

Comments on NRC 10 CFR Part 61 “Low-Level Radioactive Waste Disposal; Proposed Rule” (RIN 3150–AI92; Docket ID NRC–2011–0012)

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We agree the rule needs to be updated to reflect changes that have occurred since the original rule was promulgated such as development of newer dose assessment methodology, and to reflect changes in waste streams. We agree the final rule should revise the existing technical analysis for protection of the general population to include a 1,000-year compliance period. We also agree the proposed rule should add and incorporate new site-specific technical analysis (using modern ICRP dose methods) and an explicit 500 mr/y dose limit for the inadvertent intruder.

The rest of our detailed comments address major areas of concern as follows:

New requirements established by this rule making should be applied to existing operating sites on a case by case basis through terms and conditions of licenses similar to how requirements of the initial Part 61 rule were handled through Section 61.1. Existing sites should not automatically be subject to all of the new requirements as has been proposed by the NRC staff during the public meetings;

The rule should clearly separate new requirements applicable to sites which desire to accept larger quantities of long lived material and develop site specific waste acceptance requirements, from those sites which will continue to use the existing Part 61 waste classification system. A new section 61.60 should be established to specify site-specific waste acceptance requirements. Do not modify existing section 61.58. This suggested approach would also eliminate the need for a separate new rulemaking to address waste classification for waste streams containing large quantities of long lived material;

A two-tiered analysis should be proposed rather than a three-tiered analysis approach. A two-tiered approach would be adequate to ensure safety through a 1,000 year compliance period and analysis to peak dose for long lived radionuclides present in disposed waste;

Eliminate from the proposed amendment revisions the extensive detail and unnecessary new requirements currently proposed. This would include eliminating the need for a separate safety case, the detailed defense in depth analysis, and the need for a new extensive stability analysis. Appropriate revisions to 61.7, 61.13, and the performance objective for stability should, therefore, be made accordingly; and

Add a new requirement to allow either development of site-specific Waste Acceptance Criteria (WAC) for LLRW disposal of unique waste streams (based on the results of the technical analyses) or continue to use the existing Part 61 LLRW classification requirements.

Following are further details by specific section or subject area:

Section 61.1

For those sited States that continue to use the existing classification requirements any new requirements should be determined prospectively on a case-by-case basis and implemented through terms and conditions of the license consistent with provisions in 61.1(a).

NRC's recent explanation of section § 61.1(a) Purpose and scope is a problem. Section § 61.1 states that "Applicability of the requirements in this part to Commission licenses for waste disposal facilities in effect on the effective date of this rule will be determined on a case-by-case basis." This language recognizes that new requirements introduced after a site is sited, licensed and operated under previous requirements would not necessarily be binding on either agreement states or operators that committed to, and were licensed under, specific site conditions and licensing requirements in good faith. NRC's staff interprets that this only applies to the early 80's timeframe. NRC's new interpretation is changing those commitments and licensing requirements and adding unnecessary burdens on agreement states, operators and generators by changing the criteria for long term operation, closure and decommissioning for a specific site as a form of back fit. NRC staff states this as an exemption. Exemptions are covered in 61.6, not 61.1. Without some form of grandfathering, agreement states will be subject to significant burdens and future litigation risks.

Back Fit

NRC should give serious consideration to adding a back fit protection provision to Part 61. The Commission adopted back fit rules for Part 50 and Part 70 to ensure that the costs and benefits of proposed new requirements would be thoroughly analyzed before being imposed on affected licensees. The same policy holds true for LLRW disposal facilities licensed under Part 61. It is important for Part 50 and Part 70 licensees, as well as the other LLRW generators that depend on the disposal facilities, to have protection against the imposition of new regulatory requirements or positions that have not been properly justified.

