urenco

JUN 17 2014

LES-14-00070-NRC

ATTN: Document Control Desk
Director, Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Louisiana Energy Services, LLC
NRC Docket Number: 70-3103

Subject: Response to NRC Request for Additional Information Related to the Review of Louisiana Energy Services Revision to Supplemental License Amendment Request, Dated May 22, 2014.

Reference:
1) Email from A. Malliakos (NRC) to T. Knowles (LES), date June 3, 2014
2) LES-00061-NRC Redacted – Supplement to License Amendment Request for Capacity Expansion of UUSA Facility LAR 12-10

Louisiana Energy Services, LLC (now dba "UUSA") responded to the referenced email, Ref 1, on June 9, 2014. At the request of the NRC's Project Manager for the UUSA facility, this letter is being submitted with the questions and responses from the aforementioned email.

If you have any questions, please contact Timothy Knowles, Licensing and Performance Assessment Manager at 575.394.6212.

Respectfully,

Jay Laughlin

Jay Laughlin
Chief Nuclear Officer and Head of Operations

Enclosures: 1) Response to Request for Additional Information

NMSS01

LES,PO Box 1789, Eunice, New Mexico 88231,USA T:+1 575 394 4646 F:+1 575 394 4545 W:www.urenco.com/LES

cc:

Mike G. Raddatz, Project Manager
U.S. Nuclear Regulatory Commission
Executive Blvd Bldg
Mailstop: EBB2-C40M
Washington, DC 20555-0001

Thomas Grice
Acting Chief, Uranium Enrichment Branch
U.S. Nuclear Regulatory Commission
Executive Blvd Bldg
Mailstop: EBB2-C40M
Washington, DC 20555-0001

Enclosure 1

Response to Request for Additional Information

Request for Clarifications on Information from URENCO USA for the Environmental Review of the Supplement to License Amendment for the Proposed Expansion of the Gas Centrifuge Uranium Enrichment Facility in Lea County, New Mexico

(UUSA Responses In Red Text)

This is with regard to the Supplement to License Amendment Request for Capacity Expansion of URENCO USA (UUSA) Facility, dated May 22, 2014, and received May 28, 2014, (UUSA, 2014).

1. Section 2.3.1 of the license amendment request (UUSA, 2014), states "Increased storage capacity of 30B cylinders may be partially accommodated by the Uranium Byproduct Cylinder Storage Pad." Provide the following:
    a. The maximum number of full 30B product cylinders that would be stored on the UBC Storage Pad at any one time.

    The maximum number of filled 30B cylinders that could be stored on the UBC Storage Pad at any one time, based on the Materials License mass limit increase requested in the LAR, is approximately 1430 cylinders.

    The maximum number of cylinders that would be stored on the UBC Storage Pad and include a breakdown by type, such as:

    CALC-00141 presents a diagram with a mixture of 48Y and 30B cylinders. The analysis however, consisted of 25,000, triple stacked 48Y cylinders for the conservative bounding configuration. This analysis is bounding as the placement of any other cylinders, e.g. single stacked full 30B product, would displace triple stacked 48Y cylinders. Thus a triple stacked 48Y surface area would be replaced with a single stacked 30B surface area.

    i. 30B cylinders filled with product UF_6,
        1. 1430 30B cylinders filled with product UF6
    ii. emptied 30B cylinders with residual UF_6,
        1. N/A – there are no plans to store emptied 30B cylinders with residual UF6 on the UBC Storage Pad
    iii. clean empty 30B cylinders,
        1. N/A – there are no plans to store emptied 30B cylinders on the UBC Storage Pad
    iv. 48Y cylinders filled with natural UF_6,
        1. 3000 48Y cylinders filled with natural UF6
    v. 48Y cylinders filled with depleted UF_6,
        1. 25000 48Y cylinders filled with depleted UF6
    vi. emptied 48Y cylinders with residual UF_6, and
        1. N/A – there are no plans to store emptied 48Y cylinders with residual UF6 on the UBC Storage Pad

vii. clean empty 48Y cylinders.

