

POLICY ISSUE INFORMATION

December 27, 2010

SECY-10-0165

FOR: The Commissioners

FROM: Charles L. Miller, Director
Office of Federal and State Materials
and Environmental Management Programs

SUBJECT: STAFF'S APPROACH TO COMPREHENSIVE REVISION TO 10 CFR
PART 61 (SRM M100617B)

PURPOSE:

To provide the Commission with the staff's approach to initiate activities related to a risk-informed, performance-based (RI/PB) comprehensive revision to 10 CFR Part 61 ("Licensing Requirements for Land Disposal of Radioactive Waste").

SUMMARY:

In Staff Requirements Memorandum (SRM) M100617B, the Commission directed the staff to outline its approach to initiate activities in connection with a possible revision to Part 61 that is RI/PB. A RI/PB approach is discussed later in this paper and includes a resource estimate consistent with the proposed approach.

However, before the start of the rulemaking process, the staff recommends that it engage stakeholders and solicit their views on whether there should be amendments to the current Part 61 and if so, what the nature of those amendments should be.¹ The purpose of these meetings would be to gather information from a broad spectrum of stakeholders concerning their continued support for the existing Part 61, recommendations for specific changes to the existing rule, or suggestions for possible new approaches to commercial low-level radioactive

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¹ This approach would comport with the methodology originally used by the staff to develop Part 61.

waste (LLW) management. In connection with any potential rulemaking action, the staff has also identified possible RI/PB options that include the following and would be discussed with stakeholders as part of any public outreach effort:

1. Risk-inform the current Part 61 waste classification framework.
2. Comprehensive revision to Part 61.
3. Site-specific waste acceptance criteria.
4. International alignment.
5. Supersede direction given in SRM-08-0147.

This paper also identifies preliminary resource estimates for each of the first four options above.

After completing the public workshops and reviewing the information provided by stakeholders, the staff will submit a notation-vote paper to the Commission summarizing suggestions for revising Part 61, and recommending an option for Commission consideration. This notation-vote paper will be submitted in 2012.

BACKGROUND:

The Commission's licensing requirements for the disposal of LLW in near-surface [approximately the uppermost 30 meters (100 feet)] facilities reside in Part 61. These regulations were published in the *Federal Register* in 1982 (see 47 FR 57446; December 27, 1982). The rule applies to any near-surface LLW disposal technology, including shallow-land burial, engineered land disposal methods such as below-ground vaults, earth-mounded concrete bunkers, and augered holes. The regulations emphasize an integrated systems approach to the disposal of commercial LLW, including site selection, disposal facility design and operation, minimum waste form requirements, and disposal facility closure. To lessen the burden on society over the long periods of time contemplated for the control of the radioactive material, and thus lessen reliance on institutional controls, Part 61 emphasizes passive rather than active systems to limit and retard releases to the environment.

Development of the Part 61 regulation in the early 1980s was based on several assumptions as to the types of wastes likely to go into a commercial LLW disposal facility. To better understand what the likely inventory of wastes available for disposal might be, the U.S. Nuclear Regulatory Commission (NRC) conducted a survey of existing LLW generators. The survey, documented in Chapter 3 of NUREG-0782 — the Draft Part 61 Environmental Impact Statement (DEIS) — revealed that there were about 36 distinct commercial waste streams consisting of about 24 radionuclides of potential regulatory interest. The specific waste streams in question were representative of the types of commercial LLW being generated at the time. Waste streams associated with U.S. Department of Energy's (DOE's) nuclear defense complex were not considered as part of the survey, since disposal of those wastes, at that time, was to be conducted at the DOE-operated sites.

Over the last several years there have been a number of developments that have called into question some of the key assumptions made in connection with the earlier Part 61 DEIS, including:

- The emergence of potential LLW streams that were not considered in the original Part 61 rulemaking, including large quantities of depleted uranium, blended LLW, and possibly incidental wastes associated with the commercial reprocessing of spent nuclear fuel;
- DOE's increasing use of commercial facilities for the disposal of defense-related LLW streams; and
- Extensive international operational experience in the management of LLW and intermediate-level radioactive wastes that did not exist at the time Part 61 was promulgated.

The developments described above will need to be considered if the staff undertakes a revision of Part 61.

Waste from the Nation's defense programs has been managed by DOE and is not subject to Part 61. Instead, DOE has used Waste Management Order 435.1-1 to specify the disposal requirements for this waste. The current version of this order has been in place for about 10 years and it applies to 16 disposal sites within the DOE complex. Like Part 61, Order 435.1-1 places a heavy emphasis on performance assessment as part of its radioactive waste management decision-making. DOE recently started a comprehensive revision of Order 435.1-1, which it plans to complete sometime in 2011. The staff plans to consider any amendments to Order 435.1-1 as part of a comprehensive revision to Part 61.

