



LES-23-126-NRC

August 22, 2023

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Louisiana Energy Services, LLC
NRC Docket No. 70-3103

Subject: Response to NRC Information Request for Assistance Determining Budgetary and Technical Resource Needs to License Accident-Tolerant, Higher Burnup, And Increased Enrichment Fuels per Regulatory Issue Summary 2023-02

Reference: 1. LES-21-00020-NRC, Urenco USA Notice of Intent to submit License Amendment Requests for changes to License Condition 6B and Enrichment Limit, dated 04/01/2021, - ML21096A120

2. LES-23-100-NRC, Urenco USA Notice of Intent to submit License Amendment Requests to Increase Enrichment Limit for Construction of a High Assay Low Enriched Uranium Facility, dated 07/27/2023, - ML23208A261

The U.S. Nuclear Regulatory Commission (NRC) has issued Regulatory Issue Summary (RIS) 2023-02 to assist in determining NRC budgetary and technical resource needs with respect to the licensing of reactor fuels with accident tolerant fuel (ATF) concepts, higher burnup, and increased enrichment as well as promote early communication between the NRC and licensees. In response to NRC's request contained in RIS 2023-02, Louisiana Energy Services, LLC (LES) doing business as URENCO USA (UUSA), is providing the enclosed responses for the requested information.

It should be noted that UUSA initially informed the NRC (Reference 1.) of our intent to amend our license by proposing an increase of the enrichment limit up to 10.0 weight percent (wt. %) ²³⁵U in support of industry initiatives. In addition, UUSA has recently



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notified NRC (Reference 2.) of our intent to support industry interest in using fuel with higher enrichment by proceeding with necessary changes and modifications to allow the construction of a new facility and amend our license for a proposed increase of the enrichment limit up to 20.0 wt. % 235U.

Should there be any questions concerning this submittal, please contact Chris Schwarz, Licensing and Performance Assessment Manager, at 575-394-5783.

Respectfully,

Wyatt Padgett
Compliance Manager

Enclosure: UUSA Responses to RIS 2023-02 Questions

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ENCLOSURE

UUSA RESPONSES TO RIS 2023-02 QUESTIONS

Question (1):

Do you plan to submit a license amendment request to adopt fuel with increased enrichment, higher burnup, or one or more ATF concepts, or a license amendment request for lead test assemblies with one or more of these technologies? If so, what technologies will the fuel include, and what is the timeframe for submitting the request?

Response (1):

Not applicable to UUSA. For a discussion of UUSA's commitment to support the industry needs with increased enrichment services, please refer to responses to Question (4) and Question (5) below.

Question (2):

Do you plan to submit any additional, related licensing actions (e.g., requests for exemption) to support transition to one or more of these fuel types? If so, what additional licensing request(s) do you plan to submit, and what is the timeframe for submitting the request(s)?

Response (2):

Not applicable to UUSA.

Question (3):

Do you anticipate that applications for new fuel concepts could benefit from modification or enhancement of existing NRC guidance or creation of new guidance? If so, which guidance documents could be considered for modification or what type of new guidance could be developed and for what purpose?

Response (3):

As a supplier of enriched uranium for the nuclear fuel industry, this question is not directly applicable to UUSA. Please refer to responses to Question (4) and Question (5) below.

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Question (4):

Existing fuel facility licensees and CoC holders of transportation and storage systems: Do you plan to submit a license amendment request to allow enrichment, fuel fabrication, and transportation of material with ATF concepts, increased enrichment, or higher burnup? If so, what is the increased enrichment limit requested, what technologies will the material include, and what is the timeframe for submitting the request?

Response (4):

The UUSA facility, operated by Louisiana Energy Services, LLC, is the only commercial enrichment facility operating in the United States. UUSA provides safe, cost effective and reliable uranium enrichment services and fuel cycle products for power generation within a framework of high environmental, social responsibility and corporate governance standards through operation of its centrifuge enrichment facility in Eunice, New Mexico.

