

SAFETY EVALUATION REPORT

DOCKET NO.: 70-7004
LICENSE NO.: SNM-2011
LICENSEE: AMERICAN CENTRIFUGE OPERATING, LLC
SUBJECT: EXTENSION OF THE NUCLEAR REGULATORY COMMISSION'S
AUTHORIZATION FOR THE AMERICAN CENTRIFUGE OPERATING'S
HIGH ASSAY LOW-ENRICHED URANIUM PROGRAM

1.0 BACKGROUND

This Safety Evaluation Report (SER) documents the U.S. Nuclear Regulatory Commission (NRC) staff's review of American Centrifuge Operating, LLC's (ACO's) license amendment request (LAR) dated November 30, 2022, for the American Centrifuge Plant (ACP) located in Piketon, Ohio (Agencywide Documents Access and Management System Accession No. ML22340A477). The ACP license was issued in 2007 under Title 10 of the *Code of Federal Regulations* (10 CFR), Parts 30, 40 and 70 for a period of 30 years (ML070400284). The LAR requests an extension of the NRC's authorization under the ACP Materials License SNM-2011 for the High Assay Low-Enriched Uranium (HALEU) program through December 31, 2024, or until production of [kilograms] of HALEU in the form of uranium hexafluoride (UF₆) is reached, whichever comes first. The NRC staff's financial analysis associated with this request is presented in Sections 3.0, 4.0, and 5.0 of this SER. As part of its request, ACO proposed to revise the expiration date in License Condition (LC) 15 to December 31, 2024. In the LAR, ACO also proposed a new LC for the ACP license SNM-2011 to limit the amount of special nuclear material (SNM) possessed at the ACP to below the Category II quantity thresholds until the installation of a storage system for Category II SNM is completed. The NRC staff's analysis of this request is presented in Section 6.0 of this SER. The NRC accepted ACO's LAR for detailed technical review on January 13, 2023 (ML22126A150).

ACO initially submitted an amendment request seeking authorization for the HALEU program under its ACP license, SNM-2011 between December 2019 and June 2020 ([ML19352G024](#), [ML20125A103](#), [ML20125A108](#), [ML20125A116](#), [ML20125A105](#), [ML20139A100](#), [ML20139A098](#)). The NRC staff completed its reviews of these submittals and approved the HALEU program on June 11, 2021 ([ML21138A827](#)), for the duration of the 3-year contract between the Department of Energy (DOE) and ACO. The June 2021 amendment authorized possession of licensed material for the purpose of demonstrating production of up to [kilograms] of HALEU in the form of UF₆ until May 31, 2022.

On April 25, 2022, DOE and ACO signed an extension to the HALEU contract¹ ([ML22123A143](#)) which included an increased cost-sharing arrangement, and indemnified ACO's

¹ The HALEU Demonstration Contract Number 89303519CNE000005, Modification #P00019 for the HALEU program was submitted as Enclosure 5 of the April 28, 2022, LAR request [ML22123A143](#). DOE's base contract for the HALEU production program at the ACP provides for Phase 1 (20 kg HALEU UF₆) and Phase 2 (900 kg HALEU UF₆). Phase 3 (three, 3-year production cycles at an annual rate of

decommissioning financial assurance and nuclear liability for the HALEU program through November 30, 2022. On April 28, 2022, ACO submitted a request to extend the NRC's authorization for the HALEU program through November 30, 2022 ([ML22123A143](#)). ACO's request included Amendment 2 of the Gas Centrifuge Enrichment Plan (GCEP) lease agreement that extended the duration of ACO's lease for the DOE's Piketon facility to December 31, 2025 (ML22123A147 Non-Public). The NRC approved the request on August 11, 2022 ([ML22208A057](#)).

On November 30, 2022, ACO submitted the current LAR (ML22340A461) and supplemented the LAR on December 8, 2022 (ML22353A529). The supplement includes Enclosure 2, the HALEU Demonstration Cascade Completion contract signed by DOE and ACO on November 30, 2022 (ML22353A529). Also submitted by ACO was Enclosure 1, Amendment 3 to Appendix 1 of the GCEP lease agreement, signed on November 30, 2022 (ML22353A529). It was necessary to amend the GCEP lease agreement to reference the revised HALEU contract. The HALEU contract between ACO and the DOE involves production by December 31, 2024, of 20 kg and 900 kg of HALEU for Phases 1 and 2, respectively. The NRC staff assessed the LAR which contained the HALEU contract, the GCEP lease agreement, ACO's financial qualifications, and DOE's indemnification of decommissioning financial assurance and nuclear liability.