DISCUSSION:

As a first step in any potential revision to Part 61, the staff recommends that it initially engage stakeholders and solicit their views on whether there should be amendments to the current Part 61 and if so, what the nature of those amendments should be. As part of the initial Part 61 rulemaking, the staff conducted four public meetings and three technical workshops to obtain stakeholder views on the scope and content of any commercial LLW regulation. At the time Part 61 was first developed (the late 1970s-early 1980s), there was little practical experience relevant to the management of LLW. The staff used the public meetings and workshops to gain a better understanding of the engineering standards and disposal practices that might need to be employed in managing commercial LLW. Because any changes to Part 61 would affect a number of stakeholders that are invested in and understand the current system, the staff believes that it would be advantageous to consult with both stakeholders and practitioners once again on whether the current Part 61 framework should be modified and if so, what kind of changes might be appropriate. Alternatively, stakeholders may also offer new ideas on how to manage commercial LLW.

As noted above, the staff plans to conduct a series of public workshops to obtain stakeholder input on whether and how best to revise Part 61. This activity is currently budgeted for fiscal year (FY) 2011. The first of the proposed stakeholder meetings will be conducted on March 4, 2011, in Phoenix, Arizona, as a joint NRC-DOE workshop on LLW management. DOE has already scheduled a public meeting to discuss the revisions to Order 435.1-1. The meeting would be held after the 2011 Waste Management Conference, which would allow the staff to take advantage of the large stakeholder presence expected at the conference. Following the Phoenix meeting, the staff plans to conduct one or more public meetings with stakeholders, subject to the availability of resources, later in calendar years 2011 and 2012.

Staff will use these meetings to gather information from a broad spectrum of stakeholders concerning their support for the existing Part 61 regulatory model for the management of commercial LLW, recommendations for specific rule changes, or suggestions for possible new approaches to commercial LLW management. Stakeholders would be invited to comment on possible RI/PB options presented by the staff or to suggest alternative regulatory strategies for the management of commercial LLW. The proposed staff options are summarized below and listed in greater detail in Enclosure 1. The options are:

1. ***Risk-inform the current Part 61 waste classification framework:*** Under this option, the current Part 61 waste classification designations for Class A, Class B, and Class C LLW would be preserved, but re-evaluated in the context of the updated dosimetry developed by the International Commission on Radiation Protection (ICRP). Implementation of this rulemaking option may lead to reassignment of one or more of the 12 radionuclides between the 2 concentration tables in § 61.55(a), based on the updated ICRP dosimetry. This option is consistent with earlier Commission direction provided in SRM-SECY-08-147.
2. ***Comprehensive revision to Part 61:*** This option would involve a comprehensive revision to Part 61, consistent with RI/PB principles. However, the specific nature of those revisions have yet-to-be-defined, and would be developed in concert with stakeholders through a series of public workshops. It is expected that this option would consider both existing and emerging LLW streams and in doing so, provide for management solutions that potentially could include both near-surface as well as intermediate depth disposal.
3. ***Site-specific waste acceptance criteria:*** This option would essentially adopt the DOE system (i.e., Order 435.1-1), in whole or in part, for the management of commercial LLW. Waste generators within the DOE complex currently take into account life-cycle planning considerations which assist them in complying with site-specific waste acceptance criteria (WAC) for a particular disposal facility to ensure that Government-owned waste has an identified disposal path. By relying on a performance-based directive coupled with a site-specific WAC, DOE field managers have the flexibility to determine the quality and quantity of waste that can be disposed of at a particular site based on disposal facility site, design, and waste inventory. Similar to Option #1, this option would also focus primarily on changes to § 61.55(a).

4. **International alignment:** Under this option, NRC would consider adopting the recent recommendations of the International Atomic Energy Agency (IAEA) for the management of radioactive wastes. Those recommendations are contained in General Safety Guide-1 (GSG-1) which outlines a comprehensive management approach to radioactive wastes by relating the radiological hazard posed by a particular waste stream to a specific disposition strategy (available at http://www-pub.iaea.org/MTCD/publications/PDF/Pub1419_web.pdf). The GSG-1 system includes waste classes that would be high-level radioactive wastes, greater-than-Class C wastes, LLW, and wastes amenable to decay in storage under the current U.S. system. The principal difference between the IAEA recommendations and the current Part 61 rule is the definition of LLW. Unlike the Part 61 definition, the IAEA system specifies sub-categories of LLW, including IAEA-designated exempt wastes (EW), as well as very low-level radioactive wastes (VLLW).
5. **Supersede direction given in SRM-08-0147:** Under this option, the Commission would maintain the status quo by superseding its earlier direction contained in SRM-SECY-08-0147, to risk-inform the waste classification tables resulting in no further changes to the existing Part 61 regulation other than the ongoing rulemaking for unique waste streams to add an explicit performance assessment requirement to Part 61.

The environmental analysis for Part 61 was completed in 1982. In support of any selected rulemaking option, the staff intends to perform an appropriate environmental review consistent with the National Environmental Policy Act of 1969 (NEPA).

