~~CUI // SP-EXPT / SP-SRI / PROPIN // NOFORN~~
~~Security-Related Information – Withhold Under 10 CFR 2.390~~
~~Export Controlled Information and Proprietary Information~~

Centrus
Fueling the Future of Nuclear Power

November 30, 2022
ACO 22-0077

ATTN: Document Control Desk
John W. Lubinski, Director
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

American Centrifuge Plant; Docket Number 70-7004; License Number SNM-2011

License Amendment Request for American Centrifuge Operating, LLC's License Application and Supporting Documents for the American Centrifuge Plant

INFORMATION TRANSMITTED HEREWITH IS PROTECTED FROM PUBLIC DISCLOSURE AS CONFIDENTIAL COMMERCIAL OR FINANCIAL INFORMATION AND/OR TRADE SECRETS PURSUANT TO 10 CFR 2.390 AND 9.17(a)(4)
AND
INFORMATION TRANSMITTED HEREWITH IS PROTECTED FROM DISCLOSURE PURSUANT TO 10 CFR PART 810

Dear John Lubinski:

The purpose of this letter is to request in accordance with 10 *Code of Federal Regulations* (CFR) 70.34 and 70.65 the U.S. Nuclear Regulatory Commission (NRC) review and approve the proposed amendment for American Centrifuge Operating, LLC's (ACO) License Application for the American Centrifuge Plant (ACP) in Piketon, Ohio (Materials License SNM-2011).

On November 10, 2022, the U.S. Department of Energy (DOE) announced an approximately $150 million cost-shared award to ACO, a subsidiary of Centrus Energy Corp., to complete and operate a cascade of 16 centrifuges to produce high-assay low-enriched uranium (HALEU) which is used in many of the advanced reactor designs under development. The HALEU Operations contract is intended to support DOE's near-term HALEU needs and will build upon DOE's three-year HALEU Demonstration Program contract with ACO that ends on November 30, 2022. Enclosure 1 provides a detailed description, justification, and ACO's significance determination for the proposed changes.

American Centrifuge Operating, LLC
3930 U.S. Route 23 South – P.O. Box 628
Piketon, OH 45661

NMSS20
NMSS

Enclosure 2 provides the withheld portion of the security determination related to the justification for the proposed changes. Enclosure 3 provides the public proposed changes to LA-3605-0001, *License Application for the American Centrifuge Plant*, and LA-3605-0002, *Environmental Report for the American Centrifuge Plant.* Enclosure 4 provides the withheld proposed changes to NR-3605-0005, *Fundamental Nuclear Material Control Plan for the American Centrifuge Plant.* Enclosure 5 provides the withheld proposed changes to SP-3605-0041, *Security Plan for the Protection of Classified Matter at the American Centrifuge Plant.* Enclosure 6 provides the withheld proposed changes to LA-3605-0003, *Integrated Safety Analysis Summary for the American Centrifuge Plant.* Enclosure 7 provides corresponding proposed changes to NRC's Materials License SNM-2011 for the American Centrifuge Plant. Proposed changes for SP-3605-0042, *Security Plan for the Physical Protection of Special Nuclear Material at the American Centrifuge Plant*, are being submitted under separate cover ACO 22-0079.

Proposed changes from the previously NRC-approved documents are noted with revision bars in the right-hand margin. Based upon the 10 CFR 70.32 and 70.72 evaluations, not all proposed changes depicted warrant the NRC's review and approval; however, are provided for completeness to assist in the review efforts.

DOE and ACO staff are negotiating the final terms of the Contract No. 89243223CNE000030, *HALEU Demonstration Cascade Completion and HALEU Production,* and Amendment 3 to the *Appendix 1 Lease Agreement Between the U.S. Department of Energy and United States Enrichment Corporation for the Gas Centrifuge Enrichment Plant.* Both documents will be submitted on the docket under separate cover to support NRC's final review and approval of this amendment request.

