From:	Dukes, Heatherly H
To:	RulemakingComments Resource
Cc:	Mason, Lisa A
Subject:	[External_Sender] BWXT Comments for Draft Regulatory Basis Pertaining to Greater Than Class C and Transuranic Waste (for Docket ID NRC-2017-0081)
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Attachments:	BWXT RegBasisComments 11_19_19.pdf

To who it may concern,

BWXT greatly appreciates the opportunity to provide comments on this important initiative and our comments are attached. Our experts on this subject are Scott Kirk and Robert Hogg who can be reached at (434) 221-6728 or (434) 665-3453 if you would like to discuss these comments in more detail.

Sincerely,
Heatherly

Heatherly H. Dukes
BWXT Technical Services Group, President
236 W Richland Ave
Aiken, SC 29801
Cell: 803-226-1519

BWX Technologies, Inc.

November 19, 2019

Secretary, U.S. Nuclear Regulatory Commission
Attention: Rulemakings and Adjudications Staff
Washington, DC 20555-0001

References: (1) Request for Public Comment, Draft Regulatory Basis, Greater Than Class C and Transuranic Waste, Federal Register Notice, Volume 84, Number 140, published on July 22, 2019

(2) Letter from K. Camplin (BWXT) to Annette Vietti-Cook (NRC), BWXT Comments on Greater than Class C and Transuranic Waste Disposal, April 12, 2018

Subject: Draft Regulatory Basis Pertaining to Greater Than Class C and Transuranic Waste (for Docket ID NRC-2017-0081)

Dear Madam Secretary:

Headquartered in Lynchburg, Va., BWX Technologies, Inc. (BWXT) is a leading supplier of nuclear components and fuel to the U.S. government; provides technical and management services to support the U.S. government in the operation of complex facilities and environmental remediation activities; and supplies precision manufactured components, services and fuel for the commercial nuclear power industry. As a world-class leader in the nuclear industry with direct knowledge and experience working with reprocessed nuclear fuels, spent nuclear fuel and reprocessing radioactive wastes, BWXT has unique radioactive management experience. This experience includes our current joint ventures at the Savannah River and West Valley sites, both of which manage High Level Radioactive Waste, with West Valley also having a significant amount of the Greater Than Class C (GTCC) waste that is described in the draft regulatory basis, as well as our joint venture to support operations and disposition of defense-related transuranic waste at the Waste Isolation Pilot Plant (WIPP).

Based on our unique experience, BWXT respectfully submits our perspective on the subject Draft Regulatory Basis pertaining to GTCC and Transuranic Waste.

GENERAL COMMENTS

BWXT commends the NRC for its leadership in seeking stakeholder perspectives on the draft regulatory basis that has been directed by the Commissioners as set forth in *Staff Requirements – SECY-15-0094 – Historical and Current Issues Related to Disposal of Greater-Than-Class C Low-Level Radioactive Waste*, published on December 22, 2015.

The U.S. Department of Energy (DOE) is responsible for the disposition of GTCC LLW as specified in Section 3(b) of the Low-Level Radioactive Waste Policy Act Amendments of 1985 (LLWPAA). In January 2016, DOE published its *Final Environmental Impact Statement (FEIS) for the Disposal of Greater Than Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste*[1] (DOE/EIS-0375). The preferred alternative in the FEIS selected by DOE included disposal of GTCC and GTCC-Like LLW in a commercial disposal facility and the WIPP, located near Carlsbad, New Mexico. However, the DOE has since focused its intention to dispose of such waste at the commercial disposal facility owned and operated by Waste Control Specialists LLC (WCS) located in Andrews County, Texas. In October 2018, DOE published an Environmental Assessment (EA) for GTCC and GTCC-Like Waste at WCS (EA 20282) that provides a site-specific analysis of the potential environmental impacts of disposing the entire inventory (12,000 cubic meters) of GTCC waste and GTCC-Like waste at WCS.