1. N/A – there are no plans to store clean empty 48Y cylinders on the UBC Storage Pad

The numbers presented above are the maximum of each type of cylinder that could be present on the UBC Storage Pad at various times during the life of the plant. At no time over the life of the facility will there be more the 25,000 total cylinders placed on the UBC Storage Pad.

b. The possible arrangement of the full 30B product cylinders on the UBC Storage Pad that would result in the highest potential exposure to workers and/or the public (e.g., including the consideration of close packed single- or double-stacked row(s) of 30B cylinders in front of triple-stacked UBCs at the minimum distance that the 48Y and 30B cylinders can be stored from the edge of the pad).

i. The storage of the 30B cylinders are restricted to either the middle rows (to take credit for shielding from the 48Y cylinders) or no closer than 3 ft from the edge of the UBC Storage Pad, if stored on the outer rows. Additionally, 30B cylinders are limited to single stacking only.

Per CALC-S-00143, Figure 9, the filled 30B cylinder is about 50% lower in source strength/dose equivalence at 15 ft (and onward) compared to a filled 48Y cylinder. Therefore, storing the 30B cylinder on the outer rows will not result in the highest potential exposure to the public outside the fence line/site boundary. Stated differently, the current analysis (CALC-S-00141) that considers triple stacked 48Y filled feed cylinders as the outer row of the UBC Storage Pad bounds any filled 30B cylinder storage on the UBC Storage Pad outer row with respect to the fence line. Furthermore, 48Y filled cylinders becomes the bounding source compared to filled 30B cylinders (CALC-S-00143, Figure 9) at approximately 3 ft from the surface of the cylinder. By restricting the placement of the 30B cylinders to no closer than 3 ft to the UBC Storage Pad edge, the current analysis also bounds any filled 30B cylinder storage on the outer row of the UBC Storage Pad with respect to exposure to workers.

The three foot restriction is accomplished by the physical limitations of the lifting devices used on the UBC Storage Pad. These lifting devices cannot physically place the 30B cylinders within three feet of the edge due to the constraints presented by their support structure.

c. An estimate of the potential exposure to workers and the public from such an arrangement. If any comparison with a proposed triple-stacked UBC arrangement is made, the comparison should use the same receptor distance from the nearest edge of the leading row of cylinders.

i. The triple-stacked 48Y feed arrangement on the UBC Storage Pad, used as an input for the proposed expanded pad (CALC-S-00141) as well as worker expansion activities (CALC-S-00143), is a bounding configuration for any allowed filled 30B cylinder storage arrangement. The allowed full 30B cylinder storage configuration is defined as (1) in the middle rows and away from the edges (to take advantage of the shielding from the filled 48Y cylinders), or (2) 3 ft away from the edge of the UBC Storage Pad if stored in the outer rows/edges (see previous response for physical limitation discussion).

   It is also worth pointing out that the 30B storage arrangement restrictions are incorporated as an extra line of defense. The worker dose assessment during the expansion activities (CALC-S-00143) is estimated (1) based on storage of 48Y feed cylinders, and (2) the workers average time spent on the entire pad (i.e., the dose is estimated based on an average of the workers location near the 48Y cylinders [near edge], middle of the pad, and far edge of the pad). Basing the worker dose on 30B product cylinders instead (assuming that there were no storage arrangement restrictions), the worker dose estimates would be lower. The 30B product cylinder only exceeds the 48Y feed cylinder until 3 ft away from the surface. At distances beyond 3 ft, the 48Y cylinder is clearly bounding of the 30B product cylinders. Furthermore, at distances beyond 15 ft, 30B cylinder dose rates are approximately 50% lower than fill 48Y cylinders dose rates. As the worker dose is estimated based on the average time and location spent on the UBC Storage Pad, the 30B product cylinder would produce lower worker doses if utilized as the source term rather than a filled 48Y cylinder.