Proposed three-tiered approach

One of the questions NRC posed included "Is the proposed three-tiered approach (a compliance period, followed by a protective assurance period, followed by a performance period, if applicable) appropriate"? No, a three-tier approach is not appropriate. Establishing a three-tier approach is not efficient, clear or reliable. Implementation of a three-tier approach will be a significant burden on Agreement States, Operators and generators without added safety protection. A three-tier approach is inconsistent with DOE's LLW disposal practices and international recommendations. A two-tiered approach with a first tier compliance period of 1,000 years and an analysis out to peak dose as a second tier would be protective and is much clearer, efficient and reliable. A two-tier approach out to peak dose will provide adequate protection and close any current gap for risks that increase for long-lived radionuclides.

Defense in depth

The proposed rule should include a clear (explicit) statement that licensing decisions are based on defense in depth (DID) protections. The extensive proposed text explaining the “safety case” and describing its attributes should be removed and provided in guidance. The proposed language is not clear (understandable), efficient, and will be very difficult to implement reliably. Explicitly identifying and describing the features of the design and site characteristics that provide defense-in-depth protection should be required. However, no specific defense in depth new analyses beyond identifying and describing the features of the design and site characteristics that provide defense-in-depth protection should be required.

Draft Regulatory Analysis

The draft Regulatory Analysis of the proposed rule is inadequate. The proposed rule will be a significant burden on the Agreement States, Operators and generators. Staff has significantly underestimated the burden and cost of implementation of the complex proposal on the Agreement States, Operators and generators. The estimated costs (burden) of implementation are off by a factor of 2 or more. The burden and costs associated with recent applications for Depleted Uranium (DU) disposal exceed the estimated costs in the draft Regulatory Analysis.

The NRC fails to identify un-quantified liabilities created by the propose language. It will also likely generate extensive litigation risk for existing sites as closure plans are implemented.

Guidance or Rule language

The staff, in its goal to develop new requirements governing disposal of large quantities and concentrations of long lived radionuclides in a near surface disposal facility, has proposed a framework of requirements largely based on HLW guidance documents such as NUREG-1854 NRC Staff Guidance for DOE Waste Determinations. This extensive “how to” HLW guidance applied to all LLW disposal facilities is unnecessary and burdensome. The discussion is wordy, not concise, rambling and ambiguous. Discussions such as “insights serving as input for making regulatory decisions” are so broad, undefined, unclear and ambiguous as to be inappropriate in a regulation. Existing sites could consider early closure to avoid litigation risks incurred by the proposed rule amendments. As the State of Washington representative stated in the recent Commission meeting, the proposed rule will likely be a barrier for development of new sites for LLW disposal. The burdensome and unnecessary new language included in the proposed rule will deter investment in new disposal capacity. The extensive “how to” guidance should be eliminated.

Waste Acceptance Criteria

A Waste Acceptance Criteria (WAC) approach should be included. However, removing the current language in 61.58 and its intended flexibility for NRC and agreement states is not appropriate. The current language in 61.58 should be retained.

It is particularly important to retain the current requirements in 61.58 given the requirements in 61.55(a)(2)(iv) which rely on the provisions of 61.58 to provide a basis for approving "...proposals for disposal of such waste in a disposal site licensed pursuant to this part..." as specified in 61.55(a)(2)(iv). 61.55(a)(2)(iv) does not identify criteria which the Commission would use to approve such a proposal. The criteria are contained in 61.58.

It also important to retain 61.58 given the definition of TRU waste contained in the WIPP Land Withdrawal Act as amended by Public Law 104-201. The WIPP Land Withdrawal Act contains wording reflecting the provisions of 61.58 in section 2(18)(C) where it provides reference to "...waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with Part 61..." The provisions of Part 61 referenced in this portion of the TRU waste definition can only be those set out in 61.58, as there are no other provisions in Part 61 providing for such site specific case-by-case approvals.

The existing definition of LLW contained in Section 2 "Waste" should be amended through this rulemaking action to conform to the statutory definition of LLW contained in the Low-Level Radioactive Waste Policy Amendments Act of 1985. The term "transuranic waste" should be removed. The definition, taken from the LLRWPA of 1985, should read: "...radioactive material that is not high-level radioactive waste, spent nuclear fuel, or byproduct material (as defined in section 11e.(2) of the Atomic Energy Act of 1954..." Updating the definition would also serve to conform the definition of waste in Part 61 to the existing provisions in Section 61.1(b) dealing with purpose, scope and applicability of the rule.

