Studsvik

Via Electronic Mail

June 10, 2010

Honorable Gregory B. Jaczko
Chairman
Nuclear Regulatory Commission
Mail Stop O-16G4
Washington, DC 20555-0001

Re: Comments to Policy Issue Vote Paper on Blending of Low Level Radioactive Waste and Accompanying Analysis Issued April 7, 2010 (SECY 10-0043)

Dear Mr. Chairman:

Studsvik, Inc. ("Studsvik") submits the following comments on the Policy Issue Vote Paper on Blending of Low Level Radioactive Waste ("Vote Paper") and the Accompanying Analysis issued by Commission staff on April 7, 2010. These comments are for the Commission to consider as it reviews the staff's recommendations.

Studsvik recommends to the Commission that it not adopt Option 2 which allows large scale blending of low level radioactive waste ("LLRW"). As discussed below, there are significant drawbacks to that option: the Class B/C LLRW that would be downblended with Class A LLRW is *not homogenous*; large scale blending would *reduce safety and environmental safeguards*, and significant volumes of *Class B/C LLRW would continue to be stranded.* When these facts are taken into consideration the proposal does not meet the Commission's standards for a risk-informed, performance-based approach to environmental and safety regulations for radioactive waste.

Homogeneity

The different types of waste that are being considered for large scale blending – Class A LLRW and Classes B/C LLRW – are ***not*** homogeneous. According to NRC's guidance (Savannah River Site High Level Waste Tank Closure: Classification of Residual Waste as Incidental, 1999, p. 20), homogeneous wastes are defined as:

"A homogeneous waste type is one in which the radionuclide concentrations are likely to approach uniformity in the context of the intruder scenarios used to establish the values included in Tables 1 and 2 of 10 CFR 61.55."

A separate technical analysis sent by Studsvik to the Commission today examines attempts to blend different types of ion exchange resins and concludes:

"Blending is not an appropriate technique for the disposal of ion exchange resins that have widely different activity levels and different particle sizes or densities, as the heavier bead resins with one level of activity will mostly settle to the bottom of the disposal container while the lighter bead resins or much smaller powdered resins will mostly accumulate near the top of the disposal container producing a final dewatered disposal container that is highly segregated by resin type, density, particle size and/or by relative activity."

> (Studsvik Memo, "Issues with Blending of Different Types of Ion Exchange Resin," June 10, 2010, p. 9)

That analysis also determines that it may not be possible to achieve radiological homogeneity in blended waste.

Given the results of this analysis, Option 2 would allow large scale blending of non-homogeneous forms of waste – ions that can be differentiated in nature.

Homogeneity is a key component of and will affect the intruder site assessment to be addressed in the rulemaking on unique waste streams. As noted above, there are questions about the technical feasibility of blending to create homogenous wastes that the Commission should carefully examine. Therefore, regardless of which option the Commission selects, any issues relating to homogeneity should be addressed only in a regulation, not in guidance as recommended in the Vote Paper.

Reduction of Intruder Safety and Environmental Safeguards

Large scale blending will result in lowering the environmental and safety requirements for the disposal of Class B/C LLRW and will erode the public's confidence in the safety of LLRW disposal. WCS submitted a study to the Commission showing that large scale blending results in waste that is 450 times higher than the NRC standard for A level waste 100 years after disposal (WCS January 29 letter). The Vote Paper also acknowledges that blended waste poses an unresolved safety question with respect to the inadvertent intruder. Specifically, the Accompanying Analysis to the Vote Paper determined that:

> "{T}he specific concern with proposals for large-scale blending is that significant fractions of waste in one area in a disposal facility, corresponding to a large shipment of blended waste, could have radionuclides at or just below the Class A disposal limits. This configuration would pose a greater risk to an inadvertent intruder than smaller batches of waste with the same radionuclide concentrations because the intruder would be more likely to exhume a significant volume of waste near the Class A limit unmixed with lower concentration waste."
>
> (Section 3.2.2)

In response to safety concerns, the owner of the Clive, Utah disposal site has asserted to the Commission that blended waste will be disposed of with more safeguards than are required for Class A waste. This belies the fact that the industry recognizes that blended waste is more hazardous than Class A waste. In addition, without a regulation requiring explicit safeguards, there is no guarantee that these extra disposal measures promised by the Clive facility operator will be maintained in the future. The public expects the Commission as the responsible regulator to promulgate enforceable regulatory safeguards and not to rely upon merely voluntary practices to protect public safety and the environment.

