



October 30, 2009

Michael Lesar
Chief, Rulemaking and Directive Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Subject: Comments on Potential Rulemaking for Safe Disposal of Unique Waste Streams Including Significant Quantities of Depleted Uranium – 74 FR 30175

Dear Mr. Lesar:

We are filing these comments on behalf of Talisman International, LLC, in response to the subject notice. In our view, it is important to establish a clear requirement in 10 CFR Part 61 to perform performance assessments to ensure sites meet the performance objectives of Part 61. In that regard, there are several fundamental changes that need to be made to Part 61 to strengthen that requirement. Other matters to improve the implementation of Part 61 can be treated by NRC guidance. Our comments are contained in the attachment.

Questions regarding these comments may be directed to Jim Lieberman at (301) 299-3607 or jl@lieblet.com and to John Greeves at (301) 452-3511 or greevesj@aol.com.

Sincerely,

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Comments on Potential Rulemaking
Safe Disposal of Unique Waste Streams including
Significant Quantities of Depleted Uranium

We support the concept of a rulemaking to specify a requirement for a site-specific analysis and associated technical requirements for the disposal of significant quantities of depleted uranium as directed by the Commission in *Staff Requirements—SECY-08-0147—Response to Commission Order CLI-05-20 Regarding Depleted Uranium*.

1) 10 CFR 61.13

The issue before the Commission is what changes should be made to 10 CFR Part 61 to ensure that large quantities of depleted uranium and other unique waste streams are disposed safely. In our view the solution to this issue is to a large degree clarifying the requirements to perform a site specific performance assessment demonstrating that the performance objectives of Part 61 are met. This is consistent with the view of the Commission in the Louisiana Energy Services proceeding, CLI-05-05 at page 11, January 18, 2005, that:

In the end, the "bottom line for disposal" of low-level radioactive wastes are the *performance objectives* of 10 C.F.R. Subpart C, which set forth the ultimate standards and radiation limits for (1) protection of the general population from releases of radioactivity; (2) protection of individuals from inadvertent intrusion; (3) protection of individuals during operations; (4) and stability of the disposal site after closure. Thus, while there may not yet be detailed technical criteria established for all of the kinds of land disposal that might be proposed under Part 61, criteria can be developed "on a case-by-case basis," as needed. After all, any technical requirements are "intended to help ensure that the performance objectives established in Subpart C are met," but they are "not the end in themselves, ... [only] a means of achieving the end," which are the performance standards. (Citations omitted)

Currently, 10 CFR 61.12 and 13 addresses the need to demonstrate that the performance objectives will be met. However, these provisions have been interpreted by some to not require the submittal of a site specific performance assessment. As to protection against the intruder, NRC appears to have accepted the provisions of 10 CFR 61.52 (a)(2) for either five meter depth or the 500 year intruder barrier to meet the performance objectives of 10 CFR 61.42. While these depths and barriers may be sufficient in many cases to meet the performance objectives, without a site specific performance assessment there is not assurance that the performance objectives will be met for all waste packages regardless of the radionuclides.

Therefore, we recommend that 10 CFR 61.13 be clarified to require that the analyses required to demonstrate that the performance objectives of subpart C of part 61.41 and 61.42 will be met include a site specific performance assessment. We also recommend

that there be periodic updating of the performance assessment to reflect changed conditions at the site, past disposal history, and new methodology, if any. This is consistent with the approach taken by DOE at its disposal sites under DOE Order 435.1.

In addition, we recommend that this amendment adopts a Part 61 compliance a period of 10,000 years consistent with NUREG 1573 and 40 CFR 191. However, recognizing the peak dose may occur after this period, we recommend that the rule require a qualitative analysis if the peak occurs beyond 10,000 years for input into the environmental analysis consistent with section 3.2.3 of NUREG-1573, A Performance Assessment Methodology for Low-Level Radioactive Waste Disposal Facilities (2000), to determine if there is a need for environmental mitigation. This is also consistent with Section IV.A.6 of the Decommissioning Criteria for the West Valley Demonstration Project at the West valley Site (67 FR 5003, 5006, Feb 1, 2002). See also section 4.1.1.1 of NUREG-1854, NRC Staff Guidance for Activities Related to US DOE Waste Determinations (2007). A period of compliance in the rule would assure consistent assessment of compliance by all parties.

