

SAFETY EVALUATION REPORT

DOCKET: 70-3103

LICENSE: SNM-2010

LICENSEE: Louisiana Energy Services, LLC

SUBJECT: LOUISIANA ENERGY SERVICES, LLC, – AMENDMENT 110, APPROVAL OF URENCO USA LICENSE AMENDMENT REQUEST TO RAISE ENRICHMENT LIMIT TO THE LICENSED LIMIT FOR LOW-ENRICHED URANIUM PLUS RECYCLING AND SUPPORT SYSTEMS (LAR 24-01) (ENTERPRISE PROJECT IDENTIFIER L-2024-LLA-0120)

1.0 BACKGROUND

On August 29, 2024 (Agencywide Documents Access and Management System Accession No. ML24242A197), Louisiana Energy Services, LLC, dba Urenco USA (UUSA), requested U.S. Nuclear Regulatory Commission (NRC) approval of a license amendment request (LAR) to its special nuclear materials (SNM) license (SNM-2010) via LAR 24-01. In UUSA LAR 23-02, submitted November 30, 2023 (ML23334A122), UUSA requested approval to increase the enrichment level for production systems from 5.5 weight percent Uranium-235 (U-235) to less than 10.0 weight percent U-235. The increase of the enrichment limit from 5.5 weight percent to less than 10.0 weight percent U-235 is termed low-enriched uranium plus (LEU+) by UUSA. LAR 23-02 also included interim control measures for segregation and storage of LEU+ exposed components removed from the production systems. The NRC approved LAR 23-02 in December 2024 (ML24318C241). LAR 24-01 proposes to allow UUSA to apply the LEU+ enrichment limit to the on-site recycling and support systems and to remove interim controls established for segregation and storage of LEU+ exposed components removed from production systems. In LAR 24-01, UUSA proposes to notify the NRC for scheduling a readiness review at least 60 days prior to the planned use of the recycling and support systems and the removal of the interim controls for segregation. This proposal will be incorporated into SNM-2010 as part of the Constraints for License Conditions 6B and 6B.1.

The NRC staff issued requests for additional information (RAIs) by letter dated May 12, 2025 (ML25120A372) to obtain information needed to conduct a detailed technical review. By letter dated June 9, 2025 (ML25161A266), UUSA provided responses to the NRC staff's requests.

The NRC staff conducted its review in accordance with NUREG-1520, Revision 2, "Standard Review Plan for Fuel Cycle Facilities License Application" (ML15176A258) and NUREG/CR-6698, "Guide for Validation of Nuclear Criticality Safety Calculational Methodology" (ML050250061). The NRC staff also reviewed the request for compliance with that the requirements in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material."

2.0 SAFETY EVALUATION

2.1 Integrated Safety Analysis

PURPOSE OF REVIEW

The LAR (LAR 24-01) would allow UUSA to raise the enrichment limit for installed support systems (i.e., recycling and decontamination systems) from 5.5 to less than 10 weight percent U-235. This follows a previous LAR (LAR 23-02) that increased the enrichment level for production systems. The changes in the current LAR result in new and/or revised accident sequences, new and/or revised IROFS, and the removal of interim segregation controls which were established in LAR 23-02.

The purpose of this review is to determine whether the UUSA ISA program will continue to be in compliance with 10 CFR 70, Subpart H, "Additional Requirements for Certain Licensees Authorized to Possess a Critical Mass of Special Nuclear Material," should the NRC approve the LAR.

REGULATORY REQUIREMENTS

The NRC staff conducted its review of the LAR to ensure that the requested changes are consistent with the requirements in 10 CFR Part 70, including:

- The regulations in 10 CFR 70.61, "Performance requirements," require that the ISA evaluate compliance with performance requirements. Those requirements specify that the risk of each credible high-consequence event must be limited such that the likelihood of occurrence is highly unlikely, and the risk of each credible intermediate-consequence event must be limited such that the likelihood of occurrence is unlikely.
- The regulations in 10 CFR 70.62, "Safety program and integrated safety analysis," require the licensee to establish and maintain a safety program, including process safety information, the performance of an ISA that demonstrates compliance with the performance requirements of 10 CFR 70.61 and management measures. The ISA must identify radiological hazards, chemical hazards, facility hazards that could affect the safety of licensed materials and thus present an increased radiological risk, potential accident sequences, the consequence and likelihood of occurrence of each potential accident sequence, and each IROFS.
- The regulations in 10 CFR 70.65, "Additional content of application," require the licensee to submit an ISA Summary with the amendment that contains specific information to demonstrate compliance with 10 CFR 70.61.
- The regulation in 10 CFR 70.72, "Facility changes and change process," require the licensee to establish a configuration management system to evaluate, implement, and track each change to the site, structures, processes, systems, equipment, components, computer programs, and activities of personnel.