Enclosures 2, 4, 5, and 6 contain Security-Related Information. Additionally, Enclosure 4 contains Proprietary Information. Therefore, ACO requests these enclosures be withheld from public disclosure pursuant to 10 CFR 2.390(d)(1). An affidavit required by 10 CFR 2.390(b)(1)(ii) is provided as Enclosure 7 of this letter. Additionally, Enclosures 4, 5, and 6 have been determined, in accordance with the guidance provided by the DOE, to contain Export Controlled Information and must be protected from disclosure per the requirements of 10 CFR Part 810.

After the NRC staff has had an opportunity to review the enclosures, ACO is available to support a discussion with the NRC to address questions or clarify issues. ACO respectfully requests NRC complete their review and final approval on or before May 30, 2023, to support continued HALEU operations under the new DOE HALEU contract.

If you have any questions regarding this matter, please contact me at (740) 897-3859.

Sincerely,

Kelly L Fitch

Kelly L. Fitch
Regulatory Manager

Enclosures: As stated

cc (without enclosures, unless otherwise noted):
S. Bazian, NRC HQ
Y. Faraz, NRC HQ (Enclosures)
A. Ford, DOE Idaho, Contracting Officer
S. Harlow, DOE NE
J. Hutson, Contract Support (Enclosures)
J. Lingard, DOE Idaho, Contract Specialist
L. Pitts, NRC Region II (Enclosures)
J. Tobin, NRC HQ (Enclosures)
T. Vukovinsky, NRC Region II

Enclosure 1 of ACO 22-0077

Detailed Description, Justification, and Significance Determination

Information Contained Within
Does Not Contain
Export Controlled Information

Reviewing Official: #1038, ACO

Date: 11/30/2022

Detailed Description, Justification, and Significance Determination

Detailed Description of Change

American Centrifuge Operating, LLC (ACO) proposes to amend the following documents to describe the U.S. Department of Energy's (DOE) November 10, 2022, contract award to ACO to continue building upon the DOE's initial three-year cascade demonstration program to produce High-Assay Low-Enriched Uranium (HALEU):

- Material License SNM-2011 for the ACP, specifically Condition #15
- LA-3605-0001, *License Application for the American Centrifuge Plant* (ACP)
- LA-3605-0002, *Environmental Report for the American Centrifuge Plant*
- LA-3605-0003, *Integrated Safety Analysis Summary for the American Centrifuge Plant*
- NR-3605-0005, *Fundamental Nuclear Material Control Plan for the American Centrifuge Plant*
- SP-3605-0041, *Security Plan for the Protection of Classified Matter at the American Centrifuge Plant*
- SP-3605-0042, *Security Plan for the Physical Protection of Special Nuclear Material at the American Centrifuge Plant*

Likewise, portions of these documents clarified the Gas Centrifuge Enrichment Plant (GCEP) Lease Agreement amendments that will expire along with the existing DOE HALEU Demonstration contract set to expire on November 30, 2022. Amendment 3 of the GCEP Lease and the definitized HALEU Contract No. 89243223CNE000030, *HALEU Demonstration Cascade Completion and HALEU Production*, are currently being negotiated and will be submitted on the docket to support NRC's final review and approval of this amendment request. Finally, other minor administrative/formatting corrections were also noted within these proposed changes and are being provided for completeness.

There are no changes being proposed to the currently described HALEU centrifuge cascade design or operation and no increase in the approved HALEU possession limits approved within Materials License SNM-2011 by Amendment 13 issued on June 11, 2021. Furthermore, no changes are warranted under the American Centrifuge Lead Cascade Facility (Lead Cascade Facility) license application and supporting documents.

Proposed changes for SP-3605-0042 are being submitted under separate cover, ACO 22-0079. The proposed changes contained within Enclosures 2 through 6 are identified by the following method:

- ~~Blue Strikeout~~ - Identifies text to be removed
- Red underline – Identifies text to be added

Justification

On November 10, 2022, the DOE announced an approximately $150 million cost-shared award to demonstrate the nation's ability to produce HALEU. This award builds on DOE's previous three-year cascade demonstration program with ACO to manufacture and demonstrate the centrifuge enrichment cascade to produce up to 600 kilograms of HALEU in the form of uranium hexafluoride (UF_6) for the DOE contract which expires on November 30, 2022.