2. Provide the expected incremental increase in average annual worker doses due to the performance of the gamma spectrometer and mass spectrometer examinations for the Items Relied on For Safety (IROFS) of IROFS53a and IROFS53b.

   a. In consideration of the analysis required for implementation of the IROFS, the UUSA Radiation Protection department has conservatively estimated that there will be an additional exposure of 200 mrem/year for this operation. This equates to an average additional dose of 4 mrem/year per person for a total of 92 mrem/year per person. This dose is still well below the UUSA administrative limit of 500 mrem/year per person and is significantly below the occupational dose limit for adults, 5 rem/year, cited in 10 CFR 20.1201.

      This dose is conservative and will be monitored and adjusted in accordance with UUSA's As Low As Reasonably Achievable policy. No changes to the Supplemental ER are required.

3. Section 2.2.2 of the license amendment request (UUSA, 2014) discusses the creation of a new accident sequence. Provide updates to Supplemental Environmental Report for Facility Expansion, Supplement to LAR 12-10, for applicable sections, such as:

   IROFS53a and IROFS53b are controls in place to prevent a criticality event. The discussions in the ER and Supplemental ER do not address the accident sequences that lead to a criticality or UF6 release, but rather the actual occurrence of a criticality or a UF6 release event. Therefore, all criticality and UF6 release events are bounded within these discussions, regardless of the series of occurrences (accident sequences) which lead to the event.

   a. 4.6.5 and 4.12.11 to address mitigative measures for the new accident,

      i. Section 4.6.5 or the Supplemental ER points to section 5 of the ER. Within section 5 of the ER, section 5.1.12.3 discusses accidental releases. The accidental releases discussed are those from criticality events and UF6 releases. These are the two accident sequence outcomes that have been analyzed for the UUSA facility. These accident sequences can occur from a number of initiating events, such as those that require IROFS53a and IROFS53b. Furthermore, this section of the ER discusses these two types of accident sequences in general terms, and therefore discusses no specific initiating event. Further information, in general terms, is also discussed in section 5.2.12.3 of the ER. Mitigation measures are discussed in section 4.12.3 of the ER and are discussed in general terms for criticality events and UF6 release events. Therefore, no change is necessary to specifically discuss the accident sequence prevented by IROFS53a and IROFS53b because the appropriate mitigation measures for airborne release from both a criticality and a UF6 release are already described in the ER.

      ii. This conclusion is the same for the information contained in section 4.12.11 of the Supplemental ER, which also points to section 4.12.3 of the ER. No change is necessary to specifically discuss the accident sequence prevented by IROFS53a and IROFS53b because the appropriate mitigation measures for airborne release from both a criticality and a UF6 release are already described in the ER.

   b. 4.12.10 to discuss environmental effects of the new accident, and

      i. Section 4.12.10 of the Supplemental ER references section 4.12.3 of the ER. Mitigation measures are discussed in section 4.12.3 of the ER and are discussed in general terms for criticality events and UF6 release events. Therefore, no change is necessary to specifically discuss the accident sequence prevented by IROFS53a and IROFS53b because the appropriate mitigation measures for airborne release from both a criticality and a UF6 release are already described in the ER.

   c. 4.15.12.3 to address accidental releases from the new accident.

      i. Section 4.15.12.3 discusses accidental releases from criticality events and UF6 releases. These are the two accident sequence outcomes that have been analyzed for the UUSA facility. These accident sequences can occur from a number of initiating events, such as those that require IROFS53a and IROFS53b. This section of the ER discusses these two

types of accident sequences in general terms, point to no specific initiating event. Therefore, no change is necessary to specifically discuss the accident sequence prevented by IROFS53a and IROFS53b because the appropriate mitigation measures for airborne release from both a criticality and a UF6 release are already described in the ER.