POLICY ISSUE
NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: Commissioner Baran

SUBJECT: SECY-20-0098 - Path Forward and Recommendations for Certain Low-Level Radioactive Waste Disposal Rulemakings

Approved X **Disapproved** X **Abstain** ____ **Not Participating** ____

COMMENTS: **Below** ____ **Attached** X **None** ____

Jeffery M. Baran

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Signature

3/25/22

Date

Entered in STARS

Yes X

No ____

Commissioner Baran's Comments on SECY-20-0098, "Path Forward and Recommendations for Certain Low-Level Radioactive Waste Disposal Rulemakings"

This paper addresses two related rulemaking efforts: the Part 61 low-level waste rulemaking and the potential greater-than-Class C (GTCC) rulemaking. I agree with the NRC staff that these two efforts should be integrated in a single re-proposed rule.

Part 61 Low-Level Waste Update

The NRC staff has been working on a rulemaking to update the agency's Part 61 regulations on the disposal of low-level radioactive waste for more than a decade. It is an important effort because the original rule promulgated in 1982 was based on technical assumptions that have proven inaccurate.

Forty years ago, NRC did not consider the need to dispose of large volumes of depleted uranium because, at that time, private corporations were not permitted to operate the enrichment facilities that generate depleted uranium. As the staff explained in the 2016 rulemaking package, "Only very small quantities of depleted uranium were considered when the original regulatory basis was developed."[1] Yet, "all of the currently operating [low-level waste disposal] sites have disposed of thousands of metric tons of depleted uranium" and a large quantity of depleted uranium is slated for future disposal in commercial disposal facilities.[2] Unlike the radiological hazard posed by other Class A low-level waste, which "typically decreases relatively rapidly in the first 100 years after closure, the hazard from large quantities of concentrated depleted uranium increases for time periods far into the future."[3] In fact, the peak radiological risk of depleted uranium occurs after a million years.[4]

Large-scale blending of Class B and Class C waste with Class A waste in order to produce a Class A mixture (or lower concentration of Class B or C waste) is also inconsistent with the assumptions underlying the original Part 61 rule. While the existing regulation was "developed with the assumption that only a fraction of the [low-level waste] being disposed would approach the [low-level waste] classification limit," the "result of the blending process would be to create large volumes of blended [low-level waste] that have concentrations near the [low-level waste] classification limits."[5]

Because circumstances have changed significantly over the past few decades, the existing Part 61 regulation allows for future situations in which the dose limits to protect the general public are exceeded "by a significant margin" and inadvertent intruders receive unacceptable doses of radiation from a disposal facility.[6] The NRC staff concluded that the

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[1] Draft *Federal Register* Notice, Final Rule, Low-Level Radioactive Waste Disposal (Sept. 15, 2016) at 52.
[2] *Id.* at 37, 52.
[3] *Id.* at 180.
[4] Advisory Committee on Reactor Safeguards, Letter to Chairman Burns, "Review of SECY-16-0106, Proposed Final Rule 10 CFR Part 61, 'Low-Level Radioactive Waste Disposal" (Nov. 14, 2016).
[5] Draft *Federal Register* Notice at 16-17.
[6] *Id.* at 16, 17, 54, 185. An "inadvertent intruder" is a "person who might occupy the disposal site after site closure and engage in normal activities, such as agriculture, dwelling construction, drilling for water and other reasonably foreseeable pursuits that might unknowingly expose the

changes in the 2016 draft final rule are "necessary to ensure that the waste streams unanticipated when 10 CFR Part 61 was originally developed could be disposed of safely."[7]

The 2016 draft final rule would have provided several additional health and safety benefits. It would have enhanced the protection of inadvertent intruders by requiring a site-specific inadvertent intruder assessment and established a new inadvertent intruder dose limit of 500 millirem per year for the compliance period.[8] The rule also would have required that "defense-in-depth protections be explicitly identified by the licensee to ensure that no single layer is exclusively relied upon for safety, to demonstrate that the protections are commensurate with the risks associated with the land disposal facility, and to increase confidence that the performance objectives are met."[9] In addition, the rule would have required licensees to use more up-to-date dose calculation methodologies instead of methods that date back to the 1950's.[10]

In response to public comments, the NRC staff included in the 2016 draft final rule a two-tiered regulatory approach comprised of a compliance period and a performance period. Under the draft final rule, "the compliance period would be either 1,000 years or 10,000 years, depending upon the inventory and concentration of long-lived radionuclides disposed of at the land disposal facility."[11] The rule would have required licensees to provide a technical rationale for using a 1,000-year compliance period and would have required a performance period analysis only if a licensee uses a 10,000-year compliance period. As the NRC staff's 2016 draft *Federal Register* notice explained:

> There is no health or safety basis to disregard waste that has been disposed to date while requiring analyses of similar waste that may be disposed in the future. However, if an existing site can demonstrate to the regulator that the amount of long-lived radionuclides that have already been disposed at the site is not significant, then the licensee would only be required to use a compliance period of 1,000 years.[12]

The 2016 draft final rule also would have required licensees to limit doses to 25 millirem to any member of the public during the compliance period.[13] This approach aligns with the regulations of Texas and Utah, two Agreement States that regulate disposal facilities where licensees indicated they would like to accept large quantities of depleted uranium.[14]

Despite the strong technical basis for the 2016 draft final rule, a majority of the Commission disapproved it in 2017 and directed the staff to prepare a substantially different supplemental proposed rule that would reinstate the 1,000-year compliance period and narrow the defense-in-depth consideration. Another major change was to establish a "grandfathering provision" so that the new requirements of the rule applied "to only those sites that plan to

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person to radiation from the waste included in or generated from a low-level radioactive waste facility." *Id.* at 255.

[7] *Id.* at 63.
[8] *Id.* at 25-29.
[9] *Id.* at 21.
[10] *Id.* at 48.
[11] *Id.* at 3-4.
[12] *Id.* at 52.
[13] SECY-16-0106 at 4.
[14] *Id.*

accept large quantities of depleted uranium for disposal."[15] In my view, there is no valid technical basis for the 2017 Commission-directed changes.

I voted to approve the NRC staff's draft final rule in 2017 and continue to believe that its substantive provisions are necessary to provide the level of protection originally envisioned when the regulation was first issued in 1982. As the NRC staff prepares the new proposed rule, it should include any provisions from the 2016 draft final rule that it believes are necessary for reasonable assurance of adequate protection of public health and safety or would provide a cost-beneficial substantial safety enhancement. The new proposed rule must rest on a solid technical foundation.

GTCC Waste

Under the current regulations, the default disposal option for GTCC waste is in a geologic repository. Although the regulation provides that the Commission can approve alternative approaches on a case-by-case basis, NRC has not established safety standards for the disposal of GTCC waste. The NRC staff recommends authorizing the near-surface disposal of some GTCC waste streams in the new consolidated proposed rule.

Based on the NRC staff's technical analysis of multiple GTCC waste streams, I agree that it makes sense to explore the option of near-surface disposal in the integrated rulemaking. Although there is limited interest among potential GTCC disposal applicants at this time, a rulemaking would establish standards to provide regulatory certainty for future applicants, as well as host states and communities. It would also allow stakeholders to share their views on a range of issues, including performance criteria, minimum disposal depth, duration of inadvertent intruder barriers, control of special nuclear material during operations, and other specific requirements for radiological protection during a facility's operational period and after its closure.

However, the agency does not have the latitude to allow Agreement State licensing of GTCC disposal facilities. In my view, the Low-Level Waste Policy Amendments Act of 1985 (Amendments Act) explicitly provides for exclusive NRC licensing of all GTCC waste disposal.

Section 3(b)(1) of the Amendments Act states: "The Federal Government shall be responsible for the disposal of … low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the Commission for class C radioactive waste." This provision clearly establishes that disposal of GTCC waste is solely a federal responsibility. Section (3)(b)(2) directly addresses the question of who licenses a GTCC waste facility. It provides:

> All radioactive waste designated a Federal responsibility pursuant to subparagraph (b)(1)(D) that results from activities licensed by the Nuclear Regulatory Commission under the Atomic Energy Act of 1954, as amended, shall be disposed of in a facility licensed by the Nuclear Regulatory Commission that the Commission determines is adequate to protect the public health and safety.

The plain language of the statute clearly indicates that NRC is the licensing authority for disposal of GTCC waste. There is nothing in the text of the provision that suggests that Congress contemplated or provided for Agreement State licensing of GTCC waste disposal facilities.

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[15] Staff Requirements Memorandum for SECY-16-0106.

The plain language reading of this specific provision is bolstered by the multiple references to "agreement states" in other sections of the Amendments Act. Sections 2, 6, and 9 all specifically reference "agreement states." This demonstrates that Congress was aware of the Agreement State program and could have explicitly stated that Agreement States are authorized to license GTCC waste disposal facilities. But Congress did not do so. The absence of the term "Agreement State" in section 3(b)(2) indicates that Congress did not intend to confer upon Agreement States the authority to license disposal cells for GTCC waste.