This new HALEU performance-based operations contract will have three phases. During Phase I of the new contract, ACO will complete the final steps of centrifuge assembly and clear an operational readiness review (ORR) to start up the demonstration cascade. ACO will complete testing once the centrifuges have been installed and process gas (feed material) has been introduced following the required NRC ORRs. Once the HALEU demonstration cascade is operational, ACO will begin enriching UF_6 gas to produce 19.75 weight (wt.) percent enriched HALEU, meeting the contract requirement for the initial 20 kilograms of HALEU in the form of UF_6. Upon completion of Phase I, ACO plans to continue to produce HALEU under Phase II of the contract up to the currently NRC-authorized possession limits described in Table 1.2-2 of the license application (LA-3605-0001). Additionally, as described within Sections 1.1.3.1 and 1.1.8.1 of the license application (LA-3605-0001), a 30B UF_6 cylinder is used for the feed material and is the limiting factor to maintain the authorized possession limit. ACO will begin recycle operations at the completion of introducing the initial feed material into the cascade until such time that the NRC has had the opportunity to review and approve the second amendment to increase the possession limits to support the remainder of Phase II (i.e., production of at least 900 kilograms within one calendar year). Completion of Phases I and II are considered the base contract which has a period of performance which began on November 14, 2022, and continues through December 31, 2024.

To account for this anticipated authorization, within Section 1.2.4 of the license application (LA-3605-0001), ACO has proposed the license to be conditioned as follows: For HALEU Demonstration, ACO is authorized up to the possession limits currently described within Table 1.2-2 of this license application, which limits the use of one 30B feed cylinder. Upon consumption of the initial 30B feed cylinder under the HALEU Operations contract (Phases I and II), ACO will halt withdrawal of additional product, utilizing administrative tag control, until such time that the NRC has authorized an increase in the possession limits beyond those approved on June 11, 2021 (SNM-2011, Amendment 19).

After completion of the base contract, the contract allows DOE to enter a Phase III, which would exercise up to three three-year option periods at a minimum production level of 900 kilograms per year. It is anticipated that the contract period be approximately two years for the base contract, and 10 years in total if all option periods are exercised. Annual Congressional appropriations will inform the duration of the contract based on the availability of funding. Following the HALEU demonstration, the centrifuge technology used at the facility will be available for commercial deployment.

ACO would amend the license application and applicable supporting documents to allow continued operation of this HALEU cascade with increased possession limits for the requested extended period of operation for Phases II and III described above.

Financial Qualifications Determination

The November 2022 award includes a $30 million cost share during the first year to start up and operate 16 advanced centrifuges in a cascade at ACO's Piketon, Ohio enrichment facility. 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 is responsible for planning, managing, integrating, and executing the work as described in section C of the DOE contract.

This performance-based contract will have three phases. Phase 1 comprising of one CLIN, will be awarded on a cost-reimbursement no-fee basis with a minimum of a 50 percent cost share requirement. Only Phase I shall be priced in accordance with the clause at Federal Acquisition Regulation (FAR) 52.216-12, Cost-Sharing Contract-No Fee. Phase II, comprising of one CLIN, will be awarded on a cost-plus incentive fee basis, resulting in the first year of HALEU production. Phase III, comprising of three CLINs, will be divided into three three-year contract option periods with each option period structured on a cost-plus incentive fee basis for continued HALEU Production.

ACO will perform all Phase I work scope under a cost share, no fee contractual arrangement. ACO will be responsible for paying a minimum of 50 percent of the allowable incurred costs during Phase I. DOE will reimburse ACO a maximum of 50 percent cost share for the remaining allowable costs incurred during Phase I (the Government's cost share may vary depending upon the agreed upon cost share allocation but will not exceed 50 percent). ACO's cost share amount is based on the agreed upon cost share percentage of allowable incurred costs, as defined in FAR part 31, with the remaining allowable costs eligible for reimbursement under the DOE contract.