REGULATORY GUIDANCE

The NRC staff used the guidance in Chapter 3 of NUREG-1520, Revision 2, "Standard Review Plan for Fuel Cycle Facilities License Applications."

REGULATORY ACCEPTANCE CRITERIA

The acceptance criteria for the NRC's review of UUSA's integrated safety analysis (ISA) are outlined in Sections 3.4.3.1 and 3.4.3.2 of NUREG-1520, Revision 2. The acceptance criteria in Section 3.4.3.1 pertain to the performance of an ISA, while the criteria in Section 3.4.3.2 cover the content of the ISA Summary.

NRC STAFF REVIEW AND ANALYSIS

The NRC staff reviewed the information provided in Enclosure 2 of the LAR for completeness and selected a sample of specific accident sequences from the process areas impacted by the LAR for detailed review. For each of the selected accident sequences, the NRC staff reviewed the changes made to the ISA as presented in Enclosures 4 and 5 of the LAR, along with detailed calculations and the associated hazard evaluation provided as reference for each accident sequence.

The processes affected by this LAR are composed of three major systems: the Small Component Decontamination Train (SCDT), the Multi-Functional Decontamination Train (MFDT), and the Liquid Effluent Collection and Transfer System (LECTS). The NRC staff's review focused on areas where significant revisions were made, particularly new or significantly modified sequences and items relied on for safety (IROFS).

The NRC staff found that UUSA conducted process hazard analyses using acceptable methodologies. The NRC staff also found that UUSA adequately conducted the ISA to identify process hazards, credible accident sequences, the consequences and likelihood of those accident sequences, and the IROFS needed to meet the performance requirements of 10 CFR 70.61 as a result of the changes implemented in this LAR. In addition, UUSA stated in its LAR that "there are no new technologies or control systems necessary for LEU+ to be handled or processed in the installed recycling and support systems" and that "There are no changes to Safety Program commitments (Process Safety Information, Integrated Safety Analysis and Management Measures)."

EVALUATION FINDINGS

Because the requested amendment does not modify UUSA's existing ISA methodology and program commitments and the NRC staff's review concluded that the ISA was performed and revised adequately to reflect the changes implemented in this LAR properly, the NRC staff determined that UUSA's safety program continues to provide reasonable assurance that:

- UUSA conducted an ISA of appropriate detail for each applicable process using methods and qualified staff adequate to achieve the requirements of 10 CFR 70.62, "Safety program and integrated safety analysis;"
- UUSA identified and evaluated in the ISA credible events involving process deviations or other events internal to the facility (e.g., explosions, spills, and fires)

and credible external events that could result in facility-induced consequences to workers, the public, or the environment, that could exceed the performance requirements of 10 CFR 70.61, "Performance requirements," and

- UUSA appropriately designated IROFS, evaluated those IROFS for preventing or mitigating the applicable accident sequences and applied its management measures program to demonstrate compliance with the performance requirements of 10 CFR 70.61.

2.1.1 Integrated Safety Analysis - Human Factors

REGULATORY REQUIREMENTS

The requirement in 10 CFR 70.61(e) states that applicants shall establish a safety program to ensure that each IROFS will be available and reliable to perform its intended function when needed.

The requirement in 10 CFR 70.62(d) states, in part, that each applicant or licensee shall establish management measures to ensure compliance with the performance requirements of 10 CFR 70.61, that the measures applied to a particular administrative control may be graded commensurate with the reduction of the risk attributable to that control, and that management measures shall ensure that administrative IROFS required by 70.61(e) are designed, implemented, and maintained as necessary to ensure they are available and reliable to perform their function when needed.

