

**ENCLOSURE 6**  
**Environmental Information**

**Environmental Information  
Use of On-site Recycling and Support Systems for LEU+  
and Removal of Interim Controls for Segregation of Components  
License Amendment Request (LAR) 24-01**

1.0 Introduction

The Materials License (SNM-2010) issued by the U.S. Nuclear Regulatory Commission (NRC) to Louisiana Energy Services (LES) (dba "UUSA") authorizes UUSA to receive, acquire, possess and transfer byproduct, source, and special nuclear material as designated in the License. The licensed limit for enriched uranium ( $^{235}\text{U}$ ) has been 5.5 weight percent ( $\%$ ). In order to meet forecast nuclear industry needs for Uranium Hexafluoride ( $\text{UF}_6$ ) enriched to less than 10  $\%$   $^{235}\text{U}$ , LES has previously proposed a License Amendment Request (LAR) (LAR 23-02) to obtain regulatory authorization to produce, possess, handle and store  $\text{UF}_6$  enriched product to less than 10  $\%$   $^{235}\text{U}$ .  $\text{UF}_6$  enriched to greater than 5  $\%$   $^{235}\text{U}$  and less than 10  $\%$   $^{235}\text{U}$  is known as Low Enriched Uranium + (LEU+) [LES 2023b]. LAR 23-02 is currently undergoing review by the NRC staff.

LAR 23-02 was limited in scope in that it proposed authorization for the production, handling and storage of LEU+ without the reliance on the installed recycling and support systems, for which analyses and evaluations had not yet been completed, with the exception of the Gaseous Effluent Vent System (GEVS), which provides ventilation services to involved areas. Material and components exposed to LEU+ needing repairs or rebuilding would be removed from production process systems authorized by LAR 23-02 and would be transferred, segregated and stored in evaluated on-site storage locations that ensure regulatory requirements are satisfied until a subsequent LAR to utilize the on-site recycling and support systems is approved by the NRC. Interim controls were also established to ensure segregation and proper storage of removed components until the recycling and support systems were approved for handling LEU+ material.

This LAR (LAR 24-01) is the subsequent LAR and proposes and justifies the use of the installed recycling and support systems for LEU+ handling that will be utilized at the UUSA facility, as well as confirm potential environmental impacts of that action. The use of on-site recycling and support systems were previously considered as a reasonably foreseeable action and were included as estimates in LAR 23-02, Section 5, "Assessment of Impacts" [LES 2023b]. The environmental information in this LAR 24-02 provides confirmation that, after analyses and evaluations of recycling and support systems for LEU+, the conclusions in LAR 23-02 remain valid and bounding and provides any necessary updates to the environmental information provided in LAR 23-02. This LAR (24-01) also removes the need for the interim controls previously established to segregate LEU+ exposed components removed from production, handling and storage systems as the LAR demonstrates that the 10 CFR 70.61 performance requirements remain satisfied. Additionally, this LAR proposes restrictions on the use of the recycling and support systems for LEU+ and removal of the interim controls until the NRC has conducted a readiness review.

This LAR is being submitted to the NRC pursuant to the requirements of Materials License SNM-2010, License Condition 30 and 10 CFR 70.72(d)(1), and in accordance with 10 CFR 70.34.

UUSA submitted a Supplemental Environmental Report to the NRC in concert with a previous LAR 12-10 to increase the UUSA facility production capacity [LES 2012a]. The proposed production capacity was expanded from 3 to 10 million separative work units (MSWU). The gaseous effluents released from the facility were anticipated to be well below regulatory limits in 10 CFR 20, "Standards for Protection Against Radiation". Occupational and public radiation exposures were well below the limits established in 10 CFR 20. The NRC review and findings regarding the facility capacity expansion were that the environmental impacts were SMALL to MODERATE and provided a Finding of No Significant Impact (FONSI) in March 2015 [NRC, 2015a].

Additionally, three previous LARs were submitted to the NRC related to raising enrichment possession and production limits:

1. An authorization request to increase the enrichment possession limit from 5.0 w/o <sup>235</sup>U to 5.5 w/o <sup>235</sup>U (LAR 13-02) [LES 2013] and,
2. An authorization request that included all necessary processes, systems and components for the UUSA site to produce up to 5.5 w/o <sup>235</sup>U (LAR 19-01) [LES, 2019]
3. An authorization request that proposed raising the enrichment limit for the product assay to less than 10 w/o <sup>235</sup>U (LAR 23-02) [LES 2023b]

The NRC review and evaluation of the first two LARs for raising the enrichment limits concluded there were no significant environmental impacts based on review of the criteria in 10 CFR 51.60(b)(2) and supplements to the Environmental Report were not necessary for either LAR. Therefore, the NRC determined both LARs met the criteria for, and were determined to be, Categorical Exclusions under 10 CFR 51.22(c)(11) [NRC 2013] [NRC, 2020]. The NRC review of the third LAR is currently in progress.

Although the NRC review of previously submitted LAR 23-02 for LEU+ production, storage and handling has not been completed at the time of LAR 24-01 submittal, a review and evaluation of the scope of LAR 23-02 has been included in this environmental information discussion, as well as considerations of cumulative impacts, and demonstrates that an environmental report, or supplement, is not required for the Proposed Action and that a Categorical Exclusion pursuant to 10 CFR 51.22(c)(11) is appropriate.

10 CFR 51.60(b)(2) requires that an environmental report be prepared and submitted for issuance of an amendment that would authorize or result in:

- (i) a significant expansion of a site
- (ii) a significant change in the types of effluents
- (iii) a significant increase in the amounts of effluents
- (iv) a significant increase in individual or cumulative occupational radiation exposure
- (v) a significant increase in the potential for or consequences from radiological accidents, or
- (vi) a significant increase in spent fuel storage capacity

The proposed changes to the Materials License and supporting Licensing Documents were reviewed for potential environmental impact referencing guidance in NUREG-1748, "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs" [NRC 2003] and include the topical areas identified in Section 3.3.