Phase II is awarded on a cost-plus incentive fee (see FAR 52.216-10) basis, resulting in the first year of HALEU production. Phase III is divided into three three-year contract option periods with each option period structured on a cost-plus incentive fee basis for continued HALEU production.

As being defined within the DOE contract, the target costs and incentive fees are as follows, exclusive of any target fee increases/decreases:

Contract Line-Item Number (CLIN)	Target Cost	Target Incentive Fee (x% of target cost)	Total Cost/Fee
00001	$58,837,483	$0	$58,837,483
00002	$83,201,070	$7,488,096	$90,689,167
00003	$270,293,748	$24,326,437	$294,620,185
00004	$270,208,570	$24,318,771	$294,527,341
00005	$294,511,106	$26,506,000	$321,017,106

Centrus Energy Corp.'s published 10-K for fiscal year ending December 31, 2021, provides the assurance that the Licensee has the cash flow needed to fund Phase I of the DOE HALEU Operations contract responsibilities at the defined 50 percent cost share contract, meeting the

financial qualification of 10 *Code of Federal Regulations* (CFR) 70.23(a)(5). This report was filed on March 11, 2022, and is publicly available at this website http://investors.centrusenergy.com/financial-information/sec-filings. Phase II is part of the base contract and is funded by DOE as cost-plus incentive fee.

Security Determination

Withheld information contained within Enclosure 2 of this letter.

Decommissioning Determination Based Upon Gas Centrifuge Enrichment Plant (GCEP) Lease Agreement

On April 28, 2022 (ACO 22-0042), ACO submitted *Amendment 2 to the Appendix 1 Lease Agreement Between the U.S. Department of Energy and United States Enrichment Corporation for the Gas Centrifuge Enrichment Plant*. Amendment 2 extended the term of the GCEP lease to December 31, 2025. However, neither the DOE nor the ACO assumed any additional liability for decontamination and decommissioning of any expansion of the facilities or operations therein or any new equipment installed therein that occurs after the termination or expiration of the current HALEU Demonstration Contract (November 30, 2022) unless such liability has been explicitly accepted by the DOE and ACO in a mutually agreed to amendment to an existing or future contract or agreement. Amendment 3 negotiations are ongoing to amend the GCEP Lease in support of the awarded HALEU Operations contract.

Additionally, in accordance with the GCEP Lease that during the operation of the HALEU Demonstration, ACO will be indemnified by DOE and satisfies the liability insurance requirements of 10 CFR 140.13b and 140.14(a)(3). Chapter 10.0 of the license application was revised to clarify that all other terms of the GCEP Lease as amended by Amendment 1 remained unchanged through the termination or expiration of the current DOE HALEU Demonstration contract period ending on November 30, 2022. DOE is expected to continue to amend the GCEP Lease in support of the continuation of the HALEU Operations Contract. The DOE will continue to assume all liabilities for the decontamination and decommissioning of the facilities and equipment installed, and any work performed, under the HALEU Operations Contract with the DOE including any materials or environmental hazards on the site. No financial assurance for any liability or lease turnover conditions shall be required by the Licensee. Likewise, any liabilities of the Licensee arising from or incident to the performance of work under the HALEU Operations Contract with the DOE shall be governed solely by such contract and any financial protection afforded to the Licensee as a person indemnified under the Act.

Environmental Impact Determination

On June 4, 2021, the NRC issued the *Environmental Assessment for the Proposed Amendment of U.S. Nuclear Regulatory Commission License Number SNM-2011 for the American Centrifuge in Piketon, Ohio* (ADAMS Accession No. ML21085A705), which provided for the conclusion and finding of no significant impact (FONSI) for the HALEU Demonstration Program. The basis for this FONSI is the proposed action was not expected to result in new construction, and that the HALEU cascade would be assembled and operated in existing buildings that previously housed a

similar system under the Lead Cascade Facility license. The proposed action previously evaluated related to the number of centrifuges used for the HALEU cascade and the possession limits remain unchanged. Therefore, this basis remains unchanged with the newly awarded DOE contract for HALEU cascade operations to support Phase I and a portion of Phase II operations up to the currently NRC-authorized possession limits defined within Table 1.2-2 of the license application (LA-3605-0001) and the NRC Materials License (SNM-2011).