The requirement in 10 CFR 70.65(b)(4) states, in part, that the ISA Summary must include a description of the management measures to be applied IROFS, as well as information necessary to demonstrate compliance with the performance requirements of 10 CFR 70.61.

REGULATORY GUIDANCE AND ACCEPTANCE CRITERIA

NUREG-1520, Revision 2, "Standard Review Plan for Fuel Cycle Facilities License Applications," provides guidance to the NRC staff reviewers who perform safety and environmental impact reviews of applications to construct or modify and operate nuclear fuel cycle facilities. Section 3.4.3.1, "Safety Program and Integrated Safety Analysis Commitments," states, in part, that human factors engineering (HFE) should generally be part of the safety program. Human factors practices should be incorporated into the applicant's safety program sufficiently to ensure that IROFS and management measures perform their functions in meeting the requirements of 10 CFR Part 70.

Chapter 11, "Management Measures," provides guidance for determining if compliance with 10 CFR 70.61 is met with reasonable assurance. Specifically, management measures are activities performed by a licensee, generally on a continuing basis, that are applied to IROFS to provide reasonable assurance that the IROFS will perform their intended safety function when needed to prevent accidents or mitigate the consequences of accidents to an acceptable level. As defined in 10 CFR 70.4, "Definitions," management measures include configuration management, maintenance, training and qualification, procedures, audits and assessments, incident investigations, records management, and other quality assurance elements.

Appendix E, "Human Factors Engineering for Personnel Activities," provides guidance to ensure HFE is applied to personnel activities identified as safety significant, consistent with the findings of the ISA, and the determination of whether an IROFS has special or unique safety significance. A graded approach commensurate with the complexity and integration and operation of the control systems is appropriate.

STAFF REVIEW AND ANALYSIS

The bases for the technical information in LAR 24-01 are the same as the revisions to the UUSA Safety Analysis Report (SAR) and ISA Summary provided in LAR 23-02. In Section 4.1, "Integrated Safety Analysis," of Enclosure 2, "Description of the Proposed Changes for Increased Enrichment Production (LAR 24-01)," UUSA stated that the ISA Summary analyses and evaluations for LEU+ were performed in accordance with the approved ISA process and Quality Program. As such, there are no new technologies or control systems necessary for LEU+ to be handled or processed in the installed recycling and support systems. Additionally, there are no changes to Safety Program commitments (Process Safety Information, Integrated Safety Analysis and Management Measures). However, there were new and revised accident sequences that were evaluated within the Safety Program. These accident sequences did not result in any severity level or accident consequence category changes; however, they did result in new or revised IROFS.

New and revised accident sequences and IROFS have resulted from replacing the Loss of Safe-By-Design Attribute accident sequence for these systems. The new IROFS are Passive Engineered Control (PEC) IROFS. The existing controls either had the limit changed or were reaffirmed for LEU+. The NRC staff reviewed both the new and revised IROFS associated with new or revised accident sequences and identified several proposed administrative and enhanced administrative IROFS. UUSA defines administrative IROFS as "a procedural human action that is prohibited or required to maintain safe process conditions," which is the same as the definition of a simple administrative IROFS in NUREG-1520. In Section 3.1.8.3, "Management Measures," of Enclosure 5, "Integrated Safety Analysis Summary with changes incorporated (LAR 24-01)," UUSA stated that management measures shall ensure that these structures, systems, equipment, components, and activities of personnel within the identified IROFS boundary are designed, implemented, and maintained, as necessary, to ensure they are available and reliable to perform their function when needed, to comply with the performance requirements assumed in the ISA Summary. This is in accordance with NUREG-1520 which describes how IROFS boundary packages should identify specific functions and identify any items that may affect the function of the IROFS.

In Section 5, "Implementation," of Enclosure 2, UUSA stated that the necessary changes to operating documents will be implemented prior to increasing enrichment levels. Changes required include Operating Procedure revisions, Operating Requirements Manuals revisions, IROFS Boundary Definition Document revisions and Change Management actions for supporting documents to incorporate LAR 24-01. There are no changes to the Safety Program commitments, as defined in the latest UUSA SAR, therefore, UUSA will continue to apply an HFE review of the human system interfaces for those IROFS requiring operator actions using appropriate NRC guidance.

Additionally, the NRC staff reviewed the UUSA programs and determined that the ISA summary provides reasonable assurance the IROFS will meet the intended safety function

via the continued application of management measures such as training and procedure development to IROFS.

