NRC Staff Analysis of Studsvik's August 7, 2009, Comments on Blending

Studsvik comment	Analysis
Studsvik's stabilization process for LLW (THOR) reduces risk of contamination and increases stability of a disposal site. NRC should encourage the use of such technology.	As a regulator, NRC does not encourage the use of specific or proprietary technologies by its licensees. Rather, NRC regulations for disposal in 10 CFR Part 61 are performance-based and licensees may meet them through a variety of different approaches.
NRC's regulations and BTP clearly spell out NRC's existing policy that waste streams may not be mixed solely to reduce the resulting waste classification.	NRC regulations do not prohibit blending nor is it explicitly addressed in the regulations. With respect to the staff guidance in the Concentration Averaging Branch Technical Position (CA BTP), a comment resolution appendix to that document states that mixing should not be undertaken *solely* [emphasis added] to lower the classification of any specific waste in a disposal container. Section 3.1 of the CA BTP notes that there may be other reasons for mixing waste, stating that a collection of homogeneous wastes, for the purposes of operational efficiency or worker dose reductions, is not considered mixing for the purposes of the position. The CA BTP recommends constraints on mixing, but homogeneous wastes collected in a licensee's facility for the above reasons are not subject to these constraints.
Commission re-affirmed the above position in an October 16, 2006, letter to Alaron.	The Alaron letter states that mixing should not be performed solely to lower the waste classification. Alaron did not ask about the exceptions discussed in the BTP, so these were not addressed in the response. Thus, the Alaron letter is a response to a specific, narrow question. The Alaron letter also notes that ". . . if waste is mixed in accordance with the guidance in the BTP, resulting changes in waste classification are acceptable."
Large scale blending by a third party is outside the scope of the BTP.	The BTP does not address, except as noted above, the scope of blending by licensees. Current industry proposals, however, seek to expand the historical practice of blending. The staff will address this change in a vote paper for the Commission.
The Commission has stated that "extreme measures should not be taken when performing concentration averaging to determine waste classification. Extreme measures include (1) deliberate blending of lower classification waste streams with high activity waste streams to achieve waste classification objectives." *Draft Interim Concentration Averaging Guidance for Waste Determinations, 74 FR 74846 (December 16, 2005).*	This position quoted is from *draft* guidance issued for public comment, for another NRC program—not Part 61 LLW disposal. After consideration of public comments on this draft document, a revised position on blending was issued in NUREG-1854, "NRC Staff Guidance for Activities Related to U.S. Department of Energy Waste Determinations." This guidance states that "Extreme measures [should not be taken and] may include . . . deliberate blending of lower concentration waste streams with high activity waste streams *solely* to achieve waste classification objectives*, although blending may be needed for*

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	waste management purposes [emphasis added]. Thus, the final guidance is generally consistent with the CA BTP guidance above, but the draft position quoted is neither applicable nor current because it is draft guidance for another program.
There are significant technical, environmental, safety and policy issues for industry blending proposals and further studies are needed. A rulemaking should be used to resolve them, with public input.	The Commission will be addressing any policy issues raised by blending. In the meantime, safety, technical and environmental issues should be addressed by the regulator evaluating specific proposals.
The Commission must consider the effect of any policy changes in light of State and compact statutes, rules, regulations, and policies, particularly in those States and compacts with disposal sites. See Texas rule prohibiting dilution and Utah rule prohibiting B/C disposal.	The staff will inform the Commission of these factors in any policy deliberations. The staff is aware of the Texas regulation that prohibits dilution that reduces the waste class. Texas Administrative Code provision 30 TAC §336.229, "Prohibition of Dilution," states the following: "No person shall reduce the concentration of radioactive constituents by dilution to meet exemption levels established under the Texas Health and Safety Code, Chapter 401, §401.106, or change the waste's classification or disposal requirements. Radioactive material that has been diluted as a result of stabilization, mixing, or treatment, including, but not limited to, Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDR) treatment, or for any other reason, shall be subject to the disposal regulations it would have been subject to prior to dilution." It is not clear whether the term "dilution" means mixing of waste with clean material (which NRC staff defines as dilution) or mixing of waste with waste (which NRC staff defines as blending). Staff will obtain clarification from the Texas Commission on Environmental Quality in considering impacts on Agreement States of any new positions on blending. With respect to the Utah rule, Class A waste that has been blended from Class B/C concentrations is Class A waste. The concentration of waste at intermediate points in its processing does not affect the waste classification for disposal. There is no license application pending for Class B/C disposal in Utah.
The BTP places constraints on blending of homogeneous wastes, such as the "factor of 10" rule, which does not allow intentional mixing solely to lower the waste classification. See NRC staff letter to Alaron dated October 16, 2006.	The Alaron letter states that " . . if waste is mixed in accordance with the guidance of the BTP, resulting changes in waste classification are acceptable." The BTP also states that when operational efficiencies or worker dose reductions are achieved through blending, the BTP guidance, which