BWXT recently shared its perspectives with the NRC on efforts to initiate a rulemaking regarding GTCC waste (Reference 2) and the DOE regarding its reinterpretation of the definition of HLW[2] as stipulated in the Nuclear Waste Policy Act of 1982. We believe that the views shared with the DOE may also be insightful as the NRC engages with stakeholders, potentially initiates rulemakings, develops regulatory guidance, and works with Agreement States to determining the types and concentrations of GTCC and transuranic waste that may be safely dispositioned in a near surface disposal facility pursuant to Section 274 (c) of the Atomic Energy Act of 1954 (AEA), as amended.

BWXT believes the Commission's draft regulatory basis provides a clear rationale to identify which of the 17 waste streams with radionuclide concentrations exceeding the Class C limits are: (1) suitable for disposal in a near surface disposal facility; (2) may be licensed by an Agreement State that has developed regulations compatible with Part 61; or (3) require licensing by the NRC to ensure the common defense and national security or protect public health and safety due to the hazards posed by the disposal of GTCC LLW as specified in Section 274.c of the AEA. We support that the Commission is considering, in part, authorizing the disposal of waste with certain transuranic radionuclides at concentrations less than 10,000 nCi g^{-1} in a near surface disposal facility, with those above this concentration to be exclusively licensed by the NRC.

It is important to acknowledge that the radioactive waste management practices have matured considerably since the regulatory framework was established in 1982 and set forth in 10 CFR 61. The assumptions used to establish the waste classification tables were conservative and led to the stated conclusion that disposal of certain radioactive waste with radionuclide concentrations exceeding the limits for Class C LLW were generally not suitable for a near surface disposal facility. The technical basis used to establish the waste classification tables assumed that the waste would be dispositioned in a disposal facility located in a humid environment and where the water table may be shallow. Moreover, the NRC developed the waste classification tables based on the

[1] DOE uses the term "GTCC-Like LLW" to describe the types of radioactive waste it owns or generates that exceed the concentration-based limits for Class C LLW as specified in 10 CFR 61.55, Waste Classification Tables.

[2] Request for Public Comment on the U.S. Department of Energy Interpretation of High Level Radioactive Waste, Federal Register Notice, Volume 83, Number 196, published on October 10, 2018.

dosimetric models specified in the International Commission on Radiological Protection, Report of Committee 2, *Permissible Dose for Internal Radiation*, published in 1959. Based, in part, with these assumptions, the regulatory requirements stipulated that Class C LLW must be disposed of at a depth of at least five meters below the top surface of the cover or with engineered barriers designed to protect against an inadvertent intrusion for a least 500 years.

In contrast, commercial disposal facilities today, licensed under 10 CFR 61 or compatible regulations promulgated by Agreement States, may be located in an arid environment, with average annual precipitation of less than 41 centimeters (16 inches) and the water table measuring 243 meters (800 feet) below grade. Waste disposal practices today often employ highly engineered intruder barriers where Class C LLW may be emplaced in a near surface disposal facility[3].

While disposal of GTCC LLW may once have been considered not generally suitable for disposal in a near surface disposal facility that existed at the time Part 61 was originally promulgated in 1982, the same cannot be said regarding the performance of a modern disposal facility licensed, constructed and operated in an arid environment. As such, we believe that these distinctions are important to communicate to stakeholders and the public should the NRC proceed forward with developing a regulatory framework that would provide a disposal pathway for GTCC LLW.

SPECIFIC COMMENTS

BWXT encourages the Commission to proceed with an administrative rulemaking to resolve the current discrepancy by striking the transuranic waste exclusionary language from the definition of LLW, as currently specified in 10 CFR 61.2, *Definitions*, as directed by the Commissioners in *Staff Requirements – SECY-15-0094 – Historical and Current Issues Related to Disposal of Greater-Than-Class C Low-Level Radioactive Waste*. We believe this approach offers considerable regulatory efficiencies because it will correct the record by defining LLW as Congress directed[4], pursuant to the LLWPAA of 1985. This approach will also create a disposal pathway for GTCC LLW that is currently authorized in 10 CFR 61.55(a)(2)(iv). However, it is important to recognize that regulatory guidance will also be needed to provide clarity on the technical criteria that would require licensing reviews for approvals by either the NRC or an Agreement State.