EVALUATION FINDINGS

The NRC staff finds the request to be acceptable because UUSA will continue to apply HFE practices and management measures to the proposed new and revised IROFS for recycling and support systems requiring operator actions such that the IROFS will be designed, implemented, and maintained as necessary to ensure they are available and reliable to perform their function when needed. Therefore, the NRC staff finds reasonable assurance that the proposed new and revised IROFS comply with 10 CFR 70.61(e) and 70.62(d).

2.2 Nuclear Criticality Safety

PURPOSE OF REVIEW

The primary purpose of the review was to determine whether with the proposed changes in the LAR, UUSA will provide adequate protection against criticality hazards related to the storage, handling, and processing of licensed materials, as required by 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material." UUSA must adequately protect the health and safety of workers and the public from the risk of accidental criticality during both normal and credible abnormal conditions.

REGULATORY REQUIREMENTS

The NRC staff conducted its review of UUSA's request to ensure that the proposed changes are consistent with the requirements of 10 CFR Part 70, including:

- 10 CFR 70.24, "Criticality accident requirements;"
- 10 CFR 70.50, "Reporting requirements;"
- 10 CFR 70.52 "Reports of accidental criticality;"
- 10 CFR 70.61, "Performance requirements;"
- 10 CFR 70.62, "Safety program and integrated safety analysis;"
- 10 CFR 70.64, "Requirements for new facilities or new processes at existing facilities;" and
- Appendix A to Part 70, "Reportable Safety Events."

REGULATORY GUIDANCE

The NRC staff's review was performed in accordance with NUREG-1520, Revision 2, and portions of NUREG/CR-6698, "Guide for Validation of Nuclear Criticality Safety Computational Methodology" (ML050250061). UUSA's request did not involve any significant changes to the NCS program, NCS methodology, or ISA methodology; however, the request included the introduction of less than 10 weight percent U-235 into processes that were previously only authorized up to 5.5 weight percent U-235.

REGULATORY ACCEPTANCE CRITERIA

The acceptance criteria for the NRC's review of nuclear criticality safety are outlined in Section 5.4.3, "Regulatory Acceptance Criteria," of NUREG-1520, Revision 2.

STAFF REVIEW AND ANALYSIS

Chapter 5.0 of the UUSA SAR contains UUSA's programmatic commitments for management of its nuclear criticality safety (NCS) program. LAR 23-02 authorized the production and possession of uranium enriched up to less than 10 weight percent U-235, with the exception of onsite-recycling and support systems. LAR 24-01 subsequently requests authorization to introduce less than 10 weight percent U-235 into on-site recycling and support systems.

As part of LAR 23-02, the NRC staff evaluated the UUSA NCS program to ensure that it would be effective for enrichments less than 10 weight percent U-235, including an evaluation of the UUSA minimum margin of subcriticality (MMS) to ensure its continued validity, an evaluation of the UUSA methodology and demonstration of the assurance of subcriticality under normal and credible abnormal conditions, and overall compliance with 10 CFR 70.61. As part of LAR 23-02, the NRC staff also reviewed NCS-related changes to the UUSA ISA, with the exception of on-site recycling and support systems. In its safety evaluation report (SER) for LAR 23-02, the NRC staff concluded that the UUSA NCS program was acceptable for enrichments of less than 10 weight percent U-235 to assure subcriticality under normal and all credible abnormal conditions, provide reasonable assurance of adequate protection against the risk of criticality accidents, and otherwise satisfy the applicable requirements of 10 CFR Part 70. Given that the NRC staff previously evaluated whether the UUSA NCS program and methodology was acceptable for enrichments of less than 10 weight percent U-235, as documented in the SER for LAR 23-02, the NRC staff's review of LAR 24-01 focused on NCS-related changes to the UUSA SAR and NCS-related changes to the ISA, including a sample of new or revised criticality accident sequences and NCS evaluations.

2.2.1 Assurance of Subcriticality – Integrated Safety Analysis

Section 5.3.B.2 of NUREG-1520 states that NRC staff reviews should include, in part, any new or changed assumptions, controlled parameters, safety limits, controls, or safety margin, as well as new or changed criticality accident sequences.