UUSA has analyzed the 30B product cylinder and intends to use it for less than 10 w/o <sup>235</sup>U product and has determined its satisfactory capability for the higher enrichment as identified in previous LAR 23-02 (LES 2023b). Additionally, the NRC has approved the Orano DN30-X transportation package for domestic shipments using the 30B-10 product cylinder [NRC, 2023a]. UUSA also intends to use the Orano 30B-10 product cylinder for less than 10 w/o <sup>235</sup>U product. Both cylinders are compatible with existing facilities and physical equipment and changes are not anticipated for their use with LEU+. The authorization proposed in this LAR for use of on-site recycling and support systems and removal of interim controls for material segregation does not involve or impact the use of either product cylinders.

There are no physical changes needed for the Uranium Byproduct Cylinder (UBC) Storage Pad for this LAR as UUSA does not intend to store filled LEU+ product cylinders on the UBC Storage Pad/Outdoor Cylinder Storage Areas. Filled product cylinders have been evaluated for safe storage in the Cylinder Receipt and Dispatch Building (CRDB) and Separations Building Modules (SBMs) in triple stacked arrays that are infinite in two dimensions (x and y planes). The use of the recycling and support systems for LEU+ and the removal of the interim controls established for material segregation has no impact on the UBC Storage Pad or other product cylinder storage locations.

This environmental information discussion is provided to discuss any potential environmental impacts of the Proposed Action and provides the basis for the Categorical Exclusion conclusion.

## 2.0 The Proposed Action

The Proposed Action in LAR 24-01 is to increase the enrichment limit to the license limit in LAR 23-02 for on-site recycling and support systems and removal of the interim controls established for material segregation for LEU+ exposed components removed from production systems at the UUSA facility in Eunice, New Mexico. This Proposed Action for enrichment limit increase for these systems is consistent with the production of LEU+ enrichment limit requested in LAR 23-02 [LES, 2023b]. The regulatory authorizations for these licensed increases for enrichment in these on-site recycling and support systems and removal of interim controls for segregation are proposed and justified in LAR 24-01, Enclosure 2. The Proposed Action also includes a restriction that precludes implementing the enrichment increase and removal of the interim controls until after the NRC conducts a readiness review.

The Proposed Action to allow use of the enrichment license limit proposed in LAR 24-01 is limited to those processes, systems and components that are needed to decontaminate, recycle and process LEU+ exposed material at the UUSA site. When coupled with the approval of LAR 23-02, the Proposed Action will authorize the normal production, handling, storage and decontamination of components exposed to LEU+ in accordance with the Materials License SNM-2010 limits.

The Proposed Action for LAR 24-01 does not include authorization for domestic or international shipping or transportation of LEU+.

Other relevant documents concerning raising the enrichment limit or plant capacity at the UUSA facility are discussed in Section 1.0, "Introduction", above.

### 3.0 The Need for the Proposed Action

The need for the Proposed Action is to authorize UUSA to use the installed on-site recycling and support systems capability to process enriched material to the licensed limit in LAR 23-02 in order to decontaminate and rebuild/reuse components rather than segregate and store components.

The need for the Proposed Action is to also remove the interim controls established for the segregation and storage of LEU+ exposed material and components after demonstrating that those controls are no longer needed as the performance requirements of 10 CFR 70.61 are satisfied for the Proposed Action through LAR 24-01.

The need for the Proposed Action is also to restrict implementing the changes until the NRC conducts a readiness review is to ensure that the facility can be operated safely.

#### 4.0 Environmental Impacts of the Proposed Action

UUSA will use existing facilities and equipment within the established site boundaries to accomplish the Proposed Action. There will be no construction of new facilities or modifications to existing building structures or UBC Storage Pad at the site in order to implement the Proposed Action. The Proposed Action does not impact the type or use of product cylinders for UF<sub>6</sub>.

The Proposed Action will not employ new technology for which UUSA has no prior experience and does not propose changes to the total material possession limits in Materials License SNM-2010. Potential impacts to the environment from the Proposed Action are limited to those associated with using the recycling and support systems at licensed enrichment values and removal of the interim controls for segregation of components removed from LEU+ production systems for refurbishment.

Cumulative effects are those impacts on the environment which result from the Proposed Action when added to the past, present and reasonably foreseeable future actions regardless of what agency or person undertakes the action. The past, present and reasonably foreseeable future actions considered in assessing the cumulative impacts of the Proposed Action are included in the discussion in Section 5.0.

#### 4.1 Potentially Affected Environment

- Land Use  
Because the requested Proposed Action does not involve any new or altered land use, the review indicates there will be no land use impacts as a result of the Proposed Action.
- Transportation  
Transportation impacts were reviewed with respect to the number of feed cylinder arrivals at the facility and anticipated number of waste cylinder and LEU+ product cylinder shipments.

##### Feed Cylinders

The number of feed cylinder deliveries is not expected to change, nor is the type of feed cylinder transportation vehicle for the Proposed Action.

##### Waste Cylinders

Since this LAR only deals with the authorization to use on-site recycling and support systems and removal of interim controls for segregation and storage, the number of waste cylinders from the facility is not expected to change. The type of waste cylinder transportation vehicles for the Proposed Action also will not change. Waste cylinders are further discussed in the Waste Management section below.

Product Cylinders

The type and number of product cylinder transportation vehicles is not expected to change for the Proposed Action.

- Geology and Soils

Because the requested Proposed Action does not involve any geological or soil disturbance, the review indicates there will be no geology or soils impacts as a result of the Proposed Action.

- Water Resources

The Proposed Action would not contribute to impacts on surface water in the region, because there are no permanent or jurisdictional surface waters or drainage features within the UUSA site and there are no receiving waters for site runoff derived from the facility other than the detention/retention basins that control stormwater discharges. There are no plans to change the outdoor storage arrangements under this Proposed Action so there will be no changes in stormwater runoff impacts. Because the requested Proposed Action does not involve any new or altered uses or discharges to surface water or groundwater, the review indicates there will be no water resources impacts as a result of the Proposed Action.

- Ecological Resources

Because the requested Proposed Action does not involve any alterations to terrestrial or aquatic habitats, the review indicates there will be no ecological resources impacts as a result of the Proposed Action.