We also offer our perspectives to each of the questions raised by the NRC staff on this subject as discussed below. However, BWXT has no further comments regarding the cumulative effects of regulation that licensees or other impacted entities (such as Agreement State regulatory agencies) may face while implementing new regulatory positions, programs and requirements (e.g. rules, generic letters, backfits, inspections) than those already offered herein.

(1) Are there any characteristics of GTCC waste not identified in the draft regulatory basis that should be considered when evaluating the near surface disposal of GTCC?

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[3] A n*ear surface disposal facility* is a land disposal facility in which radioactive waste is disposed of in or within the upper 30 meters of the earth's surface as specified in 10 CFR 61.2.

[4] Congress revised the definition of LLW by striking the transuranic exclusionary language from the definition of LLW to better assign the responsibilities of providing a disposal pathway for such waste to either the state or federal government in the LLWPAA of 1985. This legislation superseded the LLWPA of 1980 in its entirety.

BWXT Response: BWXT agrees with the Commission that hazards posed by GTCC LLW require a greater degree of isolation than currently stipulated in 10 CFR 61.52(a)(2), which requires disposals at a depth of at least 5 meters below the top surface of the cover and engineered barriers designed to protect against inadvertent intrusion for a least 500 years. The safety analysis should also require assurances that inadvertent intruders and members of the public are protected after the 100-year institutional control period has expired. BWXT concurs that the radiation dose limits that should apply to protecting the inadvertent intruder and members of the public should be maintained at 500 mrem y^{-1} and 25 mrem y^{-1}, respectively. The NRC should continue to require compliance with the Part 61 Performance Objectives that relate to maintaining long-term stability and protection of occupational workers in accordance with the radiation protection standards established in 10 CFR 20, *Standards for Protection Against Radiation*.

BWXT agrees that the proposed regulatory framework is adequate to protect workers, the inadvertent intruder and the public from the hazards of fifteen (15) of the seventeen (17) waste streams analyzed in the draft regulatory basis. Additional work is needed to stipulate technical criteria for disposal of the remaining two waste streams analyzed.

As discussed in the regulatory basis, the two waste streams no longer being considered for shallow land disposal included those with transuranic radionuclides at concentrations exceeding 10,000 nCi g^{-1}. Should the NRC proceed forward with developing disposal criteria for GTCC waste, it should consider developing technical criteria and/or regulatory guidance that could facilitate disposal of waste streams with transuranic radionuclides at concentrations exceeding 10,000 nCi g^{-1} using a combination of enhanced waste packages and disposal at depths greater than 30 meters, which is needed to protect public health and enhance security and safeguard requirements for fissile materials. The need to develop a disposal path for these waste streams is important because federal legislation currently prohibits the disposal of nondefense-related waste with transuranic radionuclides at concentration exceeding 100 nCi g^{-1}at the WIPP. As such, non-defense related waste will remain orphaned until a regulatory framework is developed that facilitates the disposal of such waste at depths greater than 30 meters or until Congress amends the WIPP Land Withdrawal Act, authorizing the disposal of nondefense-related transuranic waste at WIPP.

(2) In addition to the potential regulatory changes identified in this notice, should the NRC consider other potential changes or additions to the existing technical requirements for low level radioactive waste disposal in evaluating GTCC waste disposal?

BWXT Response: BWXT supports consideration using a combination of amendments to Part 61 in order to develop technical disposal criteria and prepare regulatory guidance to create a disposal pathway for GTCC waste. We also recognize and support changes to 10 CFR Parts 37 and 150 to better safeguard fissile materials and provide regulatory flexibility that would facilitate the licensing authority of Agreement States to better regulate radioactive materials in a risk-informed, performance-based manner.