The NRC staff reviewed a sample of new and revised accident sequences from the UUSA ISA to verify that credible criticality accident sequences are being identified and their likelihoods controlled consistent with the UUSA ISA methodology described in Chapter 3.0 of the UUSA SAR and the requirements of 10 CFR 70.61. The NRC staff reviewed the following accident sequences and associated IROFS:

IROFS	Accident Sequence	Description of IROFS	Description of Accident Sequence
IROFS112	LW1-100 (NEW)	Design features of the Slab Tank system to control geometry, volume, and neutron absorption	Failure to maintain control on geometry, volume, and neutron absorption for the Slab Tank system
IROFS127	DS7-100 (NEW)	Design features of the Small Component Decontamination Train to control geometry, volume, interaction, and neutron absorption	Failure to maintain control on geometry, volume, and neutron absorption for the Small Component Decontamination Train
IROFS125	SA1-102 (NEW)	Design features of the UF ₆ sample bottle or flex hose storage cabinets to maintain a favorable geometry	Failure of flex hose cabinet or 1S sample bottle cabinet in the Decontamination Workshop
IROFS104	DS1-100 (NEW)	Design features of the Multi-Function Decontamination Train to control geometry, volume, and interaction	Failure to control geometry, volume, and interaction of the Multi-Function Decontamination Train
IROFS166a	LW1-103 (DELETED)	Administratively prevent transfer of LEU+ liquid waste to Slab Tanks via sinks in Chemistry Lab and UTC by performing independent sampling	LEU+ liquid waste is disposed of through a Chemistry Lab sink or the UTC sink connected to the Liquid Effluent Collection and Transfer System
IROFS166b		Administratively prevent transfer of LEU+ liquid waste to Slab Tanks via sinks in Chemistry Lab and UTC by performing independent sampling	

IROFS165a	SA1-110 (DELETED)	Administratively restrict where movement, storage, and processing of containers or components containing LEU+ occurs to a subcritical configuration	Loss of enrichment control
IROFS165b		Administratively restrict where movement, storage, and processing of containers or components containing LEU+ occurs to a subcritical configuration	

In its sample of new or revised accident sequences, the NRC staff observed that UUSA adequately identified credible criticality accident sequences and appropriately controlled their likelihood consistent with 10 CFR 70.61. The NRC staff's evaluation of proposed changes to the UUSA ISA is further discussed in Section 2.1 of this report.

2.2.2 **Assurance of Subcriticality - Nuclear Criticality Safety Evaluations**

Section 5.3.B.2 of NUREG-1520 states that NRC staff reviews should include, in part, any new or changed assumptions, controlled parameters, safety limits, controls, or safety margin, as well as new or changed criticality accident sequences. Section 5.3.B.5 of NUREG-1520 states that NRC staff reviews should also include the justification for requested changes, including revised criticality safety basis documents (process hazards analyses, criticality safety evaluations, calculations, and other supporting technical documents) that are needed to demonstrate adequate protection against the risk of accidental criticality.

The NRC staff reviewed a sample of criticality safety evaluations (CSEs), criticality safety analyses (CSAs), and other NCS documents to verify that the NCS program was being implemented safely and consistent with the commitments in the UUSA SAR and determined that the analyses contained therein were consistent with the NCS technical practices and commitments described in the UUSA SAR. The NRC staff reviewed the following NCS analyses and NCS basis documents:

- (NCSA for IROFS104), NCS-CSA-112, Rev. 0, "Nuclear Criticality Safety Analysis of the [Multi-Function Decontamination Train (MFD)];"
- (NCSA for IROFS112), NCS-CSA-113, Rev. 0, "Nuclear Criticality Safety Analysis of the Slab Tanks;"
- (NCSA for IROFS127), NCS-CSA-111, Rev. 0, "Nuclear Criticality Safety Analysis of the [Small Component Decontamination Train (SCDT)];" and

- (NCSA for IROFS125), NCS-CSA-110, Rev.0, "Nuclear Criticality Safety Analysis of Storage Cabinets for Sample Cylinders (A1 and 1S) and for Flex Hoses (LEU+)."

The NRC staff observed in the sample of CSEs, CSAs, and other NCS documents that analyses were performed in accordance with the commitments in the UUSA SAR, including adherence to the double contingency principle, assurance of subcriticality under normal and credible abnormal conditions, treatment and control of NCS parameters, identification of credible upset conditions, and ISA methodology.

