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General Comment

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2

Attachments

09-10-14 Comments on LLRW Regulatory Program Strategic Assessment Docket ID NRC-2014-0080

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September 10, 2014

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Cindy Bladey
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U.S. Nuclear Regulatory Commission
Mail Stop: 3WFN-06-44M
Washington, D.C. 20555-0001

Subject: Comments on the Low-Level Radioactive Waste Regulatory Program Strategic Assessment Update

Reference: Docket ID NRC-2014-0080

Dear Ms. Bladey:

EnergySolutions is submitting the comments contained in the attachment in response to the subject notice. We appreciate the opportunity to comment on the staff's update to its Strategic Assessment of the Low-Level Radioactive Waste (LLRW) Program. As requested, we have provided responses to the questions in the *Federal Register* notice. In addition, we also have provided an overview of how we believe the Strategic Assessment should be focused.

In general, we are very supportive of staff's efforts to undertake a thoughtful strategic planning process. We also appreciate their diligence in seeking public comment. We believe that a good strategic plan is important to the functioning of the LLRW program. However, we believe the planning process could be more efficient. Much has changed since the development of the 2007 Strategic Assessment and we do not see the value of hinging the current planning effort to the outdated plan. Rather, staff should focus its planning on identifying tasks that it realistically expects to undertake during the planning horizon and determining how to effectively deploy its resources to accomplish those tasks.

We recommend that staff focus its attention on following activities:

- Complete the ongoing Site-Specific Assessment Rulemaking for 10 CFR 61
- Complete and publish the *Branch Technical Position on Concentration Averaging*
- Address issues related to the disposal of decommissioning waste, including low activity radioactive waste and decommissioning waste at operating reactors

We also believe that the agency should update all of its regulations that are affected by revisions to the ICRP dose methodologies, including organ dose weighting factors. While these changes would clearly affect Part 61, they would also affect other portions of



Title 10 of the *Code of Federal Regulations*, and as such, a comprehensive effort should be undertaken to incorporate these changes. This is an important task deserving of the Commission's attention, but it should be taken across all relevant regulations and not focused on Part 61 alone.

We consider each of these items to be high priority and believe that staff should be able to make significant progress, and in some cases complete each within the next two years. We further recommend that all other activities be eliminated from the plan. We see little or no merit in maintaining a list of medium and low priority tasks when the staff does not even have the resources to address the high priority tasks. We elaborate on each of these proposals in the attached comments.

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

COMMENTS ON LOW-LEVEL RADIOACTIVE WASTE REGULATORY PROGRAM STRATEGIC ASSESSMENT

The *Federal Register* notice requesting comments on the Strategic Assessment included a series of questions to which we provide the following answers. In the first attachment to these comments, we provide a detailed response to question III.2 regarding the issues that should remain in the strategic assessment. In the second attachment we address ourselves specifically to the issue of low activity radioactive waste.

Regarding the Current National LLRW Disposal Program

1. *What changes anticipated in LLRW area may impact safety, security and protection of the environment?*

The principal predictable change affecting the generation of LLRW is the increased rate of decommissioning nuclear power plants. This is important from a human health and safety and environmental protection perspective because it will result in the generation of hundreds of thousands of cubic feet of low activity radioactive waste (LARW), the disposal of which could be more efficiently managed if the NRC were to adopt a different regulatory approach. This is discussed in greater detail in Attachment 2.

2. *As a result of those changes, what activities should remain on the list of proposed activities developed during the 2007 Strategic Assessment, and are those activities appropriately prioritized in order to ensure safe and secure LLRW disposal, improve the effectiveness of NRC's regulations, and assure regulatory stability and predictability while allowing flexibility in disposal options?*

As stated above and detailed in Attachment 2, addressing the low activity radioactive waste issue could benefit this anticipated change. These decommissioning projects will result in the generation of LARW that would be suitable for disposal in a variety of locations depending upon the level of radioactivity, including: onsite, offsite in Part 61 licensed sites, or offsite in regulated disposal sites that do not need to meet all of the standards of Part 61 in order to provide sufficient protection of public health and safety. This last category is an area that requires significant attention on the part of the NRC, both in terms of regulation and guidance. We provide more background and a proposed approach in Attachment 2 to these comments.