BWXT strongly recommends that the NRC resolve the current discrepancy by amending 10 CFR 61.2 and striking the transuranic waste exclusionary language from the definition of LLW, as directed by Congress with the enactments of the Low-Level Radioactive Waste Policy Act

Amendments of 1985. This approach would allow radioactive waste with transuranic radionuclides, with half-life greater than 5 years and at concentrations exceeding 100 nCi g^{-1}, to be regulated as GTCC LLW as currently specified in the Part 61.55 Waste Classification Tables.

(3) Are there any additional issues that should be addressed to enhance public or occupational safety regarding the disposal of GTCC waste, either by rulemaking or through the development of guidance documents, that were not addressed in the draft regulatory basis?

BWXT Response: BWXT encourages the NRC to proceed with a rulemaking and develop regulatory guidance to provide a disposal pathway for GTCC LLW. The NRC has already made significant strides in developing a regulatory framework and technical criteria in the current and ongoing rulemaking to revise 10 CFR 61 for "unique waste streams". Much of the technical criteria and more salient issues include the need to demonstrate compliance with the 10 CFR 61, Subpart C, performance objectives based on a site-specific performance analysis — an analysis that demonstrates that the radiation dose to a member of the public and an inadvertent intruder would not exceed 25 mrem y^{-1} and 500 mrem y^{-1}, respectively, for a period of compliance of 1,000 years or longer. BWXT believes that the best and most efficient approach would include expanding the scope of the current Part 61 rulemaking to include technical criteria for the disposal of GTCC LLW.

The NRC recognized in its draft regulatory basis that Agreement State and non-Agreement State licensees have already developed robust and compatible programs to protect and safeguard high-activity sealed sources (HASS) pursuant to 10 CFR 37, *Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material*. Moreover, the NRC has authorized concentration-based limits for special nuclear materials that allow certain Agreement State licensees to possess more than a critical mass of special nuclear materials as specified in 10 CFR 150, *Exemptions and Continued Regulatory Authority in Agreement States and in Offshore Waters under Section 274*. BWXT believes that such regulatory approaches would continue to allow certain waste disposal facility licensees the means to safely handle and protect HASS, including special nuclear materials.

(4) Are there any issues that should be addressed to establish a relatively uniform set of requirements for GTCC waste disposal in Agreement States and in non-Agreement States that were not addressed in the draft regulatory basis?

BWXT Response: The NRC affirmed that licensees are authorized to dispose of GTCC LLW on a case-by-case basis as stipulated in 10 CFR 61.55(a)(2)(iv). However, regulatory guidance would need to be developed to address technical issues and acceptance criteria that would be used by NRC or Agreement State staff to evaluate and/or approve proposals that could be filed by a licensee seeking such authorization. Accordingly, NRC should develop such guidance for licensees that seek authorization for the disposal of GTCC LLW pursuant to 10 CFR 61.55(a)(2)(iv).

As discussed in the draft regulatory basis, the NRC does not regulate the disposal of LLW generated or owned by the DOE pursuant to Section 3 of the LLWPAA. However, an Agreement State may elect to authorize the disposal of GTCC-Like LLW that was owned or generated by DOE licensed facilities, but only if its regulations governing such disposals are consistent with

Section 4(b)(1)(B) of the LLWPAA as discussed in the draft regulatory basis. The development of regulatory guidance will be needed to further ensure harmonization and consistency during the licensing reviews that may be conducted by Agreement States.

(5) Are there any other changes to the NRC's regulations that are not addressed in the draft regulatory basis that should be considered to facilitate the disposal of GTCC waste and better align the requirements with current health and safety standards?

