



Conference of Radiation Control Program Directors, Inc.

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August 9, 2012

Mr. Gregory Suber, Branch Chief
Low-Level Waste Branch
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
US Nuclear Regulatory Commission
Washington, D.C.

Mr. Suber:

I am writing you on behalf of the Conference of Radiation Control Directors (CRPCD) and in regard to the currently scheduled revisions to 10CFR61. The CRPCD respectfully submits the attached comments regarding the development of the technical basis for the proposed changes to 10CFR61.

If you have any questions or need more information regarding these comments, do not hesitate to contact me at 509/946-0234 or by email at <earl.fordham@doh.wa.gov>.

Sincerely,

Earl Fordham, CHP
Chairperson

Attachment

cc: Board of Directors
Jennifer Opila, E-5 Chairperson

SONSI Review Complete

Template = ADM-013

E-RIDS = ADM-03

A Partnership Dedicated to Radiation Protection

add =
D. Lowman (dbl4)
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CRCPD Comments on Potential Changes to 10 CFR Part 61

Period of Performance

CRCPD supports a tiered approach for the period of performance; a regulatory period using a reasonably foreseeable future date (e.g., 1000 – 10,000 years) for compliance with the dose standard, and a longer period extending to peak dose for informational (non-regulatory / non-compliance) use only. Under the policy of risk-informed performance based, a non-standard regulatory compliance period should be encouraged. Once controlling radionuclides are identified, site-specific modeling will yield the appropriate performance period. **It is also important that the public knows that conditions and consequences beyond that point are being considered in cases where risk increases with time and longer periods of performance may be appropriate (e.g. DU disposal).**

The waste classification tables in Part 61.55 were developed during the original promulgation of Part 61 and are appropriate for the majority of commercial low-level radioactive waste generated in the nation. While there is the “new” commercial waste stream of depleted uranium resulting from the enrichment process, this waste stream will not be disposed at all LLRW disposal facilities. The closed sites of West Valley, NY; Maxey Flats, KY; Sheffield, IL; and Beatty, NV did not receive these wastes. The currently operating LLRW disposal facilities at Barnwell, SC and Richland, WA are not accepting these waste streams. This waste stream is only proposed for disposal at the Clive, UT LLRW disposal facility owned and operated by EnergySolutions.

A graph presented by the NRC at a May 18, 2011 public meeting indicated that commercial LLRW decays to 1% of its original activity within a 500 year period while the decay curve for DU remains constant until 50,000 years before it appears to begin to increase. It doesn't make sense to burden the entire LLRW waste classification system and resulting disposal facility performance assessment requirements with a 20,000 year period of compliance when most facilities will not receive significant quantities of DU and will not experience the in-growth of daughter products from DU.

It also appears that the 20,000 year period of compliance is intended to include the extreme climate variations, i.e. glaciation. If the intent is to preserve the disposal facility and waste forms in a post-glacial environment, then that can only be accomplished using geologic disposal since any surface facility would be ground up by ice sheets (along with the rest of civilization in its path). For non-DU LLRW, this extended period of compliance is unnecessary since many of the most common isotopes in waste from nuclear power production will have decayed to a fraction of a percent of its original concentration and no longer presents an unacceptable hazard. Only facilities that receive significant quantities of DU should have a long period of compliance.

CRCPD supports a site-specific analysis for not only large quantities of DU, but to cover the entire LLRW inventory disposed at a facility. By having the complete inventory site analysis, the site operator and regulator are better informed about potential public doses. And new, previously unanalyzed, waste streams (e.g., DU) can be evaluated much faster and cheaper. If the analysis is periodically updated, a safety margin (e.g., sum of fractions for controlling radionuclides) can be determined and risk-informed decisions made.

The current NRC rules and guidance on evaluating long-term performance do not recommend taking credit for waste form or any engineered features beyond 300-500 years. The site-specific characteristics, geology, hydrogeology, and arid versus humid are presently considered when evaluating long-term performance of a disposal site. Due to the long timeframes for evaluating DU and the uncertainty with how waste form, disposal technologies, and cover technologies will perform over the long term, only studied, tested, and best available technologies should be considered. Disposal unit characteristics and, to a large degree, waste form characteristics cannot be relied upon for longer timeframes (i.e. beyond 500 years). Furthermore, performance periods based on other factors such as geochemistry within the disposal unit must be approached with caution. Taking credit for geochemical interactions, such as pH that retards transport, between the waste and the surrounding environment without sufficient study can make dramatic differences in when the peak dose occurs or if any dose occurs at all.

If the NRC chooses to base the facility's period of performance on waste packaging, waste form, disposal technologies, etc. then demonstrating meeting performance objectives may be burdensome or almost impossible for site development because this will add additional uncertainty in the analysis. Limited credit for engineered features may be appropriate on a case-by-case basis.