- Air Quality

Process building stacks would continue to release gaseous effluents that would be both radioactive ( $UF_6$ ) and non-radioactive hydrogen fluoride (HF). The principal function of GEVS is to protect both the operators during the connection/disconnection of  $UF_6$  process equipment and the environment by collecting and cleaning all potentially hazardous gases from the facility prior to release to the atmosphere. Releases to the atmosphere would remain in compliance with regulatory limits. Potential health effects from process stack emissions are discussed in Section 5.2.

- Noise

The requested Proposed Action does not involve any new or altered noise emissions, and therefore the review indicates there will be no additional noise impacts as a result of the Proposed Action.



- Historic and Cultural Resources

Because the requested Proposed Action does not involve any disturbance of historic or cultural resources, the review indicates there will be no historic and cultural resources impacts as a result of the Proposed Action.

- Visual/Scenic Resources

Because the requested Proposed Action does not involve any visible changes to the facilities, the review indicates there will be no visual or scenic resource impacts as a result of the Proposed Action.

- Socioeconomics

Because the requested Proposed Action does not involve any socioeconomic factors, the review indicates there will be no socioeconomic impacts as a result of the Proposed Action.

- Environmental Justice

Because the requested Proposed Action does not involve changes to the current facilities, the review indicates there will be no environmental justice impacts as a result of the Proposed Action.

- Waste Management

The installed and existing recycling and support systems at UUSA will be utilized to implement the Proposed Action in LAR 24-01 as well as the removal of interim controls for segregation of LEU+ exposed components. Components removed from LEU+ exposed systems, which retain future value, are not considered wastes and they will be appropriately stored until scheduled for decontamination activities. The recycling process for these components remains identical to the recycling process for less than 5 w/o <sup>235</sup>U, with no addition of new or unique decontamination fluids or chemicals.

The ventilation systems effluent sample filters will continue to be monitored for gross alpha, gross beta and isotopic uranium and may be changed out on a more frequent basis than the current monthly change out frequency. However, ventilation sample filters were evaluated on a weekly change out frequency in the previous facility expansion Environmental Assessment and the current filter change out waste will remain bounded by the Environmental Assessment. Additionally, it is not anticipated that the GEVS in-line filters will require changeout more frequently than the current annual basis. The previously evaluated projected filter recycling generation rate of 99,790 kg/yr (220,000 lb/yr) [NRC, 2015b] will remain bounding with the potential addition of sample filter materials. Impacts of the Proposed Action with respect to waste management are addressed in Section 5.1.

- Public and Occupational Health

The Proposed Action has the potential to slightly increase radiation levels within the UUSA facility for occupational workers. This is due to the fact that unirradiated uranium radioactivity increases approximately linearly with an increase in enrichment, mainly due to the influence of the increase in percentage of  $^{234}\text{U}$  and  $^{235}\text{U}$ . The potential to increase radiation levels at and beyond the site boundary due storage of  $\text{UF}_6$  cylinders on the UBC Storage Pad is not anticipated as UUSA does not intend to store filled LEU+ product cylinders on the UBC Storage Pad. Continued use of the GEVS during LEU+ production is also evaluated for dose and uranium intake impact. The impact of the Proposed Action for Public and Occupational Health is discussed in Section 5.2.

## 5.0 Assessment of Impacts

This section discusses the significance of the relationship between the environmental resource and the Proposed Action. In addition, this Section also considers potential cumulative environmental impacts from the perspective of past, present and reasonably foreseeable future actions for the Proposed Action of this LAR.

The areas to be considered for review with respect to cumulative impacts include:

1. Impacts of the initial UUSA facility before the facility expansion
2. Impacts of the preconstruction activities to support UUSA facility expansion from 3 MSWU to 10 MSWU
3. Impacts of other past, present and reasonably foreseeable future projects within and outside the UUSA facility site

The three categories of past, present and reasonably foreseeable future actions are discussed below.

- Initial UUSA Facility before Facility Expansion

The potential environmental impacts of construction, operation and decommissioning of the initial UUSA facility are described in the initial Environmental Impact Statement (EIS) for the facility [NRC, 2005]. The impacts are summarized in the EIS in Section 2.3, Table 2-9.

- Facility Expansion Preconstruction Activities

Preconstruction activities for facility expansion were not considered as part of the Proposed Action for facility expansion from 3 MSWU to 10 MSWU. However, in the Environmental Assessment conducted for the facility expansion, the preconstruction activities were considered to be past actions with the potential for cumulative impacts and those potential cumulative impacts were included for completeness [NRC, 2015c].

- Other Past, Present and Reasonably Foreseeable Future Actions

### UUSA Facility

The present actions considered include the current facility operations-identified impacts included in the facility expansion Environmental Assessment [NRC, 2015c] and the future potential impacts after implementing the Proposed Action in LAR 23-02 which is currently in NRC review [LES, 2023b]. The potential environmental impacts of implementing the Proposed Action are found in Section 5.1 of this Enclosure.

Additionally, UUSA has notified the NRC of its intent to further raise the enrichment limit of the Materials License SNM-2010 from the current licensed limit up to

20 w/o <sup>235</sup>U in the future. UUSA is proceeding with the planning of necessary changes and modifications needed for the Materials License to allow for potential construction of a new building within the current site boundary [LES 2023a].

Note: This license application and environmental report have not yet been written or submitted, so data is not yet available for the facility changes. It is noted here for completeness.

#### Projects and facilities outside UUSA facility

The previous Environmental Assessment for facility expansion also evaluated cumulative impacts for local projects and facilities when considering the potential impacts of the expansion where the future actions were those considered during the construction, operation and decommissioning of the expanded facility. The other past, present and reasonably foreseeable future projects and actions considered in the cumulative impact analysis are as identified [NRC, 2015d]. The status of those projects identified in Table 4-11 are considered in the same status as identified in that Environmental Assessment. However, in the intervening time interval, additional relevant local projects have been identified:

1. Interim Storage Partners, LLC: Issuance of Materials License No. SNM-2515 for the WCS Consolidated Interim Storage Facility Independent Spent Fuel Storage Installation Docket No. 72-1050, dated 13 September 2021 [NRC 2021a]
2. Holtec, International: Issuance of Final Safety Evaluation Report for the HI-STORE Consolidated Interim Storage Facility Independent Spent Fuel Storage Installation Specific Materials License No. SNM-2516, Docket No. 72-1051, dated May 2023 [NRC 2023b]
3. Eden Radioisotopes, LLC (Eden): Eden has informed the NRC of its intent to submit a license application to construct and operate a medical radioisotope production facility east of Eunice, New Mexico. Eden has stated that it plans to submit license applications to construct and operate the isotope production facility in the second quarter 2024 [Eden, 2023].