The Vote Paper recommends that a "risk-informed, performance-based" approach justifies reducing the current regulatory safeguards. However, this kind of approach risks reinforcing the public perception that environmental and safety requirements for disposal are being compromised or circumvented through a practice that undermines the current classification system.

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Stranded Waste

The Vote Paper and Accompanying Analysis give inadequate attention to the problem of stranded waste. According to the Electric Power Research Institute ("EPRI"), at least 5,000 cubic feet of Class B/C resin cannot be addressed by large scale blending, at least in part because there is an insufficient amount of Class A resin to successfully blend all Class B/C resin into Class A. The Vote Paper merely reports EPRI's findings without analyzing the true extent of the stranded waste, or the consequences stranded waste will have for the long-term stability of LLRW disposal options.

As a starting matter, EPRI's analysis does not account for non-resin Class B/C waste. Large scale blending does not address various other types of Class B/C LLRW such as irradiated hardware, sealed sources, filters, medical and scientific research waste. These wastes, by their nature, simply cannot be "blended" together with Class A waste. As such, unless a Class B/C disposal site opens to the 36 states left without a disposal path since the Barnwell site closed to them, 5,000 cubic feet of resin waste and all the non-resin Class B/C LLRW describe above will be stranded.

Medical research and treatment would bear a disproportionate share of the negative impact because Class B/C medical waste would continue to be stranded. Increasing storage costs for these wastes would only multiply the difficulties for medical researchers.

The Commission must carefully examine the possible consequences large scale blending will have for stranded waste and the long-term stability of LLRW disposal options before it makes any changes to its policy on blending.

Alternatives to Staff Recommendation

For all the reasons stated above, Studsvik recommends that the NRC adopt Option 4 in the Vote Paper and modify 10 CFR Part 61 to prohibit large scale blending by waste processors because it is tantamount to intentional mixing to lower the waste classification. Further we recommend that 10CFR Part 20, Appendix G be modified to explicitly codify the long-standing industry practice – that waste be classified at the time it is prepared for shipment from a generator's facility, i.e., before being sent to an intermediate processor prior to disposal.

This approach also reflects the position that the nuclear waste regulatory authority in Utah, the only state with a disposal site that can accept blended waste, has taken on blending. The Utah Radiation Control Board recently passed a Position Statement on Down-Blending Radioactive Waste and a Policy Maintaining Waste Classification System Integrity that express the Board's opposition to waste blending when the intent is to alter the waste classification for the purposes of disposal site access and call for maintenance of the current radioactive waste classification system.

As outlined above, there are clear safety benefits for choosing Option 4. When coupled with volume reduction by processors, Option 4 would decrease LLRW volumes. As the Vote Paper recognizes, this option addresses stakeholder concerns that environmental and safety requirements for disposal are not being compromised or circumvented through a practice that undermines the current classification system. Under Option 4 generators would continue to have flexibility under the Branch Technical Position on Concentration Averaging and Encapsulation ("BTP") to mix waste when, for example, it results in operational efficiency or reduced worker exposure.

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Should the Commission choose to adopt the staff's recommended Option 2 in the Vote Paper, the Commission should use formal rule-making processes, including notice and comment, to make any changes in policy which would allow large scale blending. In addition, the Commission should direct that the environmental impacts of the proposed new regulation be fully assessed under the National Environmental Policy Act. Specifically, criteria for homogeneity and sampling should be implemented through rulemaking. Implementation of these criteria through guidance as recommended under Option 2 risks engendering the same uncertainty and varying interpretations among industry that exists now with blending. Homogeneity is a key component of and will affect the intruder site assessment to be addressed in the rulemaking on unique waste streams, making it vital that its requirements and standards be set by rule.

Regardless of which option the Commission selects, it should state publicly that no large scale blending will be allowed under current NRC guidance while the Commission formally adopts new regulations and/or guidance setting forth the standards under which blending would be permitted.

This public clarification is necessary to remove confusion that arises from several statements in the Accompanying Analysis to the Vote Paper. The Analysis states that until the Commission's decision is fully implemented the staff would be authorized to respond to individual stakeholder requests to allow large scale blending using current guidance in the BTP. When coupled with a series of letters sent last year from the NRC staff to various stakeholders which have been interpreted by some in the industry to allow large scale blending under the BTP, these statements in the Analysis effectively could establish large scale blending as accepted industry practice prior to implementation of the Commission's decision.

Sincerely,

Joseph DiCamillo
General Counsel

cc: Via Electronic Mail
Commissioner Kristine L. Svinicki
Commissioner George Apostolakis
Commissioner William D. Magwood, IV
Commissioner William C. Ostendorff
Rochelle Bavol
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