In lieu of amending existing section 61.58, a new stand alone section 61.60 should be developed and added to the rule that addresses use of the WAC approach. We provide further details below and sections 61.7 and 61.13 should be modified accordingly. A new stand alone section 61.60 that addresses use of the WAC approach is described below.

Section 61.7 Concepts and Section 61.13 Technical Analysis

Section 61.7 Concepts has been overwhelmed by an attempt to provide detailed "how to" guidance in the rule. In general the proposal is an overreach with inclusion of extensive language taken from HLW guidance documents that is not appropriate for the LLW Section 61.7 Concepts. Technical analyses to assess the impact of site-specific factors over the longer term for new waste streams should be provided in a new stand alone section 61.60.

Similarly section 61.13 Technical Analysis has been overwhelmed with very extensive "how to" guidance in the rule. The exiting relatively simple and clear section 61.13, intended to require demonstration that the performance objectives of subpart C of this part be met, has been injected with HLW guidance on features, events, and processes taken from NUREG-1854. Section 61.13 (e) is not clear and will be very difficult to implement in a contested case. Table A is unclear and subject to interpretation, which will be a burden on states and operators.

Simply adding a subsection to 61.7 “concepts” to reflect the new structure and requirements in Part 61 governing acceptance and disposal of “the newer and additional waste streams” containing higher concentrations and larger quantities of longer-lived radionuclides would be useful. This would include reference to a new stand alone section 61.60 that would apply prospectively to new long-lived waste streams. It would specify the new incremental requirements and analyses that an applicant would need to complete in order to receive and dispose of the newer waste streams. The incremental requirements would be based on the proposed revisions to Sections 61.13, 61.42, and 61.58, modified to remove the “how to” guidance.

Hybrid waste acceptance approach

In the proposed rule, the NRC is proposing the hybrid waste acceptance approach (Option 3) as the regulatory LLRW acceptance framework for the near-surface disposal of LLRW.

NRC staff indicates that a currently operating site, or a new proposed LLW disposal site, could choose to continue to use and apply the existing waste classification system and associated waste form and disposal requirements set out in Part 61, or could apply a new set of WAC developed through the analyses prescribed in the proposed rule changes. For example, the staff states: “In defining LLRW streams with acceptable radionuclide concentrations or activities and waste forms, licensees or license applicants would be allowed to use either the results of the site-specific technical analyses set forth in 10 CFR 61.13, or the LLRW classification requirements in 10 CFR 61.55.” We support this approach and believe the alternative needs to be clearly delineated within the final rule and associated Statement of Considerations (SOC).

The hybrid waste acceptance approach provides a framework for the use of either the generic LLRW classification system specified in 10 CFR 61.55 or the results of the technical analyses required in 10 CFR 61.13.” This distinction does not appear to be clearly delineated in the rule changes. Rather, the rule changes, as proposed, appear to overlay on the existing operating sites and existing Agreement State regulatory agencies who desire to remain under the current regulatory regime set out in existing Part 61 an unnecessary new set of requirements (and extreme regulatory burdens). These new requirements should only apply to (1) existing sites which desire to accept and dispose of new waste streams containing higher concentrations and larger total quantities of long lived radionuclides, and (2) any new sites which desire to accept and dispose of the newer waste streams containing higher concentrations and larger total quantities of long lived radionuclides. The rule should not impose the new set of requirements on sited states that will not take new waste streams and desire to continue to use and apply the existing Part 61 requirements.

How this approach would be implemented by the regulator and operator is not clear. Who decides which approach is used, the regulator or the operator/applicant? Moving this language to a new stand alone section 61.60 would be efficient, effective and clarify that it applies only to any newer waste streams taken after the date of the new rule.

Technical analysis revision at closure

The requirement to revise the technical analyses at closure for existing sites that have met all previous requirements to date, unless new unexpected conditions are identified is a significant and unnecessary burden on both licensees and regulators.

Performance Objectives

The existing Performance Objectives have stood the test of time for over three decades and should not be expanded as proposed.