ACO proposes to update the expiration dates for DOE's HALEU demonstration contract in Amendment 19 of SNM-2011 license (ML22208A056-public pkg, ML22208A059-nonpublic), in the second paragraph of LC 15. The expiration date would change from November 30, 2022, to December 31, 2024, or up to the currently authorized possession limits:

Existing second paragraph of LC 15 – "Operation of the ACP, with the exception of operation of the HALEU demonstration cascade until expiration of DOE's HALEU Demonstration contract on November 30, 2022, shall not commence until the Licensee has in place either: (1) long term contracts lasting five years or more that provide sufficient funding for the estimated cost of operating the facility for the five year period; (2) documentation of the availability of one or more alternative sources of funds that provide sufficient funding for the estimated cost of operating the facility for five years; or (3) some combination of (1) and (2)."

Proposed second paragraph of LC 15 – "Operation of the ACP, with the exception of operation of the HALEU demonstration cascade until expiration of DOE's HALEU contract on December 31, 2024, or up to the currently authorized possession limits defined with this Materials License (whichever comes first), shall not commence until the Licensee has in place either: (1) long term contracts lasting five years or more that provide sufficient funding for the estimated cost of operating the facility for the five year period; (2) documentation of the availability of one or more alternative sources of funds that provide sufficient funding for the estimated cost of operating the facility for five years; or (3) some combination of (1) and (2)."

900 kg HALEU UF6) is subject to appropriations. The NRC's licensing actions do not correspond directly to DOE's contract phases.

2.0 REGULATORY EVALUATION

Financial Qualifications, Decommissioning Financial Assurance, and Nuclear Liability Insurance Requirements

Under 10 CFR 70.25(a)(1), each applicant for a specific license for a uranium enrichment facility must submit either a decommissioning funding plan as described in paragraph (e) of that section or submit a certification of financial assurance in the amount prescribed in paragraph (d) of that section. Under 10 CFR 70.25(e), the funding plan must include a cost estimate of all decommissioning activities and a financial instrument that satisfies the requirements in paragraph (f) of that section. The regulations in 10 CFR 70.25(f)(5), in turn, provide that financial assurance for decommissioning funding may be provided when a governmental entity is assuming custody and ownership of a site, an arrangement that is deemed acceptable by such governmental entity. The regulations in 10 CFR 140.13b require applicants for uranium enrichment facilities to provide and maintain nuclear liability insurance.

NRC Guidance

The NRC staff evaluated the applicant's financial qualifications, and DOE's indemnification of ACO's decommissioning financial assurance and nuclear liability using the following NRC guidance document:

- NUREG 1520 - "Standard Review Plan for Fuel Cycle Facilities License Applications," Revision 2, June 2015.

3.0 FINANCIAL QUALIFICATION

The LAR refers to the HALEU contract between the DOE and ACO, which includes a \$30 million cost share arrangement to start up and operate 16 advanced centrifuges (and 2 spares) in a cascade at the ACP. The contract is a performance-based contract that includes cost-shared-no-fee contract line-item numbers (CLINs) and cost-plus-incentive-fee CLINs. ACO will perform work under a cost share, no fee contractual arrangement. ACO will be responsible for paying a minimum of 50 percent of the allowable incurred costs. DOE will reimburse ACO a maximum of 50 percent cost share for the remaining allowable costs incurred during operations until December 31, 2024, or until the production of up to 20 kg of HALEU as stipulated in the HALEU contract. In addition, a cost-plus incentive fee basis has been awarded for Phase 2, as stipulated in the HALEU contract.

The NRC staff reviewed the revised HALEU contract for Phases 1 and 2, Amendment 3 to Appendix 1 of the GCEP lease agreement (ML22353A529), and the latest financial statements filed with the Securities and Exchange Commission (SEC) (Form 10-Q, dated November 9, 2022). See ACO's Website: <https://investors.centrusenergy.com/financial%20information/sec-filings>. After conducting a review of ACO's financial submittals, the staff concludes that ACO has sufficient cash on hand to fund its portion of the of the HALEU program for the contract period until December 31, 2024. Accordingly, staff finds that ACO appears financially qualified to continue its licensed activities under the HALEU authorization through December 31, 2024.

4.0 DECOMMISSIONING FUNDING

Prior to announcing the HALEU program, on May 31, 2019, DOE and ACO amended the original GCEP lease agreement for the Piketon facility (Amendment 1, Appendix 1 of the GCEP lease agreement (ML21109A010 Non-Public)) for a 3-year term ending on May 31, 2022. The revised GCEP lease agreement was a prerequisite for ACO, the sublessee of the lease, to submit an application to the NRC for the HALEU program through May 31, 2022. On September 9, 2021, DOE and ACO adopted Amendment 2, Appendix 1 of the GCEP lease agreement to extend the term of the agreement to December 31, 2025 (ML22123A147 Non-Public).