Additionally, during the completion of the Environmental Assessment, NRC staff took into consideration the environmental impacts of operation beyond the contract expiration date of May 31, 2022, specifically anticipated license extensions of up to 10 years. The newly awarded DOE contract for the HALEU cascade operations to support Phases I and II would not result in any significant impact on the demography, socioeconomics, and environmental justice; public and occupational health and safety; non-radiological impacts from normal operations; radiological impacts from normal operations; impacts from accidents; waste management; transportation; or cumulative impacts. Therefore, ACO believes the environmental assessment remains valid as written and bounds the Phase I and a portion of Phase II operations up to the currently NRC-authorized possession limits defined within Table 1.2-2 of the license application (LA-3605-0001) and the NRC Materials License (SNM-2011).

Emergency Plan Impact Determination

DAC-3901-0005, *Evaluation of No Need for an Emergency Plan for the HALEU Demonstration,* provides the evaluation stipulated in 10 CFR 70.22(i)(1)(i) to demonstrate that no Emergency Plan is needed for the High Assay Low Enriched Uranium (HALEU) Demonstration and has been written with consideration of the format and content guidance provided in Section 8.4.3.2, "Evaluation that No Emergency Plan is Required." The evaluation satisfies the 10 CFR 70.22(i)(1)(i) requirement to demonstrate "that the maximum dose to a member of the public offsite due to a release of radioactive materials would not exceed 1 rem effective dose equivalent or an intake of 2 milligrams of soluble uranium.

The NRC's June 2021 Safety Evaluation Report for the HALEU Demonstration stated in part, "if ACO desires to expand the scope of operation of the HALEU Demonstration Program beyond the description in the revised license application or extend operations, it will need to reassess the need for an Emergency Plan." ACO has reassessed the need for an emergency plan and determined that the technical basis provided within DAC-3901-0005 remains applicable for this license amendment request.

The proposed changes are administrative in nature to describe the newest parameters of the DOE HALEU Demonstration cascade operations contract to support Phases I and II operations through December 31, 2024, or up to the currently NRC-authorized possession limits defined within Table 1.2-2 of the license application (LA-3605-0001) and the NRC Materials License (SNM-2011) (whichever comes first). There are no changes in the HALEU cascade process descriptions; number of planned operating centrifuges; or possession limits at the current time. Therefore, the proposed changes will not alter the design or performance of an item or activity as described in the Integrated Safety Analysis; LA-3605-0003, or LA-3605-0003A, *Addendum 1 of the Integrated Safety Analysis Summary for the American Centrifuge Plant – HALEU Demonstration.* Likewise, the proposed

changes will not: 1) decrease the level of the design basis as described in the ACP License Application; 2) result in a departure from a method of evaluation described in the ACP License Application used in establishing the design bases; 3) result in a degradation in safety; or 4) affect compliance with applicable regulatory requirements.

Based upon the discussion above, ACO anticipates that all of Phase I and a portion of Phase II operations will remain bound by the original HALEU possession limits as approved by the NRC on June 11, 2021. A second amendment request is being prepared to expand the possession limits and make other corresponding license application and supporting document changes to support the DOE's final contract terms for final completion of Phase II which makes up the base contract. After completion of the base contract, the contract allows DOE to enter a Phase III, which would exercise up to three three-year option periods at a minimum production level of 900 kilograms per year. It is anticipated that the contract period be approximately two years for the base contract, and 10 years in total if all option periods are exercised. Annual Congressional appropriations will inform the duration of the contract based on the availability of funding. Following the HALEU operations project, the centrifuge technology used at the facility will be available for commercial deployment.