Note: This license application and environmental report have not yet been submitted, so data is not yet available for the facility. It is noted here for completeness.

The issuance of the licenses to construct and operate these relatively close proximity Consolidated Interim Storage Facility projects (Interim Storage Partners, LLC: within 1.5 miles (2.4 km); and Holtec, International: within 40 miles (64 km)) and the future construction and operation of the medical isotope facility may influence the potential cumulative impacts of the UUSA Proposed Action.

Included in the Licensing action for the Interim Storage Partners, LLC and Holtec, International, projects was an Environmental Impact Statement (EIS) to construct and operate each facility.

1. Environmental Impact Statement for Interim Storage Partners LLC’s License Application for a Consolidated Interim Storage Facility for Spent Nuclear Fuel in Andrews County, Texas, Final Report, dated July 2021 [NRC, 2021b]
2. Environmental Impact Statement for the Holtec International’s License Application for a Consolidated Interim Storage Facility for Spent Nuclear Fuel in Lea County, New Mexico, as supplemented, dated October 2022 [NRC, 2022a]

The potential impacts from the construction and operation of the Eden facility would be, at this time, speculative due to the limited available plans and documentation. Therefore, potential Eden facility impacts are not included in cumulative impact determinations.

The geographic scope for the cumulative impacts reviews was taken from the topical areas in the EISs.

Table 5-1 summarizes the impacts of the Proposed Action in LAR 24-01 and the cumulative impacts which consider the other past, present and reasonably foreseeable activities identified in Section 5.

<b>Table 5-1 Summary Table of Environmental Impacts of the Proposed Action in LAR 24-01 and Cumulative Impacts Considering Reasonably Foreseeable Future Actions</b>		
<b>Resource</b>	<b>LAR 24-01 Proposed Action</b>	<b>Cumulative Impact</b>
Land Use	No impact	The proposed project is projected to have no incremental effect when added to the MODERATE impacts from other past, present, and reasonably foreseeable future actions, resulting in an overall MODERATE cumulative impact to land use.
Transportation	No impact	The proposed project is projected to have no incremental effect for traffic-related impacts and a SMALL cumulative transportation impact.
Geology and Soils	No impact	The proposed project is projected to have no incremental effect when added to the MODERATE impacts from other past, present, and reasonably foreseeable future actions, resulting in an overall MODERATE cumulative impact to geology and soils.

<b>Table 5-1                      Summary Table of Environmental Impacts of the Proposed Action                      in LAR 24-01 and Cumulative Impacts Considering Reasonably                      Foreseeable Future Actions</b>		
<b>Resource</b>	<b>LAR 24-01 Proposed Action</b>	<b>Cumulative Impact</b>
Water Resources	No impact	The proposed project is projected to have no incremental effect when added to the MODERATE impacts from other past, present, and reasonably foreseeable future actions, resulting in an overall MODERATE cumulative impact to groundwater resources.
Ecological Resources	No impact	The proposed project is projected to have no incremental effect when added to the SMALL to MODERATE impact from other past, present, and reasonably foreseeable future actions, resulting in an overall SMALL to MODERATE cumulative impact to ecological resources.
Air Quality	SMALL	The proposed project is projected to have a SMALL incremental effect when added to the MODERATE impacts from other past, present, and reasonably foreseeable future actions, resulting in an overall MODERATE cumulative impact to air quality.
Noise	No impact	The proposed project is projected to have no incremental effect when added to the MODERATE impacts from other past, present, and reasonably foreseeable future actions, resulting in an overall MODERATE cumulative impact to noise resources.
Historic and Cultural Resources	No impact	The proposed project is projected to have no incremental effect when added to the SMALL impact from other past, present, and reasonably foreseeable future actions, resulting in an overall SMALL cumulative impact to historical and cultural resources.

<b>Table 5-1                      Summary Table of Environmental Impacts of the Proposed Action                      in LAR 24-01 and Cumulative Impacts Considering Reasonably                      Foreseeable Future Actions</b>		
<b>Resource</b>	<b>LAR 24-01 Proposed Action</b>	<b>Cumulative Impact</b>
Visual/Scenic Resources	No impact	The proposed project is projected to have no incremental effect when added to the MODERATE impacts from other past, present, and reasonably foreseeable future actions, resulting in an overall MODERATE cumulative impact to visual and scenic resources.
Socioeconomics	No impact	The proposed project is projected to have no incremental effect when added to the SMALL to MODERATE impacts from other past, present, and reasonably foreseeable future actions, resulting in a SMALL to MODERATE cumulative impact in the socioeconomic region of influence.
Environmental Justice	No impact	The cumulative impacts would have no disproportionately high and adverse impacts to low-income or minority populations.
Waste Management	SMALL	The proposed project is projected to have a SMALL incremental effect when added to the MODERATE impacts from other past, present, and reasonably foreseeable future actions, resulting in an overall SMALL cumulative impact to waste management.
Public and Occupational Health	SMALL	The proposed project is projected to have a SMALL incremental effect when added to the SMALL impacts from other past, present, and reasonably foreseeable future actions, resulting in an overall SMALL cumulative impact to public and occupational health.

As identified in Section 4.1, a number of reviewed areas for potential impact are not affected by the Proposed Action in LAR 24-01.

The non-impacted topical areas are:

- Land Use
- Transportation
- Geology and Soils
- Water Resources
- Ecological Resources
- Noise
- Historic and Cultural Resources
- Visual/Scenic Resources
- Socioeconomics
- Environmental Justice

The potentially impacted areas are discussed below.