Amendment 3, Appendix 1 of the GCEP lease agreement was signed on November 30, 2022 (ML22353A529) and includes language relevant to DOE's indemnification of decommissioning funding and nuclear liability insurance:

- The Department hereby assumes all liabilities for the decontamination and decommissioning of the facilities and equipment installed and any work performed, under the HALEU Ops Contract with the Department including any materials or environmental hazards on the site.
- No financial assurance for any liability or lease turnover conditions shall be required from the Corporation or Sublessee.

LC 17 of Amendment 19 of SNM-2011 license requires ACO to provide annual decommissioning funding plan cost estimates up to full capacity operations (ML22208A059). Amendment 3 of Appendix 1 to the GCEP lease agreement provides that DOE assumes all liability for the decontamination and decommissioning of such facilities and equipment installed, and any work performed, under the HALEU contract with the DOE including any materials or environmental hazards on the site. DOE accepts full responsibility for decommissioning of all existing equipment and materials under the GCEP lease agreement through December 31, 2025. DOE's indemnification of decommissioning includes the dispositioning of any depleted UF₆ tails generated from the HALEU cascade. For these reasons, the NRC staff determined that ACO does not need to revise and submit a decommissioning funding plan at this time and LC 17 is unchanged.

LC 16 of Amendment 19 of the license requires ACO to provide copies of proposed financial assurance instruments to the NRC for review at least 6 months prior to the planned date for obtaining licensed material (ML22208A056-public, ML22208A059-nonpublic). DOE accepts full responsibility for the costs of decommissioning all existing equipment and dispositioning of radioactive materials under the GCEP lease agreement until December 31, 2025. DOE's indemnification of all costs includes the dispositioning of any depleted UF₆ tails generated from the HALEU cascade. For these reasons, ACO is not required to submit financial assurance instruments for the HALEU contract under LC 16 at this time. LC 16 is unchanged and continues to be applicable to the commercial ACP.

5.0 NUCLEAR INSURANCE AND INDEMNITY

ACO submitted Amendment 3 to Appendix 1 to the GCEP lease agreement and HALEU contract in the supplement to the LAR (ML22353A529) to demonstrate DOE's indemnification of nuclear liability for the duration of the HALEU contract, pursuant to the Price-Anderson Act. The NRC staff evaluated ACO's LAR, as a supplemented, and finds ACO remains in compliance with the liability insurance requirements in 10 CFR 140.13b because DOE continues to provide indemnity for the HALEU program.

The staff reviewed the nuclear liability insurance information provided in the LAR and finds it is consistent with the guidance in Section 1.2.4 of the SRP. The NRC staff confirmed that DOE will indemnify ACO for nuclear liability through December 31, 2024, as stipulated in Amendment 3 to the GCEP lease agreement and the HALEU contract (ML22353A529). The NRC concludes that ACO appears to be financially qualified to operate the ACP HALEU 16-centrifuge cascade (and 2 spares) for the duration of its contract with DOE. Therefore, the NRC finds that ACO has satisfied the nuclear liability insurance requirements of 10 CFR 140.13b and 140.14(a)(3).

6.0 PHYSICAL SECURITY AND SAFEGUARDS OF SNM

The NRC's June 11, 2021, approval of ACO's HALEU demonstration program (ML21138A827) authorized ACO to possess and use Category II quantities of SNM, subject to conditions. LC 11 of SNM-2011 states:

Introduction of UF₆ into any module of the ACP, including the HALEU demonstration cascade, shall not occur until the Commission completes an operational readiness and management measures verification review to verify that management measures that ensure compliance with the performance requirements of 10 CFR Section 70.61 have been implemented and confirms that the facility has been constructed and will be operated safely and in accordance with the requirements of the license. The licensee shall provide the Commission with 120 days advance notice of its plan to introduce UF₆ in any module of the ACP, including the HALEU demonstration cascade.

To support its HALEU contract implementation schedule, on March 23, 2023, ACO indicated that it was ready for the NRC to begin conducting its safety and security operational readiness and management measures verification reviews (ORRs) for the HALEU program (ML23086B969). The NRC anticipates restarting its ORRs in April 2023. However, since ACO will not have the storage system for Category II SNM, also known as the vault type room (VTR), installed and available to accept Category II quantities of SNM for storage, the NRC's ORR for the physical security of SNM, as well as NRC's ORR for material control and accounting (MC&A) will only address Category III requirements. Once ACO completes the VTR and makes it available to receive and store HALEU material, the NRC will conduct its physical security and MC&A ORRs for Category II material at that time. By letter dated March 28, 2023, ACO informed the NRC that it was ready for the NRC to begin conducting its physical security and MC&A ORRs for Category III SNM (ML23088A052).