Recognizing that performance assessments require the use of assumptions and scenarios, we also recommend that the proposed language provides that the assumptions and scenarios used in performance assessments be reasonably foreseeable to avoid undue speculation and overly conservative approaches. NRC should permit licensees to justify, site-specific assumptions and exposure scenarios based on reasonably foreseeable circumstances to evaluate the critical group that could reasonable encounter material that is released from the disposal cell after the institutional control period based on reasonably foreseeable circumstances. This would include residential use; farming; resident farming; and any other reasonable use consistent with the current environment of the specific site. For example, a site would not be expected to consider a groundwater pathway if the groundwater was not useable for irrigation or human consumption. In addition, the assumptions for the performance analyses would not need to project changes in society, the biosphere, human biology, or increases or decreases of human knowledge or technology except for foreseeable changes to the geology, hydrology, and climate based upon cautious, but reasonable assumptions of the changes in these factors that could affect the disposal site. The actual details for performing performance assessments consistent with the regulatory language would be treated in NRC guidance which can be updated periodically by the NRC without a rule change.

Specifically, we would recommend that the introductory sentence of 10 CFR 61.13 be amended to read:

The specific technical information must also include the following analyses needed to demonstrate that the performance objectives of subpart C will be met: a site specific performance assessment to demonstrate that the performance objectives of subpart C of this part will be met. The performance assessment would need to be updated for Commission approval at a five year frequency unless the license provides an alternative period for updating it. The performance assessment shall include the following analyses

and be preformed for a compliance period of 10,000 years using reasonably foreseeable assumptions and scenarios. If the peak dose occurs after 10,000 years, a qualitative analysis shall be prepared up to the time of the peak dose for consideration in the site's environmental evaluation.

2) **10 CFR 61.13 (b)**

An important aspect of the performance assessment is to demonstrate that the performance objective for the intruder is met. Demonstration of meeting the applicable performance objective is currently in paragraph (a). Therefore, we recommend that the requirements for the analysis required in 10 CFR 61.13 (b) be amended to be consistent with section 61.13(a). Section 61.13(b) would read:

(b) Analyses of the protection of individuals from inadvertent intrusion must include demonstration that there is reasonable assurance the waste classification and segregation requirements will be met and that adequate barriers to inadvertent intrusion will be provided. The analyses must clearly identify and differentiate between the roles performed by the natural disposal site characteristics and design features in isolating and segregating the wastes. The analyses must clearly demonstrate that there is reasonable assurance that the exposure to humans from the release of radioactivity will not exceed the limits set forth in § 61.42.

3) **10 CFR 61.41**

We recommend that an amendment to section 61.41 be made to update the annual dose methodology to the newer methodology of ICRP 26 and 30 used in 10 CFR Part 20 rather than the methodology used in Part 61 based on ICRP 2 recommendations. This is consistent with the approach taken in sections 3.3.7.1.2 and 3.3.7.3.1 of NUREG 1573; footnote 6 of the Decommissioning Criteria for the West Valley Demonstration Project at the West Valley Site (67 FR 5003, 5005, Feb 1, 2002); and section 4.6.1.3 of NUREG-1854.