#### 5.1 Waste Management

The scope of the Proposed Action is to obtain regulatory authorization for only the use of recycling and support systems for processing and decontamination of LEU+ exposed components and removal of interim controls for segregation of removed components. Production material and components that are removed from the production processes that have been exposed to LEU+ UF<sub>6</sub> are segregated and stored in analyzed and evaluated locations within the UUSA facility and are not considered “waste” by UUSA. These materials and components retain future value to be realized (e.g., future pump rebuilding and use, future component decontamination) after the recycling systems and components receive regulatory authorization for LEU+ handling in this LAR. Processing and decontamination of this material will occur after approval of this LAR. Therefore, decontamination of materials and components exposed to LEU+ will occur as a result of this Proposed Action and the current waste minimization practices will remain intact. Additionally, the processes and materials used for decontamination after this LAR is approved will be the same as currently utilized. However, the type and amount of waste product will be consistent with current practices, albeit some will be at a higher analyzed enrichment. Raising the enrichment limit requires additional criticality and safety controls for recycling and support systems, but is transparent to the actual decontamination and recycling processing activities.

#### Radioactive Waste

Implementation of the Proposed Action at UUSA is not anticipated to change the amount, type, containers or handling of radioactive waste as these systems are currently in use at the facility for a lower enrichment limit. All solid radioactive waste generated will remain Class A Low Level Radioactive Waste (LLRW). However, liquid radioactive waste is not currently collected, processed and solidified in amounts described in the facility expansion Environmental Assessment [NRC, 2015]. Liquid radioactive waste is collected in bulk storage tanks installed in the Liquid Effluent Collection and Transfer System (LECTS) and shipments occur as necessary based on tank volumes. Two liquid waste shipments have occurred during facility operation. Waste is pumped via a transfer



system to totes and transferred for disposal. Implementation of LEU+ for the recycling and support systems is not expected to change this process.

Note: GEVS waste filters for LEU+ are addressed in LAR 23-02, Enclosure 8, Sections 4.1 and 5.2 [LES, 2023b].

#### Hazardous/Mixed Waste

Implementation of the Proposed Action at UUSA is not anticipated to change the amount, type, containers or temporary storage of hazardous or mixed waste. Hazardous and waste will continue to be managed utilizing Best Management Practices as currently employed. UUSA will not conduct on-site treatment and will continue to only temporarily store hazardous waste at the UUSA site for transportation to a licensed off-site hazardous waste facility within the required 90 day timeframe.

#### Non-hazardous waste

The future use of recycling systems at UUSA is not anticipated to change the amount, type, containers for or storage of non-hazardous waste. Non-hazardous waste will continue to be shipped to the licensed off-site Lea County landfill, which has sufficient capacity for the life of the UUSA facility [NRC, 2015m]

The Proposed Action for installed recycling and support system use and removal of interim controls for segregation does not involve the generation of any new liquid, hazardous waste or decontamination system fluid volumes in excess of those previously evaluated. Due to the current less frequent filter change out periodicity, including a conservative assumption of a slight increase in sample filter change out, and the capacity of license waste facilities to accommodate the incremental filter waste the impact from raising the enrichment level and use of recycling and support systems and removal of interim controls for segregation on Waste Management is SMALL. No mitigation is required.

The Proposed Action in this LAR to use the recycling and support systems and remove interim controls for segregation will not produce Low Level Radioactive Wastes, hazardous, nonhazardous and sanitary wastes beyond what has been previously evaluated and the disposal facilities capacity remains adequate to manage the waste streams. To better understand the cumulative waste potential impact, the EISs from the foreseeable future activities for the Holtec, International, and Interim Storage Partners LLC facilities were reviewed. The evaluations from these two EISs conclude that cumulative impacts would be SMALL to MODERATE between these facilities, mainly due to the projected closure of one currently available landfill, absent the creation of another such facility [NRC 2022a], [NRC, 2021b]. However, in the UUSA facility expansion Environmental Assessment, the conclusion that the cumulative impact on waste streams was that the impact would be considered MODERATE, mainly due to the increase in depleted UF<sub>6</sub> from potential additional domestic enrichment facility operations [NRC, 2015h].

Therefore, the cumulative waste management impacts would remain MODERATE and no additional mitigation is required.

## 5.2 Public and Occupational Health Impacts

### 5.2.1 *Non-radiological Impacts*

#### Hazards to the Public

Facility emissions during normal operations that would cross the site boundary and result in possible exposures to members of the public would be limited to small quantities of UF<sub>6</sub> and HF that are not captured by GEVS and are emitted from the rooftop ventilation stack. No other routine chemical emissions would be at levels of potential concern to the public. At the previously evaluated increased plant capacity of 10 MSWU at 5 w/o <sup>235</sup>U enrichment, site annual emissions were forecast at 12 g (0.027 lb) uranium and 1.2 kg (2.7 lb) HF. Using the Environmental Protection Agency's AERMOD model, these emission rates resulted in an estimated maximum 8-hour average ambient air concentration of HF of  $9.3 \times 10^{-3} \mu\text{g}/\text{m}^3$  and of uranium of  $9.9 \times 10^{-5} \mu\text{g}/\text{m}^3$  [NRC 2015i].

Radiological Assessment System for Consequence Analysis (RASCAL) scenarios were performed across multiple enrichments (5, 10, 20 w/o <sup>235</sup>U) and demonstrated that forecast emissions with the Proposed Action for hydrogen fluoride (HF) remain unchanged across the various enrichments (although the enrichment level for the proposed action is limited to that proposed in LAR 23-02). That is, the HF concentrations continue to remain several orders of magnitudes below the Emergency Response Planning Guidelines, ERPGS-2, limit of 20 ppm (i.e., the maximum airborne concentration below which nearly all individuals could be exposed to for up to 1 hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action) to the workers and members of the public.

Likewise, the mass of uranium deposited or inhaled is not impacted by the change in enrichment as demonstrated by the same RASCAL scenarios evaluated, based on the International Commission of Radiological Protection (ICRP) 26/30 inhalation dose factors and ranges of enrichment. The soluble uranium intake remains well below the 10 CFR 20.1201(e) limit of 10 mg in a week for workers or members of the public.