To ensure Category II material is not produced at the ACP requiring storage before the NRC has completed its Category II physical security and MC&A ORRs, by letter dated March 28, 2023 (ML23088A051), ACO proposed to amend the license to add the following LC:

ACO shall not take possession of Category II quantities of SNM or commence Category II SNM product withdrawal and storage under the HALEU operations contract until such time that the required Category II physical security and material control and accountability operational readiness reviews (ORRs) by the NRC have been completed and ACO has demonstrated adequate compliance with NRC requirements for possessing Category II SNM.

The NRC staff finds this LC, identified in Amendment 20 of SNM-2011 as LC 29, to be acceptable for the period of time that adequate storage for Category II SNM is not available at the ACP because the LC provides for the NRC's completion of its ORRs to verify that ACO has implemented measures to ensure compliance with NRC requirements for possessing Category II SNM. The NRC will reassess the dispositioning of this LC 29 after it completes its ORR in the areas of physical security and MC&A for Category II SNM and determines that ACO has established adequate programs for the protection and accounting of Category II SNM.

7.0 ENVIRONMENTAL REVIEW

The NRC staff also considered whether there would be any significant environmental impacts associated with this LAR. The licensing action involves updating documents which demonstrate ACO's financial qualifications, decommissioning funding, and nuclear insurance and indemnification. In addition, the licensing action involves a new LC that limits ACO from producing Category II material prior to the completion of the VTR to store the Category II material and completion of the NRC's Category II physical security and MC&A ORRs.

Regarding the financial aspects of this review, the regulations in 10 CFR 51.22(c)(10)(i), (ii) and (v) and 51.22(c)(11) allow a categorical exclusion for changes (1) to a surety, insurance, and/or indemnity, (2) to administrative procedures, (3) that involve minor revisions to the license; and (4) that are administrative in nature. Regarding the safeguards and security aspects of this review, the regulations in 10 CFR 51.22(c)(12) allow a categorical exclusion for changes relating solely to safeguards matters (i.e., loss or diversion of SNM).

The staff determined that the changes addressed by this amendment will not result in any significant change in effluents released offsite or any significant increase in individual or cumulative occupational radiation exposure. Additionally, the amendment will not result in any construction impacts or any significant increase in the potential for consequences from radiological accidents. The NRC staff determined that this proposed action fits categories of actions that do not require an environmental assessment or environmental impact statement. Specifically, the action falls under the categorical exclusions in 10 CFR 51.22(c)(10)(i), (ii) and (v), (11) and (12).

8.0 CONCLUSION

The NRC staff evaluated ACO's financial qualifications, and the decommissioning funding and nuclear insurance indemnification submitted with the amendment request in making its determination on the proposed action.

For the reasons set forth in this SER, the NRC staff finds that:

1. Based on the revised HALEU contract and ACO's Form 10-Q, dated November 9, 2022, filed with the SEC, ACO appears to be financially qualified to provide the financial resources necessary to carry out the proposed action in a safe and secure manner, and ACO has sufficient cash on hand to cover its share of the costs of construction and operation of the HALEU contract Phases 1 and 2;
2. DOE will continue to be responsible for the decommissioning of the facility; and
3. The staff reviewed the liability coverage information provided in the current LAR, as supplemented, and finds ACO has satisfied the liability insurance requirements of 10 CFR 140.13b and 140.14(a)(3).

The staff reviewed the financial qualifications and liability coverage information provided in the LAR and subsequent filings. The NRC staff finds ACO's financial qualifications and DOE's nuclear liability indemnification meet the requirements of 10 CFR 70.22(a)(8) and 70.23(a)(5). The NRC staff concludes that ACO appears to be financially qualified to complete construction of and operate the ACP HALEU 16-centrifuge cascade (and 2 spares) as set forth in the HALEU contract. Additionally, the NRC staff confirmed, as stipulated in the revised HALEU contract and the Amendment 3 to the GCEP lease agreement, that DOE indemnify ACO until December 31, 2025. Therefore, the NRC finds that ACO has satisfied the liability insurance requirements of 10 CFR 140.13b and 140.14(a)(3).

Based on the provisions in Amendment 3 of the GCEP lease agreement, the NRC staff finds that DOE's contractual commitment to assume all liability for the decontamination and decommissioning of the HALEU program facilities and equipment is sufficient to satisfy the decommissioning funding requirements in 10 CFR 70.25. Because this amendment authorizes operations during the term of the HALEU contract, a license amendment will be required for operations subsequent to the completion of the HALEU contract.

The staff reviewed ACO's proposed LC to prevent production of Category II quantities of SNM until the NRC completes its physical security and MC&A ORRs Category II material. The NRC staff finds this LC to be adequate.

The NRC staff's extension of the ACO's HALEU program will remain in effect until December 31, 2024.

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