2.2.3 Chapter 3.0 of the UUSA Safety Analysis Report

Section 5.3.B.1 of NUREG-1520 states that NRC staff reviews should include portions of the license application (i.e., UUSA SAR) affected by the requested changes to ensure that the effectiveness of any license commitments is not reduced or that the licensee has provided adequate justification that there is still adequate protection against the risk of an accidental criticality. The NRC staff reviewed the requested NCS-related changes to Chapter 3.0 of the UUSA SAR and determined that the changes were either administrative or otherwise did not represent any significant technical changes to, or dilution of, existing commitments. Therefore, the NRC staff determined that NCS-related changes to Chapter 3.0 of the UUSA SAR were acceptable. The NRC staff's evaluation of proposed changes to Chapter 3.0 of the UUSA SAR are further discussed in Section 2.1 of this report.

2.2.4 Chapter 5.0 of the UUSA Safety Analysis Report

Section 5.3.B.1 of NUREG-1520 states that NRC staff reviews should include portions of the license application (i.e., UUSA SAR) affected by the requested changes to ensure that the effectiveness of any license commitments is not reduced or that the licensee has provided adequate justification that there is still adequate protection against the risk of an accidental criticality. The NRC staff reviewed the requested changes to Chapter 5.0 of the UUSA SAR and determined that certain changes were either administrative or otherwise did not represent any significant technical changes to, or dilution of, existing commitments; however, there were technical changes to Section 5.1. The NRC staff's evaluation of the requested technical changes to Section 5.1 of the UUSA SAR is discussed below.

Section 5.1 – Neutron Absorbers. Section 5.1 of the UUSA SAR states that certain NCS models can include structural materials credited for neutron absorption.

In its RAI (ML25120A372), NRC staff requested information regarding how structural materials credited for neutron absorption would be treated in NCS analyses, including whether UUSA performs calculations to determine minimum thicknesses required to maintain k_{eff} below the upper subcritical limit and whether such structural materials would be considered IROFS or subject to American National Standards Institute/American Nuclear Society (ANSI/ANS)-8.21, "Use of Fixed Neutron Absorbers in Nuclear Facilities Outside Reactors." In response to the NRC staff's RAI (ML25161A266), UUSA stated that reduced thicknesses are conservatively assumed in NCS analyses, and material dimensions are either verified upon receipt, after installation, or via periodic surveillance. UUSA further stated that neutron absorption properties by inherent structural or component materials are not considered fixed neutron absorbers subject to ANSI/ANS-8.21; however, the NRC granted a special authorization via correspondence dated May 24, 2012 (ML12150A372). This correspondence accepted existing cases present in NCS analyses that were not compliant with ANSI/ANS-8.21, but limited future cases, stating, "any additional analysis that

credits the use of absorbers in structural material without strictly adhering to ANSI/ANS-8.21 will require an amendment to the UUSA SAR and prior review and approval by the NRC.” The NRC staff noted that LAR 24-01 would not involve any new cases in which a new structural material type was credited for its inherent neutron absorption properties. Therefore, the NRC staff determined that this proposed change was acceptable.

EVALUATION FINDINGS

Based on the review discussed in this report, the NRC staff concluded that UUSA request provides reasonable assurance of subcriticality under normal and all credible abnormal conditions, provides reasonable assurance of adequate protection against the risk of criticality accidents, and otherwise satisfies the applicable requirements of 10 CFR Part 70, including 10 CFR 70.61(b) and 70.61(d).

3.0 ENVIRONMENTAL REVIEW

The NRC staff has determined that the requested action meets the requirements for a Categorical Exclusion under 10 CFR 51.22(c)(11):

Issuance of amendments to licenses for fuel cycle plants and radioactive waste disposal sites and amendments to materials licenses identified in § 51.60(b)(1) which are administrative, organizational, or procedural in nature, or which result in a change in process operations or equipment, provided that (i) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, (ii) there is no significant increase in individual or cumulative occupational radiation exposure, (iii) there is no significant construction impact, and (iv) there is no significant increase in the potential for or consequences from radiological accidents.