The estimated concentration of uranium remains approximately five orders of magnitude below the National Institute for Occupational Safety and Health (NIOSH) and Occupational Safety and Health Administration (OSHA) occupational exposure limit for soluble uranium forms of  $50 \mu\text{g}/\text{m}^3$  [NRC 2015i].

Although no ambient air quality standards are available, comparison to the occupational standards indicates that the uranium exposures to the public from normal operations remain below levels of public health concern. The impact of raising the enrichment level for the use of the recycling and support systems and removal of interim controls for segregation on Hazards to the Public is SMALL and no mitigation is required.

### Occupational Hazards

The installed GEVS will continue to function as designed to prevent worker exposure and to collect and trap Hydrogen Fluoride (HF) and uranium compounds in process-line effluent and workspace air. The GEVS will continue to operate as designed after this proposed LAR is approved and implemented for the ventilated areas where LEU+ handling, decontamination and storage occur. Occupational injuries and chemical exposures at the facility would not change from the current profile due to the Proposed Action and the impact from the higher enrichment level from using installed recycling and support systems and removal of interim controls for segregation remain SMALL and mitigation is not required.

## 5.2.2 *Radiological Impacts*

### Public Radiological Health Impacts

#### *Gaseous Effluent Impacts*

The radiological impacts of gaseous releases were previously evaluated for the UUSA facility expansion from 3 to 10 MSWU and found to be only a small fraction of the NRC public dose limit of 1 mSv/yr (100 mrem/yr) as stated in 10 CFR 20.1301(a)(1) at the increased facility capacity. The gaseous release dose impact was based on the conservative assumption that the annual release of uranium would be 800  $\mu\text{Ci/yr}$  (29.7 MBq/yr). However, the estimated gaseous dose at the site boundary is a small fraction of the dose from direct exposure [NRC 2015j].

In accordance with 10 CFR 70.59, "Effluent Monitoring Requirements", UUSA submits a semi-annual effluent monitoring report to the NRC regarding radioactivity in effluents during the previous six months. A review of the UUSA facility Semi-Annual Radiological Effluent Release Reports since the facility capacity expansion was approved by the NRC in March 2015 through December 2023 was conducted. In all cases, in gaseous effluents, the gross uranium activities were below the Minimum Detectable Activity (MDA) or were less than 10% of values listed in 10 CFR 20, Appendix B, Table 2, "Effluent Concentrations – Col. 1, Class D" for  $^{234}\text{U}$ ,  $^{235}\text{U}$ , and  $^{238}\text{U}$ .

The concentrations of isotopic uranium in gaseous effluents were either below the Minimum Detectable Concentration (MDC) or were less than 10% of values listed in 10 CFR 20.1301, 10 CFR 20.1302, and 10 CFR 20.1101(d), as described in NRC Regulatory Guide 4.20, "Constraint on Releases of Airborne Radioactive Materials to the Environment for Licensees other than Power Reactors", dated December 1996.

Upon implementation of the Proposed Action, the estimated annual release of uranium at the UUSA facility is 260  $\mu\text{Ci/yr}$  (9.62 MBq/yr). This annual uranium release estimation remains below the conservative estimation utilized in the facility expansion Environmental Assessment. Therefore, there is no impact to public dose due to gaseous effluents and the impact from the higher enrichment level in the installed recycling and support systems and removal of the interim controls for segregation remains SMALL and mitigation is not required.

Direct Radiation Impacts

The dominant source of offsite radiation would be from direct and scatter radiation from the UBC Storage Pads [NRC 2015j]. The dominant fixed source would not change with the implementation of the Proposed Action.

The cylinders on the UBC Storage Pad were previously evaluated for the plant capacity expansion for a triple-stack arrangement for the 48Y feed cylinders and a single-stack arrangement for the enriched uranium 30B product cylinders. The proposed storage arrangement for implementing the Proposed Action does not change while retaining the existing 25,000 cylinder limit on the UBC Storage Pad. The estimated annual dose at the nearest site boundary from direct exposure was 9.4 mrem/yr (0.094 mSv/yr), which is well below the 100 mrem/yr (1 mSv/yr) Total Effective Dose Equivalent (TEDE) limit established by 10 CFR 20.1301, "Dose limits for individual members of the public", and below the 25 mrem/yr (0.25 mSv/yr) dose equivalent to the whole body and any organ limit established by 40 CFR 190, "Environmental Radiation Protection Standards For Nuclear Power Operations" [NRC 2015j].

UUSA does not intend to store LEU+ filled 30B or 30B-10 product cylinders on the Outdoor Cylinder Storage Areas (UBC Storage Pad) and is institutionalizing that approach with a proposed revision to the Criticality Accident Alarm System exemption in Materials License SNM-2010 License Condition 33 in LAR 23-02 [LES, 2023b]. Since the number of cylinders on the UBC Storage Pad or Outdoor Cylinder Storage Areas does not change and cylinder contents remain as previously evaluated, there are no impacts on Public Health from direct radiation and no mitigation is required.

Occupational Exposure Impacts

The radiation protection program and industrial safety program at UUSA continues to monitor the occupational workers at the facility for internal exposure from intake of uranium as well as doses from external exposure. The exposure control program maintains exposures as low as reasonably achievable (ALARA) through the use of radiation monitoring systems, personnel dosimetry and mitigation systems to reduce environmental concentrations of uranium. Under the Proposed Action, the most significant contributor to occupational radiation exposure remains the direct radiation from the stored cylinders on the UBC Storage Pad.

Dose records were reviewed for occupational workers since the facility expansion was authorized in 2015 through 2023. A summary of the TEDE results is presented below.

