum. More importantly, this would level the playing field and provide a consistent regulatory regime for VLLW. Part 61 is well suited for incorporating this new waste classification because it already is written to apply varying levels of protection depending upon the hazard. For example, §61.7(b)(2) imposes more restrictive stability requirements on Class B and C wastes than on Class A wastes. Similarly, some aspects of Part 61 would not need apply to the disposal of Class A' waste. Stability is a good example here as well. There may well be requirements that currently apply to all three waste classifications but would not be necessary to ensure the safe disposal of Class A' waste. On the other hand, some elements of Part 61, for example the performance objectives in Subpart C, would apply to all waste classifications, including Class A', just as they currently apply to the existing waste classifications.

In addition, a new rule addressing VLLW should allow for a site-specific approach as is contemplated under the ongoing Part 61 rulemaking. The development of site-specific waste acceptance criteria (WAC) derived from a performance assessment (PA) should be an acceptable method for demonstrating compliance with the performance objectives. Because a site-specific

approach is superior to a generic approach, using a site-specific PA to determine how much Class A' waste (by isotope, volume, etc.) could be disposed of at a site should be an acceptable approach.

In demonstrating compliance with Part 61, it would be reasonable to leverage the analyses prepared to permit sites for disposal of hazardous waste under the *Resource Conservation and Recovery Act* (RCRA). Subtitle C sites are designed to isolate wastes from the biosphere and thus may be suitable for the disposal of Class A' LLW. Additional issues related to the use of RCRA sites are explored in more detail below under Question 6.

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

Answer 2. Yes, as proposed above in the answer to question 1, the NRC should define a new Class A' category of LLW that would be included in the classification tables contained in 10 CFR 61.55(a). The optimal way to define the upper limit of such a waste stream would be to define it as a percentage of the Class A waste limits. NRC should conduct the necessary technical analyses to determine the appropriate percentage.

The principle criterion should be safety. One of the presumptions underlying this rulemaking is that there is a VLLW stream that, while needing to be isolated from the biosphere, does not require the level of protection provided by a licensed Part 61 site. This presumption is buttressed by the high volumes of LLW (millions of cubic feet) that the NRC has authorized for disposal in non-Part 61 licensed sites under the 10 CFR 20.2002 exemption process.

As described in the answer to question 1, a key element of creating a VLLW category should be the licensing of sites that are to be used for the disposal of these wastes. How much Class A' waste can be disposed of at a site of a specified design without exceeding performance objectives in Subpart C? That question would be answered by comparing the concentration of radioactive constituents of waste to be shipped for disposal with either 1) limits in 10 CFR 61.55(a) or 2) WAC derived from a site-specific PA.

Question 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 Resource Conservation and Recovery Act (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?

Answer 3. No, guidance is not adequate for defining acceptable parameters for the disposal of VLLW. The existing guidance is inadequate for the task for the following reasons:

- The existing guidance does not establish the means for determining the acceptable amount of VLLW that can be disposed at a given site. The guidance provides direction regarding how an individual disposal action can be authorized under the regulations in 10 CFR 20.2002 and 10 CFR 40.13(a), but it does not provide direction regarding the suitability of a given site for cumulative effects of ongoing disposal of VLLW.
- The existing guidance does not account for surety for the disposal site. Should the NRC license a specific site for the disposal of Class A' waste, then part of that licensing action should be to establish standards for what an acceptable level of surety is.
- The NRC guidance currently undergoing public comment specifically accounts for the recycling of VLLW, while the *Federal Register* notice soliciting these comments explicitly *excludes* consideration of "...recycle of materials." This is not about recycling; it is about disposal.

Guidance is not adequate for defining a new waste category. What is needed is a regulatory basis for a new category of waste.

Question 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?

Answer 4. If, as we propose, the NRC were to add a Class A' category to the concentration tables in Part 61, the compatibility category for Class A' waste would become category B along with the other waste classes in the existing tables. There would be no rationale for the NRC to use different compatibility categories for different classes of waste. This should pose no issues to Agreement States any more than does disposal of existing LLW.

The second question is best answered by Agreement State representatives, but for the states that currently license LLW disposal sites, we would expect no significant challenges. One obvious issue would be if a site were licensed or permitted to take VLLW that is not currently a Part 61 site in an Agreement State, one of two things would have to happen:

1. That state would have to establish a suitable oversight program, which could involve significant resources on the part of the state.
2. The NRC itself would have to assume the burden of licensing and overseeing activities at the disposal site.

