

April 15, 2011

## **CORAR COMMENTS TO THE NRC ON LLRW BLENDING**

### **CORAR COMMENTS ON NRC QUESTIONS RELATED TO BRANCH TECHNICAL POSITION**

**Q1. "NUREG-1854, NRC Staff Guidance for Activities Related to U.S. DOE Waste Determinations...How could approaches in that guidance be used in revising the CA BTP?"**

CORAR is not currently familiar with this guidance but would be interested in providing comments on approaches that the NRC is considering adopting for commercial LLRW disposal. We shall also consider reviewing this guidance prior to the October 2011 public meeting.

**Q2. "...should NRC consider revising the 30 Ci in 0.2 m<sup>3</sup> recommendation found in the CA BTP?"**

CORAR understands that the difference in concentration values in 10CFR61 and the CA BTP for Cs-137 is due to the difference between homogeneous and heterogeneous waste. However, perhaps the NRC should review why the difference is a factor 30 and not 10.

**Q3. "Given the NRC's move towards site- and waste- specific analyses to demonstrate protection of the intruder- is the CA BTP necessary, or could it be eliminated?"**

CORAR is concerned that because material licensees generate small quantities of thousands of radwaste forms it would be impractical to perform site- and waste-specific assessments for all these waste forms.

**Q4. “The volume over which waste concentrations are averaged has a significant effect on waste classification...averaging over waste package...volume of waste that an inadvertent intruder would be exposed to, or the volume of a disposal trench.”**

The intent is to protect the inadvertent intruder and it seems logical to CORAR that the exposure model should use the volume that the intruder is exposed to. If this volume is significantly larger than the individual waste package this could allow the waste generator more flexibility in how to best package their waste. For example, higher concentration waste could be placed in a few of these packages provided that the average concentration in the packages that the intruder is exposed to is protective. This could avoid the need for the generator to divide a batch of radwaste into multiple containers as is commonly done with potent radionuclides such as Sr-90 and high energy gamma emitters on radiochemical manufacturing sites. This could avoid some of the occupational exposure incurred measuring, separating and packaging the radwaste.

**Q5. “Should NRC also move away from the “factor of 10 rule” for non-primary gamma emitters and away from the “factor of 1.5 rule” for primary gamma emitters?”**

CORAR is concerned that while the NRC’s intent could be appropriate for assessing large volumes of a unique waste form it could be impractical for thousands of small volume waste forms generated by material licensees.

**Q6. Concerning limits on what types of LLW that can be blended including blending cartridge filters and sealed sources.**

CORAR needs further time to research this issue.

**Q7. “GTCC waste is a Federal responsibility and...should not be made a State responsibility,...when should waste be classified.”**

CORAR strongly supports the current regulatory provision that radwaste be classified when it is ready to be shipped for disposal. This is a performance based requirement as it is based on the actual waste to be disposed and not on the prior waste management process. In current practice the waste offered for disposal is not GTCC and consequently GTCC waste is not a State responsibility.

**Q8. "How should NRC consider heterogeneity in waste concentrations in the site-specific intruder analysis?"**

**Q9. "... How do other programs for managing and dispose of waste treat protection of an inadvertent intruder?..."**

CORAR needs further time to research these issues

## CORAR COMMENTS ON NRC SUMMARY OF EXISTING GUIDANCE FOR REVIEWING LARGE SCALE LLRW BLENDING PROPOSALS, Dated March 17, 2011.

It would be helpful to licensees if the NRC clarified what is meant by "large-scale blending". For example very small quantities of LLRW from material licensees are blended by commercial processors to form Class A waste for disposal. Given the current quantities we consider this to be small-scale blending.

**Cover note, Page 1-2 , First "Discussion: paragraph, Licensees should be advised that new requirements and guidance in the final Part 61 site-specific analysis rulemaking and CA BTP may require an update to the processes and procedures for any blending activities that are approved under this interim guidance."**

CORAR is concerned that any changes in blending processes and procedures may have the unintended consequence of stranding radwaste in process or in extended storage. Manufacturer licensees' production and radwaste management operations are carefully integrated and optimized in dedicated facilities using complex equipment. Changes to these facilities are only made when there is a clear benefit in safety, security, efficiency and/or cost-effectiveness. Less beneficial changes could be accommodated by deferring them until the licensee business cycle requires renovations of facilities. This might be acceptable for material licensees because the quantity of LLRW disposed is unlikely to significantly affect the disposal site performance.

**Enclosure, Page 7, paragraph 4, "The BTP on Radioactive Waste Classification (NRC, 1983) indicates that licensees should determine radionuclide concentrations to within a factor of 10."**

The concentration of the different LLRW forms generated at licensed manufacturer facilities are quantified with a range of precision. Typically heterogeneous wastes such as building rubble from decommissioning and laboratory trash can be difficult to quantify and the tendency is to over estimate. However, this waste usually contains very little radioactivity. Most of the radioactivity in manufacturer's LLRW is in disposed radiochemicals and sealed sources that can be assayed very accurately, well within a factor of 2. However, when it is necessary to divide this radwaste between multiple containers to meet burial and/or transportation requirements, the quantity in each container is likely to be estimated with less precision than the total quantity. This is probably not significant if these containers are placed together in the disposal site. If the disposal site model assumes the inadvertent intruder to be exposed to the average concentration of multiple containers it might be better to use the more precise estimate for the total activity.



**Enclosure, Page 8, "Homogeneity"**

CORAR is not aware of any discussion concerning heterogeneous LLRW in Type B High Integrity Containers (HIC's). These are designed to essentially isolate the radwaste until its radioactivity decays to insignificant concentrations and is unlikely to be exhumed by an inadvertent intruder when the concentrations are significant.

**Enclosure, Page 9, "Dosimetry"**

In this section the recommendation is to base dosimetry on TEDE. However, NRC is considering harmonizing radiation standards with ICRP 103 recommendations and using TED instead of TEDE.

**Enclosure, Page 9, "Greater-than Class C waste...(i.e., blended waste should not include a GTCC component)."**

This is confusing to CORAR since the LLRW is not classified until ready for disposal after it has been blended and when it is not GTCC. If the Commissioners' intent was to avoid removing GTCC LLRW from extended storage and reprocess it by blending to a lower classification, this should be clarified.