**UUSA Occupational TEDE  
2015 – 2023**

Year	Number of workers monitored	Collective TEDE (mrem / mSv)	Average TEDE (mrem / mSv)	Highest Individual TEDE Received (mrem / mSv)
2015	75	4774 / 47.74	63.7 / 0.637	336 / 3.36
2016	79	4802 / 48.02	60.8 / 0.608	292 / 2.92
2017	65	3862 / 38.62	56.6 / 0.566	258 / 2.58
2018	65	4648 / 46.48	71.5 / 0.715	337 / 3.37
2019	105	5841 / 58.41	44.3 / 0.443	345 / 3.45
2020	59	4943 / 49.43	83.8 / 0.838	310 / 3.10
2021	52	5082 / 50.82	97.7 / 0.977	375 / 3.75
2022	61	4245 / 42.45	69.6 / 0.696	399 / 3.99
2023	57	4965 / 49.65	87.1 / 0.871	296 / 2.96
Average TEDE to workers: 70.6 mrem (0.706 mSv)				

Occupational doses over this period have remained a fraction of the annual regulatory limits in 10 CFR 20.1201, “Occupational dose limits for adults”, of 5 rem (5,000 mSv).

Occupational dose is expected to increase proportionally to changes in enrichment due to the increased amounts of <sup>234</sup>U and <sup>235</sup>U at the higher enrichment for the recycling and support systems and removal of interim controls for segregation. Conservatively assuming all future UUSA facility production is LEU+, changing the enrichment from 5 w/o <sup>235</sup>U to the licensed limit proposed in LARs 23-02 and 24-01 is anticipated to increase dose by a factor of two. Considering this percentage increase in dose at the higher enrichment and the TEDE for workers for all aspects of facility operations, including using current decontamination processes and recycling systems, has historically remained a small fraction of regulatory limits, occupational TEDE will continue to remain a small fraction of the regulatory dose limit specified in 10 CFR 20.1201.

The impact of raising the enrichment level on Occupational Exposure is SMALL and no mitigation is required.

The Proposed Action in LAR 24-01 to use the on-site recycling and support systems and removal of interim controls for segregation impact to public and occupational health remains SMALL. To better understand the cumulative public and occupational health impact, the EISs from the foreseeable future activities for the Holtec, International, and Interim Storage Partners LLC facilities were reviewed. The evaluations from these two

EISs conclude that public and occupational health cumulative impacts would be SMALL between these facilities, even when considering the full build-out of each facility as the public dose from all potential sources evaluated would be below the NRC 10 CFR 20 annual public dose limit of 100 mrem (1mSv) [NRC 2022c], [NRC, 2021d]. As there is no change to the direct public exposure from the UBC Storage Pad, the previous Environmental Assessment for facility expansion remains bounding, and the incremental change in occupational exposure is projected to remain a small fraction of NRC limits, the cumulative impact to public and occupational health is SMALL and no mitigation is required.

### 5.2.3 *Accidents*

The UUSA Integrated Safety Analysis Summary (ISAS) details credible events and accident sequences with consequences which could exceed the performance criteria of 10 CFR 70.61, "Performance Requirements," for the facility. The ISAS analysis and evaluations for the Proposed Action have been performed in accordance with the approved ISA process and the UUSA Quality Assurance Program. There are no new types of accidents identified as a result of the Proposed Action that were previously evaluated and approved in the NRC Safety Evaluation Report for expansion of the UUSA facility [NRC 2015k] and referenced in the supporting Environmental Assessment for facility expansion [NRC 2015a].

While there are no new types of accidents identified, there are new, revised and deleted accident sequences within some accident categories. The new or revised accident sequences are based on changing some Safe-By-Design configurations to Items Relied on For Safety (IROFS). Passive Engineered Control IROFS have been introduced to replace Safe-By-Design controls, which include geometry, volume, neutron absorption and interaction controls. In some cases, existing mass controls and an existing enrichment control were either revised or reaffirmed for the Proposed Action. The deleted accident sequences are temporary accident sequences related to the interim controls established for LEU+ exposed components removed from production systems , which are no longer required upon approval of this LAR. As a result, there are no accident severity level change or consequence category changes for accidents. All controls needed to ensure that the performance requirements of 10 CFR 70.61 remain satisfied were identified and satisfactorily evaluated. There are no impacts on accidents from the Proposed Action implementation and no additional mitigation or preventive controls are needed.

## 6.0 Environmental Impacts of the Alternatives to the Proposed Action

The alternative to the Proposed Action is the “no action alternative”. The no action alternative is to not increase the enrichment limit for the on-site recycling and support systems and maintain the interim controls in place for segregation and separation of LEU+ exposed components removed from production systems. The result of the no action alternative is that production related components and materials removed from LEU+ production systems would need to be stored and segregated in accordance with the interim controls established for an unspecified amount of time. Therefore, there would be no decontamination and recycling of LEU+ components. This would prove to be an expensive approach, as the removed components could not be rebuilt and replacement components would have to be continually purchased and installed in production systems. Additionally, segregation controls also require adequate spacing of removed components exposed to LEU+ in order to satisfy criticality safety requirements. Over time, the segregation and storage of exposed components will require large areas for storage and may require construction of additional storage facilities on-site. The no action alternative would result in large amounts of stored, contaminated, yet reusable plant components for an indefinite period, however, there is no expected impact to the environment until a possible new storage facility is required.

## 7.0 Agencies and Persons Consulted

No agencies or persons were contacted for this environmental review.

## 8.0 Conclusion

The results of this environmental information discussion are that there may be incremental impacts to the environment as a result of the Proposed Action in certain assessed topical areas. However, these impacts are demonstrated or anticipated to be SMALL and remain bounded, based on review and evaluation of the previous Environmental Assessment conducted for the UUSA facility expansion [NRC 2015] and changes to the UUSA Materials License for increased enrichment in the NRC conclusion of the Categorical Exclusion under 10 CFR 51.22(c)(11) [NRC 2020].

Potential accidents were evaluated in the NRC Safety Evaluation Report for the facility expansion [NRC 2015k] and the Proposed Action does not introduce any new types of accidents or change evaluated accident severity levels or categories.

Evaluation of the cumulative impacts of past, present and foreseeable known future activities with respect to topical areas with potential impact indicate that the cumulative impacts for each are SMALL or does not change the previously evaluated environmental impact significance level.

