Meeting with NMMSS Users Community to Discuss Foreign Obligation Reporting Requirements for Low Enriched Uranium

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Objectives

- Provide overview of foreign obligation reporting instructions and current practice
- Discuss the background for the inquiry from industry
- Highlight stakeholder engagement
- Address need for broader feedback from user community

Overview of Foreign Obligations Reporting

- **What is it?** *A foreign obligation is a commitment by one government to another to treat nuclear materials, nonnuclear materials, and equipment and components in a manner consistent with the agreement signed by the two governments.*

- **How do I know I have it?** *For U.S. facilities importing nuclear material with foreign obligations, the appropriate Government agency will supply the relevant foreign obligation information.*

- **What do I need to report?** *NUREG/BR-0006 and -0007 provide detailed reporting instructions for foreign obligations in material transaction reports and material status reports, respectively.*

Current Practice for Reporting Obligations

- The NUREGs instruct licensees to report their annual inventory holdings of enriched uranium to the Nuclear Materials Management and Safeguards System (NMMSS) as belonging to one of four material types:
  - **E1, for uranium enriched greater than normal but less than 5 percent**
  - **E2, for uranium in enrichment of 5 percent or more but less than 20 percent**
  - E3, for uranium in enrichment of 20 percent or more but less than 80 percent
  - E4, for uranium in enrichment of 80 percent or more
- Quantities for these material types are reported to NMMSS on DOE/NRC Forms 742 and 742C.
- Appendix F of NUREG/BR-0006 identifies the like-for-like principles for tracking and exchanging foreign obligations.
  - Under current reporting instructions (Page F-1 of NUREG/BR-0006), licensees authorized to possess up to 10% enriched LEU would need to receive approval from the government for each reassignment of obligations from E1 to E2 material.

Current Practice for Obtaining Prior Approval from the US Government

- **NRC-licensed facilities may submit written request to the NRC with the following information:**
  - Proposed date to exchange obligations
  - Quantities of the materials to be exchanged (element weight; isotope weight, if applicable)
  - Material type and associated obligation(s) of the materials to be exchanged
  - Chemical and physical form of the materials to be exchanged
  - Purpose for conducting the exchange
  - RIS code(s) to be involved in the proposed change

- **Written requests can be copied to Foreign.Obligations@nrc.gov.**

- **Other special requests related to NMMSS reports of any nature can be submitted to NMMSS@nnsa.doe.gov or NMMSS.Resource@nrc.gov.**

Background for Inquiry from Industry

- There are several initiatives under way that appear to be the drivers for current discussions
  - Accident tolerant fuel for power reactors
  - Fuel for small modular reactors (SMRs) and other advanced reactors
- These activities will use low enriched uranium (LEU) that is enriched to greater than 5%
- Licensees involved in these initiatives include:
  - Fuel cycle facilities with LEU
  - Current operating power reactors
  - Future reactors using LEU fuel

Background for Inquiry from Industry (cont.)

- **NEI and Licensees seeking to possess LEU enriched <10% have inquired:**
  - Whether onsite/blending activities need prior approval so that the category change can be reported to NMMSS without affecting total foreign obligated inventory at the end of a material balance period?
  - What would prior approval entail? What do licensees need to request to obtain prior approval?
  - Whether the definitions of E1 and E2 material can be modified so that the line of demarcation between the two categories is moved from 5% to 10%?
    - Can the prior approval requirement be retired?
    - Can the material categories be modified to only distinguish LEU and HEU?
    - Is a license condition needed for prior approval?

Stakeholder Engagement

- **December 2021 Public Meeting**
  - The NRC and government interagency recommended keeping the E1 and E2 material types as they are to avoid confusion with existing guidance and minimize impacts to the NMMSS community.
  - The NRC and interagency recommended the use of prior approval to licensees to assign foreign obligations to LEU in the E1 and E2 material types as necessary for blending.
  - The summary of the public meeting is available on ADAMS (ML22003A048).
- **January 2022 NEI Letter**
  - Industry Comments on the NRC Public Meeting Discussing Foreign Obligation Reporting Requirements for Low Enriched Uranium.
  - Identifies industry's preferred solution as modifying the range for E1 material to <10% enrichment.

Need for Broader Feedback From User Community

- Potentially affected user community includes licensees reporting to NMMSS, interagency partners, and other stakeholders.
- Changing the E1 definition may potentially impact 26 RIS codes who possess LEU enriched ≤10%.
- A change to the E1 definition would impact the NMMSS database.
  - Would require DOE/NNSA approval
  - Date of deployment would need to be universal across all RIS holders
  - Implementation in NMMSS would need to preserve the historic data that was collected under the current definition.

Need for Broader Feedback From User Community (cont.)

- Input is necessary for determining path forward
  - Continue to use the existing process for approval of obligation exchanges, through a one-time prior approval request from the affected fuel facility licensees for the exchanges needed in production of LEU fuel with uranium enriched to >5%.
  - NRC is seeking input regarding the proposed solution as well as feedback related to other alternative solutions.