

August 18, 2009

NOTE TO: File

FROM: James Kennedy */RA/*

SUBJECT: LETTER TO L. CAMPER FROM TALISMAN, INTERNATIONAL

The document below is being submitted at this time for public release with the above date as the release date.



August 3, 2009

Larry Camper, Director  
Division of Waste Management and Environmental Protection  
Office of Federal and State Materials and Environmental Management Programs  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

NRC recently published a notice, 74 FR 30175 (June 24, 2009), to solicit public input on major issues associated with a potential rulemaking for land disposal of unique waste streams. The notice addressed unique waste forms including depleted uranium. We are following this discussion with interest. One waste stream that should be included in this discussion is disposal of enriched uranium.

NRC also recently published a notice, 74 FR 31994 (July 6, 2009), accepting for review an amendment to an existing license that addresses planned disposal of NRC licensed material including highly enriched special nuclear material (SNM). The amendment request relies on the 10 CFR 20.2002 process which is much less formal and rigorous than Part 61. The amendment also seeks to exempt SNM and byproduct material from regulation under the Atomic Energy Act. If such an exemption is granted, it would allow a non-licensed disposal site to dispose of highly enriched SNM with half lives of thousands of years.

As noted in SECY-08-0147, Enclosure 2:

To ensure safety and the protection of the environment, Part 61 provides detailed requirements for the performance of LLW disposal facilities, along with specific siting, design, operations, and closure requirements. Although most of the radioactivity in LLW generated by NRC licensees is disposed in facilities licensed under Agreement State regulations compatible with and/or similar to Part 61, 10 CFR 20.2002 continues to be available for use by licensees for wastes that are a small fraction of the Class A limits contained in Part 61, and for which the extensive controls in the Part 61 are not needed to ensure protection of the public health and safety and the environment.

While Talisman understands why licensees want to use the informal 10 CFR 20.2002 process, in the past we have taken issue with the 10 CFR 20.2002 approach. We believe that disposals of licensed material should not be done through an exemption process. Rather, we believe disposal of licensed material, especially unique material such as highly enriched SNM should be reviewed within a regulatory framework under the Atomic Energy Act that would allow for NRC and Agreement State control and oversight. We have previously provided our views on using an Atomic Energy Act

process for the disposal of very low-level waste rather than the 10 CFR 20.2002 approach.

We have not conducted an analysis of disposing highly enriched uranium in a landfill. However, in our view, the NRC should address the following issues in considering whether to use the exemption process for the disposal of highly enriched SNM and allow otherwise licensable material be disposed on in an unlicensed, non-Atomic Energy Act regulated facility:

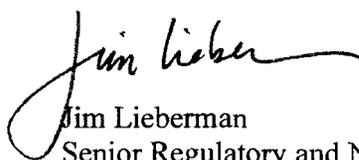
- 1) A performance assessment approach based on the performance objectives of Part 61 should be applied rather than a license termination rule (LTR) approach based on Part 20, subpart E.
- 2) The time period for an analysis should adopt the peak dose approach of NUREG-1573 and not rely on the 1000-year time period of the LTR given the long half lives involved.
- 3) The necessary performance assessment should consider all isotopes that have been disposed at the disposal site so that the assessment takes into consideration the previous accumulation of disposed material as well as potential for future disposal of material.
- 4) The stability of the site should consider the disposal operations including how the materials are buried, compacted, and potentially eroded with time.
- 5) Given the half lives of the SNM, the analysis should address reconcentration of the SNM that would have to be considered at a Part 61 site. This should include the impact of leachate control with its potential for reconcentration in the leachate system.
- 6) The performance assessment should consider all pathways including the intruder scenario. The basis for the scenarios considered should be explained.
- 7) Criticality is a potential issue with SNM. Criticality controls at the disposal site and during the transportation process should be considered. This includes controls on moisture during shipping and cleaning trucks and rail cars; configuration controls once material leaves the generator's site including the transshipment from rail cars to dump trucks; and need for radiation surveys of trucks and rail cars used in transportation
- 8) Material control and accounting (MC&A) is an issue with enriched SNM. MC&A should be considered at the disposal site and during transportation process similar to controls required at the generator's site.

9) NRC should consider requiring a full environmental report that would support an EIS given the unique nature of the disposal and the cumulative impacts at the disposal site.

Based on our experience this amendment request is a unique and novel application of 10 CFR 20.2002. We are not aware of any previous application of this regulation to SNM of this enrichment or quantity. We believe that disposal at an unlicensed disposal site for SNM, especially at this enrichment level, goes beyond what was contemplated when section 20.2002 was adopted. This raises a question as to when a disposal activity requires use of a licensed site. In light of these issues, Talisman recommends that the staff consult with the Commission before a decision is made on this matter.

In summary, Talisman questions whether use of 10 CFR 20.2002 is appropriate for unique waste streams such as highly enriched SNM.

Sincerely,

A handwritten signature in black ink that reads "Jim Lieberman". The signature is written in a cursive style with a large initial "J" and a long horizontal stroke at the end.

Jim Lieberman  
Senior Regulatory and Nuclear Consultant  
at Talisman International

cc:  
Charlie, Miller, FSME  
Bill Borchardt, EDO  
Steve Burns, OGC