The Proposed Action for LAR 24-01 meets the requirements for a Categorical Exclusion under 10 CFR 51.22(c)(11). As demonstrated in this document, the changes in this request for an amendment to Materials License SNM-2010 are either administrative, organizational or procedural in nature or involve changes in process operations and equipment which do not

result in any significant adverse incremental impacts to the environment from the licensed activity. Implementation of these minor and routine types of changes do not significantly alter the previously evaluated environmental impacts associated with the licensed operation, considering any construction impacts, types and amounts of effluents released by the operation, occupational exposure of employees, or potential accidents. Furthermore, this amendment does not affect the scope or nature of the licensed activity.



## 9.0 References

Eden 2023, "Eden Isotope Production Complex (EIPC) Notice of Intent to Submit License Application", dated 7 August 2023 (ML23230B208)

LES 2012a, "Supplemental Environmental Report in Support of License Amendment Request Associated with Capacity Expansion of URENCO USA Facility", dated 10 September 2012 (ML12262A537, ML12262A539)

LES 2013, "LES-13-00073-NRC, Submittal of License Amendment Request for Changes to License Condition 6B and Enrichment Limit (LAR-13-02)", dated 16 July 2013 (ML13199A444)

LES 2019, "LES-19-142-NRC, License Amendment Request to Change License Condition 6B and Enrichment Limit (LAR-19-01)", dated 12 November 2019 (ML19322A114)

LES 2023a, "LES-23-100-NRC, Notice of Intent for UUSA to submit License Amendment Requests to Increase Enrichment Limit for construction of a High Assay Low Enriched Uranium Facility (HALEUF)", dated 27 July 2023 (ML23208A261)

LES 2023b, "LES-23-130-NRC, License Amendment Request for Changes to License Conditions and Raise Enrichment Limit to Less Than 10 Weight Percent for LEU+ Production Systems (LAR-23-02)", dated 30 November 2023 (ML23334A122)

NRC 2003, "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs, Final Report", NUREG-1748, July 2003 (ML032450279)

NRC 2013, "License Amendment 59, License Amendment Request 13-02 to Revise License Condition 6B of SNM-2010 to Increase the Facility Enrichment Limit (Technical Assignment Control No. L34184)", dated 30 October 2013 (ML13290A208, ML13290A222)

NRC 2015a, "Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico", dated 18 March 2015 (ML15072A279, ML15072A016)

NRC 2015b, "Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico", 18 March 2015, Section 4.1.2.13 (ML15072A279, ML15072A016)

NRC 2015c, "Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico", 18 March 2015, Section 4.1.5.1.1 (ML15072A279, ML15072A016)

NRC 2015d, "Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico", 18 March 2015, Table 4-11 (ML15072A279, ML15072A016)

NRC 2015e, “Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico”, 18 March 2015, Table 4-1 (ML15072A279, ML15072A016)

NRC 2015f, “Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico”, 18 March 2015, Section 3.12.2.3.1 (ML15072A279, ML15072A016)

NRC 2015g, “Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico”, 18 March 2015, Section 2.1.2.3.2 (ML15072A279, ML15072A016)

NRC 2015h, “Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico”, 18 March 2015, Section 4.1.5.1.2.13 (ML15072A279, ML15072A016)

NRC 2015i, “Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico”, 18 March 2015, Section 4.1.2.12.1 (ML15072A279, ML15072A016)

NRC 2015j, “Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico”, 18 March 2015, Section 4.1.2.12.2 (ML15072A279, ML15072A016)

NRC 2015k, “Issuance of Amendment 63 for License Amendment Request 12-10, Expansion of enrichment Capacity from 3.7 to 10 Million Separative Work Units, SNM-2010, Amendment Number 63, Louisiana Energy Services, LLC (TAC No. L34228)”, dated 23 March 2015 (ML15049A402, ML15049A408)

NRC 2015l, “Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico”, 18 March 2015, Table 2-3, Footnote d (ML15072A279, ML15072A016)

NRC 2015m, “Environmental Assessment for the Proposed URENCO USA Uranium Enrichment Facility Capacity Expansion in Lea County, New Mexico”, 18 March 2015, Table 2-3, (ML15072A279, ML15072A016)

NRC 2020, “U.S. Louisiana Energy Services – Amendment 85, Change to License Condition 6B and Enrichment Limit”, dated 19 May 2020 (ML20119A043, ML20119A041)

NRC 2021a, “Issuance of Materials License No. SNM-2515 for the WCS Consolidated Interim Storage Facility Independent Spent Fuel Storage Installation Docket No. 72-1050”, dated 13 September 2021 (ML21188A097)

NRC 2021b, "Environmental Impact Statement for Interim Storage Partners LLC's License Application for a Consolidated Interim Storage Facility for Spent Nuclear Fuel in Andrews County, Texas", Final Report, dated July 2021 (ML21209A955)

NRC 2022a, "Environmental Impact Statement for the Holtec International's License Application for a Consolidated Interim Storage Facility for Spent Nuclear Fuel in Lea County, New Mexico, as supplemented", dated October 2022 Section 5.14 (ML22299A238)

NRC 2022b, "Environmental Impact Statement for the Holtec International's License Application for a Consolidated Interim Storage Facility for Spent Nuclear Fuel in Lea County, New Mexico, as supplemented", dated October 2022 Section 5.14 (ML22299A238)

NRC 2022c, "Environmental Impact Statement for the Holtec International's License Application for a Consolidated Interim Storage Facility for Spent Nuclear Fuel in Lea County, New Mexico, as supplemented", dated October 2022 Section 5.13 (ML22299A238)

NRC 2022d, "Environmental Impact Statement for the Holtec International's License Application for a Consolidated Interim Storage Facility for Spent Nuclear Fuel in Lea County, New Mexico, as supplemented", dated October 2022 Section 5.13 (ML22299A238)

NRC 2023a, "Safety Evaluation Report Docket No 71-9388 Model No. DN30-X Package Certificate of Compliance No. 9388 Revision No. 0", dated 27 March 2023 (ML23083B980)

NRC 2023b, "Issuance of Final Safety Evaluation Report for the HI-STORE Consolidated Interim Storage Facility Independent Spent Fuel Storage Installation Specific Materials License No. SNM-2516, Docket No. 72-1051", dated May 2023 (ML23075A183)