Apart from addressing the issue of LARW, completing the *Branch Technical Position of Concentration Averaging (BTP)*, and completing the *Site-Specific*

Assessment Rulemaking for Part 61, all of the other items from the 2007 plan should be eliminated.

Regarding the Current LLRW Disposal Regulatory System

- 1. As a result of the new national landscape, what are your key safety concerns relative to LLRW disposal?*

The key safety concern is that licensed disposal capacity is being used for the disposal of waste that does not require the protection of the requirements of Part 61 in order to not pose a threat to human health and safety or the environment. As discussed previously, this is a matter that requires the attention of the NRC.

- 2. What vulnerabilities or impediments, if any, are in the current regulatory approach toward LLRW disposal in the U.S. that need to be addressed in order to strengthen the NRC's ability to ensure safe and secure LLRW disposal, improve the effectiveness of its regulations, and assure regulatory stability and predictability while allowing flexibility in disposal options?*

The primary impediment in the regulatory approach toward LLRW disposal is the over conservatism of the regulations in Part 61 because of their reliance on generic assumptions that do not apply at all sites and use of outdated analytical methodologies. NRC has begun to address these issues with the Site-Specific Assessment Rulemaking to update Part 61 and the completion of this rulemaking should be its highest priority. NRC's delay in completing this rulemaking undermines regulatory stability and deprives radioactive waste generators the appropriate flexibility that would derive from updated regulations.

As we discuss elsewhere in these comments, the lack of a rigorous and effective regulatory regime for the disposal of LLRW also limits disposal flexibility.

- 3. What actions could be taken by the NRC and other Federal and State authorities, as well as by private industry and national scientific and technical organizations, to optimize management of LLRW? Which of the following actions are most likely to yield benefits?*

We believe that in keeping with its role of ensuring the protection of human health and safety and the protection of the environment, NRC should focus its efforts on optimizing the effectiveness of its regulations governing the disposal of LLRW. The completion of the Part 61 rulemaking, including the creation of a site-specific, risk-based framework for disposal, is by far the most important contribution the NRC could make in this regard. While we appreciate the desire of the agency to be thorough in its strategic thinking, we again urge the NRC to

focus its efforts on high priority activities and not dilute its efforts. As for private industry and national scientific and technical organizations, their activities in optimizing the management of LLRW are not suitable for inclusion in the NRC's strategic assessment.

4. *Are there additional actions (regulatory and/or industry initiated) that can/should be taken regarding specific issues?*

a. The disposal of Greater Than Class C (GTCC) waste does not merit further attention from the NRC at this time because 1) preparing a regulatory basis for the disposal of GTCC will require a significant undertaking by the Commission and 2) it is not timely for the NRC to develop licensing criteria for GTCC waste.

No Regulatory Basis – Creating an effective regulatory basis for the disposal of GTCC waste would require either the creation of a new part within Title 10 of the *Code of Federal Regulations* or significant modification of one of the existing parts. Regulations for the disposal of GTCC are not included in Part 61. In reference to GTCC, 10 CFR 61.7(b)(5) states: “Waste with concentrations above these limits is generally unacceptable for near-surface disposal.” The section goes on to state that there may be instances where GTCC can be made suitable for near-surface disposal with “...special processing or design...” but that such instances would be evaluated on a case-by-case basis. Thus, while Part 61 arguably allows an exemption to address particular instances, it does not in general provide standards governing the disposal of these wastes.

It is unlikely that even an exemption would be appropriate given that 10 CFR 61.55(a)(2)(iv) states that “In the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.” At this time, there are no specific *requirements* in Part 61 – only the processes identified in 61.7 and 61.55(2)(2)(iv) – so the obvious conclusion is that the waste must be disposed of in a geologic repository or requirements to govern the disposal of GTCC must be approved by the Commission, a process that would take several years.