BWXT Response: The NRC should consider the best approach to delineate the responsibilities that may be carried out by an Agreement State and those that are exclusively licensed by the NRC pursuant to Section 274.c of the AEA. The AEA authorizes the NRC to exclusively license the disposal byproduct, source, and special nuclear materials as is determined by regulation or order, based on the hazards or potential hazards to public health and safety. Of the 17 waste streams analyzed, the NRC concluded that it could discontinue its regulatory authority over all but three of these waste streams. The draft regulatory basis does not address or specify possible approaches that could be developed to deny an Agreement State the authority to license and regulate the disposal of the three waste streams that were identified as posing an unacceptable hazard to public health and/or to the common defense and national security.

(6) Are there other alternatives that are more cost effective, while adhering to the requirements of 10 CFR part 61, that the NRC should consider for implementing requirements for GTCC waste disposal in the near surface that were not addressed in Section 7 of the draft regulatory basis?

BWXT Response: We have no other alternatives identified.

(7) Are there any additional advantages or disadvantages or applicable cost information that the NRC should have considered as part of its evaluation of alternatives in Section 7 of the draft regulatory basis that are pertinent to the NRC or any stakeholders including the public, industry, Agreement States, Indian Tribes, the U.S. Department of Energy, or other government agencies?

BWXT Response: We have no additional advantages or disadvantages identified.

(8) Are there any other issues, not identified in the above questions, that the NRC should have considered in the draft regulatory basis?

BWXT Response: We have no additional issues identified.

Conclusions

BWXT commends the NRC for its leadership in considering the development of a regulatory framework that may provide a disposal pathway for GTCC waste and GTCC-Like Waste that has been generated in the commercial sector and owned or generated by the DOE. We strongly believe that a disposition pathway is needed, given that these waste streams have been orphaned for decades.

The NRC staff has prepared an insightful draft regulatory basis, as it tackles many complex regulatory issues regarding the potential hazards connected to the disposal of each of the 17 waste streams analyzed and the NRC and Agreement State jurisdiction and authority challenges related to the disposal of GTCC-Like Waste as stipulated in Section 4(b)(1)(B) of the LLWPAA of 1985.

We encourage the NRC to first initiate an administration rulemaking to resolve the transuranic waste discrepancy by striking the transuranic waste exclusionary language from the definition of "waste" in 10 CFR 61.2. Implementation of this recommendation would allow for the disposal of transuranic radionuclides with half-lives longer than 5 years and at concentrations exceeding 100 nCi g^{-1} as GTCC Waste or GTCC-like Waste in accordance with 10 CFR 61.55(a)(2)(iv). We also encourage the NRC to develop regulatory guidance for use by its staff and Agreement States to review proposals that may be submitted by licensees seeking authorization to dispose of GTCC Waste and GTCC-Like Waste as currently specified in 10 CFR 61.55(a)(2)(iv). BWXT believes that this approach would provide the greatest regulatory efficiencies to provide a workable disposal pathway for GTCC Waste and GTCC-Like Waste.

The Commissioners affirmed that licensees could, at present, obtain authorization to dispose of commercially-generated GTCC Waste in a near surface disposal facility pursuant to 10 CFR 61.55(a)(2)(iv). Based on the draft regulatory basis, the Agreement State would appear to have the authorization and jurisdiction to authorize the disposal of all but three of the 17 waste streams analyzed by the Commission in accordance with Section 274(C)(4) of the AEA. However, the NRC would have the exclusive authority to license the disposal of certain transuranic waste with concentrations exceeding 10,000 nCi g^{-1}.

With these important developments, BWXT encourages the Commission to take the next steps, including, but not limited to, expanding the scope of the ongoing Part 61 rulemaking to create a regulatory framework that would allow DOE to fulfill its statutory obligations to provide a disposal pathway for GTCC LLW.

BWXT greatly appreciates the opportunity to provide comments on this important initiative. Please contact J. Scott Kirk at (434) 221-6728 or Robert Hogg at (434) 665-3453 if you would like to discuss these comments in more detail.

Sincerely,

Heatherly Dukes, President
BWXT Technical Services Group, Inc.

cc: J. Scott Kirk
Robert Hogg