In addition, section 61.41 should be amended to be consistent with the period of compliance stated in the proposed amendment to 10 CFR 61.13. Section 61.41 would read:

Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants, or animals must not result in an annual dose exceeding an equivalent of 25 millirems total effective dose equivalent for a compliance period of 10,000 years 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of to any member of the public. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

4) 10 CFR 61.42

10 CFR 61.42 currently requires "...protection of any individual inadvertently intruding into the disposal site and occupying the site or contacting the waste;" however, the regulations are silent on the specific dose standard to apply. We recommend that section 61.42 be amended to provide a dose standard for an intruder of 500 mr/yr. This would provide in the rule the dose standard that currently is only stated in guidance. It is noted that the 500 millirem was the standard proposed in Part 61 in 1981. (46 FR 38081, July 24, 1981). The Statement of Considerations for the final rule did not object to the number. It was removed apparently at the request of EPA because of its concern of how one would monitor it or demonstrate compliance with it, but not because EPA disagreed with it. (47 FR57446, 57449 , December 27, 1982). A dose standard of 500 mr/yr is also used as part of the license termination rule dose standard for intruders (10 CFR 20.1403). A dose objective would assure consistent assessment of compliance by all parties.

Section 61.42 would read:

Design, operation, and closure of the land disposal facility must ensure protection of any individual inadvertently intruding into the disposal site and occupying the site or contacting the waste at any time after active institutional controls over the disposal site are removed. The intrusion must not result in an annual dose exceeding an equivalent of 500 millirems total effective dose equivalent for a compliance period of 10,000 years.

5) 10 CFR 61.55

If the Commission adopts the above changes, performance assessments would be the norm for disposal sites. However, such performance assessments would be performed initially when the applicant applied for its license and then periodically thereafter. There could be a situation where a licensee desired to dispose of depleted uranium or other radionuclide not addressed in the tables under situations where either the performance assessment had not considered the depleted uranium or other radionuclide, or the performance assessment had yet to be performed. This could be addressed by establishing a requirement that would provide for a site specific performance assessment if the quantity of the radionuclide to be disposed had not been previously considered in a performance assessment approved by the NRC. Such a performance assessment would need to meet the amended provisions discussed above. However, this does not necessarily mean that a new performance assessment would need to be developed. Depending on the scope and detail of an existing performance assessment, a current performance assessment may only need minor changes to update it to include the new radionuclide.

We recommend that 10 CFR 61.55 (a)(6) be amended to read:

(6) Classification of wastes with radionuclides other than those listed in Tables 1 and 2. If radioactive waste does not contain any nuclides listed in

either Table 1 or 2, it is Class A. However, before such waste can be disposed a performance assessment must be approved by the Commission.

6) Definition of Significant Quantity and Unique Waste Stream

The subject Federal Register notice sought input on how the NRC should define a “significant quantity” of depleted uranium and unique waste streams. In light of the recommended changes discussed above, it is unnecessary to define these terms as the performance assessment will address them.

7) Guidance vs. Regulation

Regulations provide for certainty, consistency, and enforceability. However, changing regulations entails significant effort and time. Guidance while not directly enforceable is easier to change over time. Consequently, it is our view that the fundamental objectives should be in regulations leaving the details for guidance. This leaves the regulator in the position to offer its positions on implementation to the industry as guidance and the industry the ability to defend other ways to implement the fundamental objectives. However, it is important that the development of guidance like regulations involve public input that would allow for public comments on drafts before such guidance is issued for use by either the staff or industry.

Accordingly, we recommend as indicated above that requirements include the need to demonstrate meeting of performance objectives through performance assessments, compliance periods, dose standards, and the standard for scenarios and assumptions used in performance assessments. However, the details for achieving compliance which are often site related should be in guidance. In that regard, the subject Federal Register notice addressed a number of issues for consideration in this rulemaking, e.g., geochemical parameters, impacts of radon gas releases, and details of performance assessments. In our view, the issues other than the ones we addressed above should be addressed in NRC guidance and not made a part of this rulemaking.

8) Implementation

It is recognized that existing licensees may need an appropriate time period to prepare quality performance assessments so that ongoing operations will not be unduly interrupted. It is suggested that the effective date be 12 months after publication in the Federal Register. However, recognizing it is difficult to predict how long it may take for a regulator to review and approve a performance assessment, the rule should provide that disposals made after the effective date may be made if the required performance assessment was submitted for approval at least six months prior to the effective date.