Question 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?

Answer 5. If, as we propose, the NRC were to add a Class A' category to the concentration tables in Part 61, then it would be important for the compacts to have authority over this waste. Because Class A' waste would be disposed of in facilities licensed under Part 61, it would become just another category of LLW, and therefore it should remain under the control of the compacts. Just as it would make no sense to create a distinct compatibility category for what would be one of four categories of LLW, it would make no sense for compacts *not* to have authority over one of the four categories of LLW.

It also is important that compacts continue to have control over whether Class A' waste can be disposed in their compact region. Here again, there is no rationale for making a distinction in the treatment of one of the categories of LLW.

Another important aspect of compact authority and proper tracking of waste entering a compact region is manifesting. In order to maintain proper control over these waste streams, waste to be shipped as Class A' waste should be manifested.

Question 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?

Answer 6. RCRA Subtitle C and D facilities may indeed be suitable for the disposal of VLLW waste. As we have commented in response to previous questions, we believe the appropriate approach is for the NRC to add a Class A' category to the concentration tables and to license individual sites that propose to dispose of that category of waste. That licensing process would determine the extent to which NRC can rely upon the existing site design to suitably isolate the waste from the biosphere. Again, the central point is that the *site* should be licensed.

While we do believe that the NRC should establish concentration limits, we do *not* believe that the NRC should impose treatment standards. There is no technical basis for the NRC to impose treatment standards on VLLW that is disposed at RCRA Subtitle C and D facilities, unless that waste is mixed waste and contains regulated hazardous constituents. VLLW is not hazardous waste and is less hazardous than Class A waste, which does not require treatment.

Should the EPA have concerns or issues they wish for the NRC to take into consideration, it would be appropriate for the NRC to account for these during the rulemaking, as opposed to incorporating a consultation process on a case-by-case basis.

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

Answer 7. We have not identified any unintended consequences. It has been suggested that there could be potential adverse impacts on the existing Part 61 facilities; however, there is little justification for this concern. Currently, 20.2002 disposal actions already have the same prospect for adversely affecting Part 61 sites. If NRC regulations accounted for VLLW being disposed of at properly licensed sites, the playing rules would be clearer to all parties in the process. This counters the assertion that this would be an unintended consequence.

Question 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).

Answer 8. Any site disposing of VLLW should be licensed by the NRC. It may be that the permitting done for a RCRA Subtitle C or D facility can be accounted for in determining site suitability under Part 61. Either way, the technical approach would be to assess the suitability of a given site for the disposal of VLLW. With the proper emphasis on assessing site suitability (by license or permit), there would be no need for analyzing each individual disposal action (such as in the case of a 20.2002 disposal action).

The suitability of the site would be assessed for the disposal of a waste stream that has been defined, a Class A' as we refer to it herein. As such, both generic (61.55 tables) and site-specific (PA-derived WAC) approaches are appropriate, although site-specific is clearly superior. As for analytical tools to analyze site suitability, they would be the same performance assessment tools being used today to analyze impacts at Part 61, RCRA, and DOE disposal sites.

It also is important that compliance with concentration limits, either from Part 61 or PA-derived WAC, be analyzed on a per-package basis, as required for Class A, B, and C waste packages, not averaged over a cell. This is important for two reasons:

1. Class A/B/C waste is classified by package and the analyses are performed assuming the entire site is made up of the upper limit of the package in order to protect an inadvertent intruder. The same approach should be taken for Class A' waste.
2. Presuming that concentration limits for Class A' waste are developed in the same manner as were those for Class A/B/C waste, this assures that the waste disposal cell is compliant.

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

Answer 9. Any site licensed to accept Class A' waste for disposal should provide surety that is appropriate to the risk. While RCRA sites must satisfy surety requirements, NRC should ensure through its rulemaking that the surety for a site that accepts Class A' LLW be adequate for this new waste stream. EPA-permitted sites have requirements for post-closure monitoring that are of shorter duration (30 years) than those for LLW sites licensed by the NRC (100 years). Due to the



potential to dispose of long-lived radioisotopes in a VLLW waste stream, the timeframe for analyses and required surety should be increased over those required for RCRA sites.

NRC also should consider the cost of complying with the proposed regulations, e.g., cost of preparing a PA. Significant input, including ours, regarding realistic PA costs has been provided to the NRC in comments on the Part 61 rulemaking. Those costs can be used for the purposes of this rulemaking as well.