Regulations governing the disposal of GTCC are not timely – The NRC is dependent upon the U.S. Department of Energy completing its efforts¹ to address the disposal of this waste before the NRC can undertake its role of regulating that

¹ Section 2021c.(b)(1)(D) of the *Low Level Waste Policy Act* states that the Federal government shall be responsible for the disposal of “...radioactive waste with concentrations of radionuclides that exceed the limits established by the Commission for Class C radioactive waste...” DOE is responsible for determining how to address this Federal responsibility.

disposal. DOE is and has for some time been engaged in the process of identifying a disposal pathway for Greater Than Class C waste and preparing an environmental impact statement (EIS) in compliance with the *National Environmental Policy Act*. Once DOE completes the EIS, it is required by the *Energy Policy Act of 2005* to report to congress and "...await action by Congress."² Absent more concrete progress by DOE and action by Congress, it is not a productive use of limited NRC resources to address this topic.

b. There is a topic related to the long-term storage of LLRW that merits the staff's attention: the storage of major radioactive components that have been removed from service and are in storage because the NRC has placed unreasonable limitations on the use of decommissioning trust funds for their disposal.

The nuclear industry currently has in storage at nuclear power plant sites hundreds of major radioactive components, primarily retired steam generators, but also reactor pressure vessel heads, pressurizers, and heat exchangers. While these retired components are being stored safely, their disposal would be preferred to continued storage. Most licensees also would prefer disposal; however, their ability to do so is limited by Commission policy. Although licensees have accrued funds for disposing of these major radioactive components in their decommissioning trust funds, they are prevented by Commission policy from using these funds for this purpose prior to cessation of operations.

NRC regulations in 10 CFR 50.2 define "decommission" in part as "...to remove a facility or site safely from service..." NRC regulations in 10 CFR 50.82(a)(8) permit withdrawals from decommissioning trust funds for "... legitimate decommissioning activities consistent with the definition of decommissioning in §50.2." The Commission has interpreted this to mean that with the exception of certain planning costs allowed by §50.82, decommissioning trust funds cannot be used at operating reactors. This restriction is in place for operating reactors that have accrued funds explicitly for the purpose of removing and disposing of major radioactive components and despite the fact that disposal of major radioactive components is defined in §50.2 as a major decommissioning activity.

NRC staff in FSME should work with the Office of Nuclear Reactor Regulation to revise this policy to encourage the disposal of this waste using decommissioning trust funds.

c & d. As mentioned above, the topic of disposal of LARW should be addressed as a high priority. This activity includes the category of onsite disposal.

² *Energy Policy Act of 2005* (Public Law 109-58), Section 631(b)(1)(B)(ii), August 8, 2005.

5. *What unintended consequences might result from the potential changes identified in response to questions 3 and 4?*

We do not foresee any unintended consequences related to these issues. Specifically addressing the topic of LLRW would address a void in the current regulatory regime. While not all potential consequences are foreseeable, addressing this void is a positive action.

Potential Alternative Futures

Revised disposal scenarios were proposed for incorporation in the updated Strategic Assessment. Are there recommendations to improve the proposed disposal scenarios?

While understanding the relevant conditions is a worthy component of any planning exercise, it is difficult to imagine how any of the scenarios identified would change what is expected of the NRC in order to ensure that LLRW is safely disposed. In the event of a lack of disposal capacity, generators would be forced to rely on additional storage; but this is an issue that the NRC has addressed previously. It is clear from NRC policy that disposal is preferred, but storage can be done safely. Thus, no additional planning is necessary on this point. Furthermore, it is not apparent that any one scenario should drive NRC activity. Given the limited resources available to the agency, and the challenges it has faced in completing even those activities it has categorized as high priority, it seems unhelpful to expend resources on defining hypothetical scenarios.

Regarding Interagency Communication and Cooperation

1. *Based on your observations of what works well and not-so-well, domestically and/or internationally, with regard to the management of radioactive and/or hazardous waste, what actions can the NRC and other Federal regulatory agencies take to improve their communication with affected and interested stakeholders?*

The NRC staff is to be commended for its public outreach and coordination with stakeholders regarding its actions related to LLRW. Both the Part 61 Site-Specific Assessment Rulemaking and the revision of the BTP are examples of excellent outreach to and communication with potentially affected parties, including other Federal agencies. The public workshops and opportunities for public comment have worked well. These actions should be continued for future activities. In addition, NRC should work with other Federal agencies to renew regular meetings of the Interagency Steering Committee on Radiation Standards.