The legislative history of the Amendments Act supports this reading of the text. For example, Senator Hart, a co-sponsor of the legislation stated:

> We have also clarified that the Federal Government is responsible for the disposal of low-level radioactive waste that exceeds the limits established by the Commission for class C radioactive waste, as defined by the regulations cited above. Such disposal is to be in a facility licensed by the Commission. This resolves the contentious issue of above class C waste, which the states were unwilling to be required to dispose of due to the uncertainty surrounding the type of disposal facility that might be required by the Commission for the safe disposal of such wastes.[16]

Similarly, Senator Bentsen stated:

> This legislation also addresses the difficult issue of what to do with above class C waste, which the states are unwilling to accept. Rather than remain silent on this possible source of "orphan" waste, we declare that such waste is a Federal responsibility and must be put in a facility licensed by the Nuclear Regulatory Commission.[17]

In the House of Representatives, Rep. Markey, Chairman of Subcommittee on Energy Conservation & Power, explained:

> [The Act] contains language which would establish a new requirement that the NRC license any disposal facility for … above class C wastes, for which the Federal Government is explicitly given management responsibility for the first time.[18]

Rep. Udall, Chairman of the Subcommittee on Energy and the Environment further stated:

> It is my belief that the language in the act, now contained in section 3, which requires the Federal Government to assume responsibility for disposing of all above class C wastes, and which requires that such disposal be accomplished in licensed facilities, gives the NRC all the authority necessary to accomplish the kind of review contemplated in the House language, and further, that such a review will, in my opinion, be found necessary in order for the NRC to discharge its responsibilities under section 3 of the bill now under consideration.[19]

This legislative history reinforces the plain language of the Amendments Act. It reveals that Congress intended to make the federal government solely responsible for the disposal of all

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[16] 131 Cong. Rec. S18103 (daily ed. Dec. 19, 1985).
[17] 131 Cong. Rec. S18106 (daily ed. Dec. 19, 1985).
[18] 131 Cong. Rec. H13077 (daily ed. Dec. 19, 1985).
[19] 131 Cong. Rec. H13077 (daily ed. Dec. 19, 1985).

GTCC waste because states were unwilling to bear the responsibility for disposing of such waste. The statements of these key members of the Senate and House also show that Congress meant what it said in the statute: GTCC must be disposed of in an NRC-licensed facility. Conspicuously absent from all of these Congressional descriptions of the licensing responsibility for GTCC waste disposal is any mention of Agreement States or suggestion that Agreement States could license such a facility. The main focus of the legislation was on precisely defining the roles and responsibilities of the federal government and the states with respect to the disposal of low-level radioactive waste. It is difficult to believe that Congress intended to allow Agreement States to license GTCC waste disposal facilities without any legislators even hinting that this was the case.

In light of the statutory text and accompanying legislative history, it is not surprising that NRC repeatedly indicated over the years that the agency was the licensing authority for GTCC waste disposal. In the statement of considerations for a 1988 proposed rule regarding GTCC waste, NRC stated:

> This is intended to reflect the policy of the Low-Level Radioactive Waste Policy Amendments Act, which provides that all commercially-generated waste with concentrations exceeding Class C limits shall be disposed of in a facility licensed by the Commission that the Commission determines is adequate to protect public health and safety.[20]

The preamble to the subsequent 1989 final rule includes identical language and also states: "The proposed rule only recognized that GTCC wastes must be disposed of in a facility licensed by the NRC – a constraint imposed by the LLWPAA."[21] More recently, in the statement of considerations for a 2001 final rule on interim storage for GTCC waste, NRC reiterated that "[t]he Act also gave the NRC the licensing responsibility for a disposal facility for GTCC waste."[22]

As the staff develops the new proposed rule, NRC must faithfully implement the plain language of the Amendments Act, which provides for exclusive NRC licensing of all GTCC waste disposal. The new proposed rule should not contemplate Agreement State licensing of GTCC waste disposal facilities. Following the statutory direction from Congress will enable NRC to chart a stable path forward and minimize the potential for delay from litigation. NRC licensing of all GTCC waste disposal facilities will accomplish these goals while ensuring the protection of public health and safety.

Conclusion

With these adjustments, I approve the staff's recommended option of issuing a re-proposed rule that consolidates the Part 61 and GTCC rulemaking efforts (Option 1). With their overlapping technical requirements and concepts, it makes sense to integrate these two efforts. A single rulemaking should also make it easier for stakeholders to review and comment on the overall framework.

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[20] Fed. Reg. 17710 (May 18, 1988).
[21] Fed. Reg. 22581-22582 (May 25, 1985).
[22] Fed. Reg. 51824 (October 11, 2011).