UUSA is committed to pursuing Low Enriched Uranium Plus (LEU+) in support of industry endeavors to develop and implement Accident Tolerant Fuel (ATF) and Extended Fuel Cycle fuel. UUSA originally provided a Notice of Intent¹ in April 2021 to amend our license in accordance with 10 CFR 70.34 by requesting an increase of the enrichment limit in Materials License SNM-2010 from 5.5 wt % 235U up to 10.0 wt. % 235U, thus allowing UUSA to produce enriched UF₆ for industry use of fuel with marginally higher enrichment. At that time, UUSA began analyzing the necessary changes and modifications needed to safely support the proposed increase of allowable enrichment levels. UUSA efforts to pursue this course were discussed at the kick off Meeting² on June 16, 2021.

As part of the efforts to obtain NRC approval of increased enrichment limits up to 10.0 wt. % 235U, UUSA requested approval of revision to the existing UUSA MCNP6 Validation Report with an associated amendment to the UUSA Safety Analysis Report. On May 23, 2022, NRC staff responded by concluding the UUSA MCNP6 Validation Report for use of up to 10.0 wt. % 235U is acceptable³.

¹ Louisiana Energy Services, LLC, Notice of Intent for UUSA plan to submit License Amendment Requests for changes to License Condition 6B and Enrichment Limit ML21096A120

² LES Presentation for Public Meeting 2021-06-16 - ML21158A290

³ NRC Letter dated May 23, 2022 – UUSA Safety Analysis Report Amend 95 Revision for MCNP6 Validation Report - ML22129A126

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Recently, on August 9, 2023, UUSA met with NRC⁴ during a public meeting to discuss the Low Enriched Uranium Plus (LEU+) Project Scope of License Amendment Request submittals, their content and the schedule for forthcoming requests to support the increase of allowable enrichment levels to 10.0 wt. % ²³⁵U. As noted during this pre-submittal meeting a License Amendment Request to increase enrichment limits is planned for October 2023 with anticipated NRC approval by July 2024. UUSA will prepare for Operational Readiness Reviews between July 2024 and October 2024 with anticipated NRC Operational Readiness Reviews occurring between October 2024 and January 2025. These efforts are intended to support an Online date between January 2025 and April 2025.

Per the August 9, 2023, public meeting, the scope of the planned October 2023 License Amendment Request is to revise the Materials License SNM-2010 to allow for production, possession, transfer and storage of less than 10 wt % U-235. UUSA is requesting a shorter timeframe to conduct Operational Readiness Review from 120 days to 60 days prior to implementation and allow for other product cylinder types for on-site use.

In concert with UUSA efforts to increase current enrichment levels, UUSA plans to submit an exemption request from 10 CFR 71.55(g)(4) and certain deviations from Certificate of Compliance No. 9362 for the DN30 transportation package to authorize domestic shipments of LEU+. At the August 9, 2023 public meeting with NRC, UUSA noted pending transportation an exemption request is planned with a target submittal date in March 2024.

Question (5):

New fuel facility licensee and CoC applicants of transportation and storage systems: Do you plan to submit a new application to allow fuel fabrication, and transportation of material with ATF concepts, increased enrichment, or higher burnup? If so, what is the enrichment limit, what technologies will the material include, and what is the timeframe for submitting the request?

Response (5):

In addition to UUSA efforts seeking approval of enrichment levels up to 10.0 wt % ²³⁵U, as noted above in response to Question (4), UUSA has recently provided NRC a Notice of Intent⁵ to submit a License Amendment Request in accordance with 10 CFR 70.34 proposing an increase of the enrichment limit in Materials License SNM-

⁴ 08-09-2023 Pre-application meeting with Urenco USA re forthcoming license amendment request to increase the allowable enrichment level - ML23215A160

⁵ UUSA Intent to Submit LAR to Increase Enrichment Limit-Construction of HALEUF - ML23208A261



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2010 up to 20.0 wt. % ^{235}U , allowing UUSA to produce enriched UF_6 to support industry interest in using High Assay Low Enriched Uranium (HALEU). UUSA is proceeding with determining the necessary changes and modifications needed for our license to allow the construction of a new HALEU facility. UUSA will soon seek a pre-application meeting before progressing with calculations and evaluations.