Section 61.41 Protection of the general population from releases of radioactivity should not be expanded, other than substituting "0.25 milliSievert (25 millirems)" for "the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ. The proposed additions are an unnecessary burden. Trying to demonstrate minimizing concentrations and releases will be an ordeal in any litigation.

Section 61.42 Protection of individuals from inadvertent intrusion should not be expanded other than adding "The annual dose must not exceed 5 milliSieverts (500 millirems) to any inadvertent intruder." Trying to demonstrate minimizing concentrations and releases will be an ordeal in any litigation. A 500 mrem/yr standard is an appropriate analytical threshold for inadvertent intrusion protection.

The proposed rule does not provide any substantive discussion of the technical or regulatory basis for the minimization requirements. It will create uncertainty and a moving target for affected licensees and LLRW generators. Neither the proposed rule nor the NRC's Regulatory Analysis for the rulemaking provides any technical or cost-benefit justification for the new minimization requirements. NRC should drop the proposed minimization concept from the final rule in view of the practical difficulties that will be created for implementing such a subjective requirement over thousands of years. NRC should rely on the specific dose limits set forth in proposed Sections 61.41 and 61.42, which would provide objective criteria for licensees, generators, and Agreement States to meet.

Section 61.44 Stability of the disposal site after closure should not be changed. The inserted language "for the compliance and protective assurance periods" should be removed. The insert will be an ordeal in any litigated case and is unnecessary.

NRC states, because NRC regulations already require a site stability analysis, the NRC does not anticipate any additional cost to the licensee resulting from the changes to 10 CFR 61.44. We disagree. Revised section § 61.44 Stability of the disposal site after closure is un-implementable. Requiring stability for 10,000 years is unreasonable. NRC, EPA and congress (Uranium Mill Tailings Remediation Control Act legislation) have recognized that requiring stability beyond 200 to 1,000 years cannot be proven. Current stability requirements for part 61 sites are largely met by complying with guidance developed for uranium recover facility sites that implement a 200 to 1000 year standard consistent with the URMCA requirements. Requiring stability for a 10,000 year period is unworkable and cannot be reasonably demonstrated. Other regulatory agencies do not have a comparable requirement for LLW disposal. Agreement states or operators will not be able to withstand adverse litigation in a contested hearing on proving stability for 10,000 years.

NRC Questions

One of the questions NRC posed included “Should there be a quantitative goal or dose limit associated with the performance period analysis, and if so, what should that goal or dose limit be?” A public dose limit of 25 mrem/yr and a 500 mrem/yr intruder dose limit are appropriate for adequate protection.

One of the questions NRC posed included “Is Compatibility Category B appropriate for the compliance period, protective assurance period, and the waste acceptance criteria?”

First we believe the final Performance Objectives, that we described above, should be Compatibly A or B. The Performance Objectives have always been considered the primary criteria for LLW disposal. Other Part 61 sections should allow states appropriate flexibility depending on local conditions.

We note some sited states (e.g., Texas and Utah) have already invested in siting, design and licensing conditions that are not compatible with the proposed rule language. The flexibility provided in section 61.1(a) should be maintained for such existing sited states.

We recommend in developing the final rule NRC seek greater consistency among the Agreement States, NRC and DOE for regulation of LLW.

Classification Tables

The present rulemaking should determine the appropriate disposal path for large quantities of DU and address whether the waste classification tables should be revised. The current proposal is to consider a future waste classification rulemaking that would include risk-informing the Section 61.55 waste classification tables. This would result in another lengthy rulemaking process with great uncertainty. Any subsequent changes to the waste classification of DU could require removal of DU waste already disposed of in certain LLRW facilities. Such uncertainty will delay the final decisions by many parties on disposition of DU waste. The NRC has not provided any basis for proceeding in this two-step manner. The NRC should not move forward with one rulemaking on criteria for waste disposal, and a delayed separate rulemaking that will address the waste classification structure for DU waste. NRC should resolve this issue now as part of the present rulemaking. The proposed changes in part 61 will close any gaps that exist in this rule and the waste classification Tables should not need to be revised.