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	recommends constraints on blending, does not apply.
NRC approves intentional mixing as long as classification of waste determined under NRC regulations is not altered (i.e., changing Class B/C to Class A waste). (NUREG-1757).	This statement has been taken out-of-context. NUREG-1757, "Consolidated Decommissioning Guidance," applies to sites undergoing decommissioning only and the position presented does not supersede the staff guidance in the CA BTP. Class B/C waste is not a significant issue for contaminated soil, the main subject of the intentional mixing provisions in NUREG -1757.
A party who mixes any wastes in order to change their classification under section 61.55—regardless of whether those wastes are subject to Appendix G's [of 10 CFR Part 20] manifest and tracking requirements—accordingly violates 61.55 and the BTP.	The waste classes in 10 CFR 61.55 are designed to protect an inadvertent intruder into a disposal facility. As noted earlier, NRC regulations do not require that waste be classified until the time that waste is shipped for disposal. The CA BTP is guidance; therefore it cannot be used to establish a violation of a regulation. Further, the CA BTP, as noted earlier, allows for blending by licensees under certain conditions.
There is no disposal site that can accept blended waste in the U.S. so a change in NRC's policy makes no practical sense. A regulation is pending before the Utah Radiation Control Board that will clarify the intention of State law to prohibit blending that changes waste class. Blending would also violate an agreement between the company and Governor. Texas regulations also prohibit blending.	Our letter simply addresses what the NRC regulations and guidance state regarding blending, and notes that States have authority to deal with it under the Agreement State program. The Energy*Solutions* disposal license posted online states that the CA BTP may be used and that Class A waste is acceptable for disposal. The staff is following the petition for rulemaking in Utah. As noted earlier, the Texas regulation prohibits dilution to reduce the concentration of radioactive constituents to meet exemption levels or change the waste's classification or disposal requirements. Again, it is not clear whether the term "dilution" means mixing waste with clean material or mixing waste with waste.
Mixing B/C waste for disposal as A at Clive will rapidly deplete this site's limited space.	The staff does not have specific information on the potential impacts of blended waste disposal on capacity at Clive, but will request additional information on this issue from stakeholders in a public meeting and in a formal request for public comments on blending.
Blending down to Class A doesn't eliminate the fact that this is Class B/C waste being disposed of. Therefore, there are negative environmental or safety consequences	The waste classification is defined by the concentrations of radionuclides at the time of disposal. If waste is disposed that meets the concentration limits for Class A, then it is Class A waste. A licensee receiving such waste should evaluate the safety and environmental impacts to ensure that the performance objectives in the disposal regulations are still met.
Blending will substantially increase the amount of radioactivity present in Class A waste.	Blending of B/C waste concentrations would increase the amount of radioactivity disposed of as Class A waste. The extent of the increase would depend on the extent of blending.