2. *What specific actions can NRC take to improve coordination with other Federal agencies so as to obtain a more consistent treatment of radioactive wastes that possess similar or equivalent levels of biological hazard?*

While the NRC has communicated its intentions to other Federal agencies, this unfortunately has not resulted in effective coordination or consistent treatment of radioactive waste. NRC and DOE continue to address the disposal of LLRW in different ways, and apply different standards for virtually identical waste streams. It is not clear that there has been any effort undertaken to resolve these differences. The differences cannot be justified based on protection of human health and safety or protection of the environment when the wastes and hazards are similar. It is difficult to conclude that the differences are based on anything other than jurisdictional differences of opinion.

The most significant single specific action that the NRC could take to improve this situation would be to complete the Site-Specific Assessment Rulemaking and promulgate revisions to Part 61 that include the opportunity for the development of waste acceptance criteria based on a site-specific performance assessment that could be used to determine the levels of radioactivity that can be safely disposed. This would both update the outdated limits contained in Tables 1 and 2 in 10 CFR 61.55 and align the technical approaches of NRC and DOE.

Attachment 1
2007 Strategic Assessment of the NRC's LLRW Regulatory Program
Staff Activities

High Priority Activities

- Review and update guidance on extended storage of LLRW – **Eliminate**
- Develop guidance on 10 CFR 20.2002 Alternate Disposal Requests – **High priority**: This item should be maintained and incorporated into an undertaking to establish appropriate regulations and guidelines for the disposal of low activity radioactive waste.
- Determine if disposal of large quantities of depleted uranium would change the waste classification tables – **Eliminate**
- Update Branch Technical Position on Concentration Averaging and Encapsulation – **High priority**: This activity should be concluded as soon as possible.
- Develop procedures for Import/Export Review – **Eliminate**
- Develop guidance on alternate waste classification (10 CFR 61.58) – **Eliminate**
- Perform scoping study of the need to revise/expand byproduct material financial assurance to account for life-cycle cost – **Eliminate**
- Revise commission policy to permit the use of decommissioning trust funds for the disposal of major radioactive comments – **High priority**

Medium Priority Activities

- Develop licensing criteria for greater than Class C (GTCC) disposal facility – **Eliminate**
- Consolidate LLRW guidance – **Eliminate**
- Develop guidance that summarizes disposition options for low-end materials and waste – **High priority**: This item should be maintained and incorporated into an undertaking to establish appropriate regulations and guidelines for the disposal of low activity waste.
- Coordinate with other agencies on consistency in regulating low activity waste disposal – **High priority**: This item should be maintained and incorporated into an undertaking to establish appropriate regulations and guidelines for the disposal of low activity waste.
- Identify new waste streams – **Eliminate**
- Develop information notice on waste minimization – **Eliminate**

Low Priority Activities

- Evaluate potential changes to LLRW regulatory program as a result of severe curtailment of disposal capacity – **Eliminate**



ENERGYSOLUTIONS

- Promulgate rule for disposal of low-activity waste – **High priority**: This item should be maintained and incorporated into an undertaking to establish appropriate regulations and guidelines for the disposal of low activity waste.
- Identify and evaluate potential legislative changes – **Eliminate**
- Implement major revisions to 10 CFR Part 61 – **Eliminate**
- Develop waste acceptance criteria for LLRW disposal in uranium mill tailings impoundments – **Eliminate**
- Examine need for guidance on when radioactive material becomes LLRW – **Eliminate**
- Develop and implement national waste tracking system – **Eliminate**

Attachment 2

Comments on the Disposal of Low Activity Radioactive Waste

Completion of the Site-Specific Assessment Rulemaking will represent significant progress in updating 10 CFR Part 61, but this rulemaking will not address the serious gaps in the regulatory system with respect to low activity radioactive waste (LARW). Four of the 20 activities listed in 2007 Strategic Assessment addressed LARW and none have been completed. To best accommodate the acceleration in reactor decommissioning over the next decade, these issues should be addressed now. The current guidance, *Review, Approval, and Documentation of Low-Activity Waste Disposals in Accordance with 10 CFR 20.2002 and 10 CFR 40.13(a)* is, after five years, still in draft form. Furthermore, the draft guidance does not adequately address this issue and lacks supporting technical basis. To properly address this issue, the Commission should promulgate rules to provide appropriate standards for the disposal of LARW.