Longer timeframes of performance must be evaluated carefully with the understanding that regulatory decisions will be made with a greater emphasis on current policy rather than strict dose limits. Timeframes approaching millions of years for evaluating disposal of DU become purely speculative in nature as the uncertainty with future conditions and uncertainty with modeling parameters increases. In this regard, some might consider shallow land burial of DU unacceptable due to the uncertainties associated with major climatic changes, societal changes, and changes in geologic features caused by prompt consideration of a different type of land disposal for DU, possibly greater depth of burial. There is no geology, no climate, and no engineering design that can be expected to remain static for timeframes approaching a million years or more.

Based on comments previously submitted by the State of Utah on the initial Part 61 rulemaking, the ingrowth of DU progeny occurred at much shorter timeframes than what the NRC had originally determined in their DU disposal analysis. These shorter timeframes may be instructive in reducing speculation and uncertainty, at least to some degree.

Performance assessments can be done in many different forms (e.g., deterministic, probabilistic). NRC's methodology may be different than an Agreement State's. Understanding NRC's technical requirements for modeling would be beneficial as long as the requirements are guidance and not rule.

CPCPD fully supports the use of the most current ICRP dose methodologies during the development of the PA. Dose methodologies should be based on the best available science. Effects, if any, on the methodology for calculation of organ doses should be specified in the existing limits in 61.41. Once the PA is incorporated into the "final" product (whatever that may be, or be it a stand-alone document), states do not need to update the document unless they revise the "final" product.

Using Site-Specific Waste Acceptance Criteria Instead of the Waste Classification Tables

CRCPD supports the flexibility this action allows a site operator and state regulator.

Although not explicitly stated in Part 61, flexibility for establishing site-specific waste acceptance criteria has been understood by the current operational disposal sites. The performance assessment (PA) guidance document, NUREG-1573, suggests that if performance objectives cannot be met that limits on inventory be imposed. Texas has taken this approach and will continue to refine the PA to reflect changes in inventory and additional site-specific data over the operational life of the disposal site. Texas has a unique arrangement as compared to the other sited states in that Texas will take ownership of the site and the waste upon closure and license termination. The State of Texas has a vested interest in the waste types, waste forms, and specific criteria for waste disposal to ensure that performance objectives will be met now and in the future. Additionally, the Texas Radiation Control Act statutorily requires the State of Texas to develop waste acceptance criteria.

The flexibility exercised by a state must be limited to areas supported by the site's PA. In areas not supported by a site's PA, Part 61's WAC should be used. The new allowable waste concentration table values for shallow land burial still need to protect the inadvertent intruder. Isotopic table values need to be based upon site-specific waste form and packaging allowed, site characteristics, disposal practices, technologies employed, site appropriate scenarios and the probability of intrusion (currently assumed to = 1). Many of these factors are well established at the operating sites. Scenarios using probability of intrusion less than one should be permitted when obvious factors (e.g., USDOE burial grounds in close proximity) are present that would preclude abandonment.

The existing waste classification tables, even if modified with this rulemaking, should be retained. Allowing waste acceptance based solely on a PA is problematic. Too much uncertainty and subjectivity in a PA could allow disposal of wastes that fall outside the definition of low-level radioactive waste. Preserving the waste classification tables in 10 CFR 61.55 will ensure consistency with existing Utah law prohibiting the management and disposal of Class B and Class C low-level radioactive wastes in Utah.

The NRC would need to demonstrate, via the Federal Register, that this alternative approach is not a method that would intentionally or unintentionally circumvent the existing standards of health and safety practices utilizing the existing waste classification tables. It should not be left to the states to defend such an approach.

However, it should be recognized that the use of site specific waste acceptance criteria instead of existing waste classification tables, that could result in orphan waste streams. Compact sites, such as Barnwell for the Atlantic Compact, Richland for the Northwest Compact and Andrews County for the Texas Compact should accept all waste types that fall under the state's responsibility per the federal LLRW Policy Amendments Act.

Additionally, there needs to be language in the regulation that requires the waste generators/shippers (and therefore a responsibility of the NRC or Agreement State of generation to enforce the requirements) to rigorously demonstrate that the waste destined for a specific waste disposal facility does in fact satisfy the disposal site's specific WAC. A simple certifying statement alone would not satisfy such a requirement. Such a certification would need to be supported by documented evidence of compliance. The burden of protecting the populace and the environment is not the sole responsibility of the disposal site host state.

In developing site-specific waste acceptance criteria (WAC) it is important to seek input from all stakeholders. Licensee waste acceptance plans may not provide the specificity needed by generators to ensure their waste will be accepted without additional processing or re-packaging. A site-specific waste acceptance criteria (WAC) approach maintains doses As Low As is Reasonably Achievable (ALARA) and provides some certainty to generators that if their waste is packaged in a certain manner and meets all the criteria it will be transported and received ready for disposal.

Compatibility

It is in the interest of any sited State current or future to have a high degree of compatibility with regard to the protection of the general population from releases to the environment, inadvertent intrusion, site operation and closure. Other compatibility requirements should be more in the form of sound technical guidance that could be implemented by varying degrees based on site characteristics. If a new compatibility category is being considered for site-specific waste acceptance criteria, the NRC should allow flexibility through either the "D" or "H&S" compatibility category.