The request for an amendment to Materials License SNM-2010 involves changes in process operations and equipment (i.e., use of the existing facility recycling systems for LEU+ materials and components) that do not result in any significant adverse incremental impacts to the environment from the licensed activity. Implementation of these types of changes does not significantly alter the previously evaluated environmental impacts associated with the licensed operation, most recently in the NRC’s Environmental Assessment (ML2431A260) supporting NRC approval to allow increased enrichment to less than 10 weight percent U-235. There would be no construction impacts, no significant changes in the types and amounts of effluents released by the facility, no significant increase in occupational exposure of employees, and no significant increase in the potential for or consequences from potential accidents.

4.0 LICENSE CONDITIONS

As part of LAR 24-01, UUSA effectively requested that a license condition be imposed requiring them to notify the NRC for scheduling a readiness review at least 60 days prior to the planned use of the recycling and support systems and the removal of the interim controls for segregation. The underlined text below will be incorporated into Materials License SNM-2010 as part of the Constraints for License Conditions 6B and 6B.1.

Constraints for License Conditions 6B and 6B.1

URENCO USA facility (UUSA) shall not input parameters into the plant control system (PCS) to produce material for the assay above 5.0 wt. percent limit until the U.S. Nuclear Regulatory Commission (NRC) has completed an operational readiness review (ORR) to verify the necessary changes have been implemented and the facility will be operated safely and in accordance with the requirements of the license. UUSA shall notify the NRC for scheduling the ORR at least 60 days prior to the planned production. UUSA shall not use the installed recycling and support systems or remove the interim controls for segregation of components exposed to uranium enriched to less than 10 wt. percent U-235 removed from production systems until the NRC has completed a readiness review to verify the necessary changes have been implemented and the facility will be operated safely and in accordance with the requirements of the license. UUSA shall notify NRC for scheduling the readiness review at least 60 days prior to the planned use of the recycling and support systems and the removal of the interim controls for segregation. UUSA shall not produce product material at or above 10 wt. percent U-235 other than in the course of cascade performance adjustments, thus providing the operational flexibility to generate material to satisfactorily fulfill customer orders up to the less than 10 wt. percent U-235 limit. UUSA shall not at any time input parameters into the PCS to produce material for the assay at or above 10 wt. percent U-235.

License Condition 42 was added to Materials License SNM-2010 to ensure that UUSA segregates LEU+ and components exposed to LEU+ from non-LEU+ and systems and components that have not been exposed to LEU+. The underlined text below will be incorporated into License Condition 42 to allow use of the recycling and support systems upon completion of the readiness review and final NRC approval.

42. With the exception of the Gaseous Effluent Vent System, there shall be no processing of U-235 enriched to less than 10 wt. percent or components exposed to U-235 enriched to less than 10 wt. percent in any installed recycling systems or support systems, including the Ventilated Room, Decontamination Workshop, Liquid Effluent Collection and Transfer System Room, or Solid Waste Collection Room, until the NRC has completed a readiness review to verify the necessary changes have been implemented and the facility will be operated safely and in accordance with the requirements of the license. Systems and components that have been exposed to U-235 enriched to less than 10 wt. percent shall be segregated from systems and components that have not been exposed to U-235 enriched to less than 10 wt. percent until the NRC has completed the readiness review.

5.0 CONCLUSION

The NRC staff reviewed UUSA's LAR together with supporting analyses and responses to NRC staff RAIs. Based on its review discussed in this report, the NRC staff finds reasonable assurance that UUSA's ISA program, nuclear criticality program, and environmental protection program satisfy the applicable requirements of 10 CFR Parts 51 and 70 as stated in this report.

Therefore, the NRC staff approves the LAR to allow UUSA to apply the licensed enrichment limit of less than 10.0 wt. percent U-235 to the on-site recycling and support systems and to remove interim controls established for segregation and storage of components removed from production systems that are exposed to less than 10.0 wt. percent U-235. The NRC staff

imposes changes to license conditions to require that a readiness review be completed as a condition of the approval of the LAR, as delineated in this SER.

6.0 PRINCIPAL CONTRIBUTORS

The individuals and organizations listed below are the principal contributors to the preparation of this SER:

Jeremy Munson, NMSS
Brian Wagner, NMSS
Kamishan Martin, NRR
Jonathan Rowley, NMSS
Christine Pineda, NMSS