For over 30 years, NRC has sought to establish standards for unrestricted release of solid materials by setting contamination levels that adequately protect the public and the environment. In October 2002, the Commission directed the staff to address control of solid materials by rulemaking. After staff developed and submitted the rule, the Commission decided in June 2005 to disapprove publication of the proposed rule at that time. The Commission noted the need for this rule was reduced due to the shift in timing for reactor decommissioning and deferred the rulemaking. Given the changed conditions and the acceleration in reactor decommissioning it is time to address the LARW waste issues.

The treatment of LARW is of increasing importance because of the amount of LARW that will be generated by decommissioning the reactors currently shut down, as well as the number of reactors that are likely to be shut down in the near future. These decommissioning projects will generate large volumes of slightly contaminated concrete or steel that could be treated as LARW. NRC should elevate all of the LARW issues in its revised Strategic Assessment to high priority. This is an issue that needs to be addressed now because of the long lead time to complete a disposal rule making that will require substantial public participation.

When NRC first promulgated 10 CFR Part 61, it recognized by including all radioactive waste from licensed activities as LLRW that it was applying the same standards even to what was then described as "...wastes below which there is no regulatory concern, the so-called 'de minimis' level," including LARW.³ It said at the time that the Commission would entertain rulemaking petitions to address this matter and individual licensees could

³ *Licensing Requirements for Land Disposal of Radioactive Waste*, 47 FR 57446, 57453, December 27, 1982.

apply for amendments for alternative disposal methods for the licensee's own waste pursuant to 10 CFR 20.302, the predecessor to 10 CFR 20.2002. Unfortunately, this approach has resulted in the use of these regulations as a *de facto* licensing scheme for LARW disposal, which was not its original intent.

The absence of LARW disposal regulations and substitute reliance on the 20.2002 approach poses two problems: 1) a reliance on an exemption process that has led to the creation of *de facto* LARW disposal sites and 2) a lack of clarity of the appropriate limits to use in regulating those disposal actions. LARW generators have used the alternative disposal processes under 10 CFR 20.2002 to dispose of LARW at RCRA disposal sites. The 20.2002 process was never intended to be a routine program allowing for non-licensed sites to regularly receive LARW for disposal. Rather, it was always considered an alternative approach to be used on a case-by-case basis. It clearly would be more appropriate to address the multiple disposals at a single site via regulation. If it can be shown to be safe to take multiple shipments of LARW at a single site, then it follows that it should be possible – even preferable – to license such a site for the disposal of this waste stream.

In addition, it is not clear that there is an appropriate standard for the analysis of these repeat disposals. Section 20.2002 allows public doses up to 100 millirems a year, which is four times the limit of Part 61. While the NRC has issued draft guidance to implement 20.2002 that includes much lower levels, this guidance has remained in draft form for over five years and has not been published for public review and comment. The guidance cites a standard of "...no more than 'a few millirem/year.'"⁴ However, this guidance has never been subjected to public scrutiny and it remains unclear what exactly is meant by a "few" millirem, and thus what the standard is for measuring the performance of these sites.

The appropriate action to address the disposal of LARW is a rulemaking that provides for disposal of LARW at sites regulated under the *Atomic Energy Act*. Such a rulemaking could be modeled after Part 61 but with changes to reflect the lower hazard of LARW. Depending on the outcome of the rulemaking, it is expected that many existing RCRA sites could meet the new requirements with minimum additional burden. Such a rule would provide appropriate oversight through use of NRC and Agreement state licensing, inspection, and enforcement. It could provide for more efficient disposal practices and reduce transportation impacts.

The time is ripe to set this as a high priority. By establishing a rulemaking now to address LARW, the NRC would be affirming the 1982 statement of the Commission that

⁴ *Review, Approval, and Documentation of Low-Activity Waste Disposals in Accordance with 10 CFR 20.2002 and 10 CFR 40.13(a)*, Draft for Interim Use, EPPAD 3.5, August 2009, p. 7.



it “agrees with the importance of setting timely standards for disposal of certain wastes by less restrictive means.”