In developing the five options, described in more detail in Enclosure 1, the staff identified policy issues for Commission consideration. These policy issues are summarized in Enclosure 2 and include the following:

- NEPA;
- The Low-Level Radioactive Waste Policy Amendments Act of 1985;
- Implementation;
- Earlier Stakeholder Interest; and
- Clearance.

While not a policy issue *per se*, the rulemaking on Part 61 would have to be coordinated with any update to Part 20 to ensure consistency on the use of the definition and concepts related to members of the public, dosimetry, and worker exposure.

In 1994 and 1995, the staff developed and the Commission approved a *Policy Statement* on probabilistic risk assessment (PRA), which was published in the *Federal Register* (59 FR 63389; December 8, 1994, and 60 FR 42622; August 16, 1995). This *Policy Statement* informed the development of RI/PB regulation, and the staff has developed a number of Commission papers

on the application of PRA to the NRC's waste disposal programs since the publication of the *Policy Statement*. A summary of these Commission papers can be found in Enclosure 3.

STAKEHOLDER INPUT:

In connection with staff activities related to the disposition of depleted uranium and the blending of LLW, stakeholders have commented on issues that also pertain to Part 61. Some of these comments include specific recommendations on how the rule could be amended to address a key issue concerning the management of emerging yet unevaluated commercial LLW streams within the Part 61 regulatory framework. A summary of stakeholder recommendations that have been received thus far can be found in Enclosure 2. Some of these recommendations will be addressed by the on-going rulemaking to introduce specific regulatory requirements for a performance assessment and an intruder analysis to the existing Part 61 rule. Other recommendations would be addressed in connection with any future LLW rulemaking, as appropriate.

AGREEMENT STATE VIEWS:

Concurrent with transmitting this paper to the Commission, the staff intends to provide copies to the Agreement States. The Agreement States were notified of the staff's intention to prepare this paper during the Office of Federal and State Materials and Environmental Management Programs (FSME) monthly telephone call on October 21, 2010. Separate telephone calls were conducted with representatives of the States of Washington (November 9), South Carolina and Texas (November 10), and Utah (November 18). The questions asked by the State representatives during these telephone calls included the following:

1. Is there a nexus between any of the potential actions contemplated by this Commission Paper and the on-going rulemaking to introduce specific regulatory requirements for a performance assessment and an intruder analysis to the existing Part 61 rule?
2. Had the staff decided on the duration of the period of performance for any performance assessment?
3. Would the staff consider extending the current 100-year institutional control period to some longer, more realistic timeframe on the order of about 300 years?
4. Should there be a new regulatory provision concerning the use of engineered barriers? If so, any such requirement should be technology neutral and any implementation decisions should be deferred to the licensee.

5. How would any revised commercial LLW regulation be applied? That is to say, would it apply to currently operating LLW facilities or, alternatively, would it be applied to only new licensees?²
6. How will the staff engage the Agreement States and other interested stakeholders as part of any public outreach effort in connection with any Part 61 rulemaking? (Due to budgetary constraints, some Agreement State representatives may not be able to attend planned public meetings. Web-casting could help to remedy this concern, especially for those states subject to resource limitations. It might also be advisable to independently consult with those Agreement States with operating disposal sites before seeking broader stakeholder input.)
7. Should there be any changes to the waste classification tables found at § 61.55(a), the staff should factor-in the large quantities of depleted uranium currently available for disposal as well as the progeny present in the uranium decay chain such as radon gas from radium-226. The staff should also consider other longer-lived radionuclides that are currently present in LLW streams in any analysis. Following any such review, the staff should determine whether it is appropriate to establish concentration/quantity limits for these long-lived isotopes in the Part 61 regulation.

The staff will engage the Agreement States, as well as other interested stakeholders on these and other issues, as part of the planned public workshops.

PATH FORWARD:

After completing the public workshops and reviewing the information provided by stakeholders, the staff will submit a notation-vote paper to the Commission summarizing their suggestions for revising NRC's regulatory framework for the management of commercial LLW, and recommending an option for Commission consideration. This notation-vote paper will be submitted in 2012.

RESOURCES:

The staff will use its allocated resources for this effort in fiscal year (FY) 2011 to address current Commission direction and conduct its first public meeting. Some additional resources may be re-programmed to support this effort in FY 2012, as appropriate. The preliminary resource estimates for the respective rulemaking options will be used to inform the FY 2013 budget

² This observation focuses on the impact any new NRC regulation might have on Agreement States whose respective LLW programs are at various experience levels.

submission. Future reprogramming requests will be coordinated with the Office of the Chief Financial Officer, as necessary.

COORDINATION:

The Office of the General Counsel has no legal objection to this paper.

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Enclosures:

1. Options for Revising Part 61
2. Key Policy Issues to be Considered
3. RI/PB within the Materials Programs

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