In accordance with 10 CFR 70.34 and 70.65, the proposed changes discussed above, require the NRC's prior review and approval. The proposed changes will not decrease the ability of the management measures in the License Application to ensure the availability and reliability of IROFS. The proposed changes do not decrease the effectiveness of the design basis as described in the License Application. The proposed changes do not result in a departure from a method of evaluation described in the License Application used in establishing the design bases for the evaluation of HALEU Demonstration Criticality Events; therefore, this results in no degradation of safety. Lastly, the proposed changes do not have an adverse effect on compliance with applicable regulatory requirements.

Significance Determination for Proposed Conforming Changes

The proposed changes are administrative in nature to describe the newest parameters of the DOE HALEU Operations Project contract to support Phases I and II operations through December 31, 2024, or up to the currently NRC-authorized possession limits defined within Table 1.2-2 of the license application (LA-3605-0001) and the NRC Materials License (SNM-2011) (whichever comes first). There are no changes in the HALEU cascade process descriptions; number of planned operating centrifuges; or possession limits at the current time. ACO has reviewed the proposed changes and provides the following Significance Determination.

1. **No significant change to any conditions to the License.**

   The proposed changes are not prohibited by 10 CFR Part 70, license condition, or order. However, Materials License Condition 15 is being modified to make a corresponding date change through Phases I and II by December 31, 2024, or up to the currently authorized possession limits defined within this Materials License (whichever comes first).

2. **No significant increase in the probability of occurrence or consequences of previously evaluated accidents.**

   The proposed changes do not remove or change an IROFS that is listed in the ACP Integrated Safety Analysis (ISA) Summary or Addendum 1. The proposed changes do not alter any IROFS listed in the ISA Summary or Addendum 1, that is the sole item preventing or mitigating an accident sequence that exceeds the performance requirements of 10 CFR 70.61.

3. **No new or different type of accident.**

   The proposed changes do not create new types of accident sequences that, unless mitigated or prevented, would exceed the performance requirements of 10 CFR 70.61 and that have not previously been described in the ISA Summary/Addendum 1. The original accident analysis assumed 10 years of HALEU operations; therefore, the HALEU Demonstration cascade operations for Phase I and a portion of Phase II, up to the currently NRC-approved possession limits defined within Table 1.2-2 of the license application (LA-3605-0001) and the NRC Materials License (SNM-2011) is bound by the existing analyses and no changes are warranted.

4. **No significant reduction in the margins of safety.**

   The proposed changes do not decrease the margin of safety associated with any IROFS being credited to ensure the performance requirements of 10 CFR 70.61 are met.

5. **No significant decrease in the effectiveness of any programs or plans contained in the licensing documents.**

   - The proposed changes to the security plans SP-3605-0041 and SP-3605-0042 are administrative in nature to clarify the terms of the HALEU Operations Project. The proposed changes will not decrease the overall level of security performance needed to protect against the loss or compromise of classified matter or SNM, while in use or in storage, nor classified matter in transit. The control of classified storage areas or vaults, training of classifiers, documentation of classification of matter, etc. will be maintained at an equivalent level. Security plan SEC-18-0002, *American Centrifuge Operating, LLC (ACO) Information System Security Plan (ISSP) for Oak Ridge, TN; Piketon, OH; and Bethesda, MD,* provides for the protection of cyber systems, maintaining the necessary computer security requirements at an equivalent level as previously approved by the NRC.

   - The proposed changes to the Fundamental Nuclear Materials Control Plan (FNMCP) (NR-3605-0005) are administrative in nature to clarify the terms of the HALEU Operations Project within Section 1.1 and will have no effect on the FNMCP meeting the applicable requirements of 10 CFR Parts 70 and 74 for ACP. Likewise, the proposed changes do not affect the function or process to control nuclear material as described within the FNMCP.

   - The proposed changes do not result in a decrease in effectiveness of the approved ACP Emergency Plan. For HALEU Demonstration, no Emergency Plan as discussed under 10 CFR 70.22(i) is required. Likewise, the proposed changes will not decrease the abilities of

the DOE reservation Responses Organization to mitigate accident consequences or reasonably assure the adequate protection of the health and safety of the off-site and on-site personnel in the event of an emergency.

- The proposed changes do not result in a change to the Quality Assurance Program Description; thereby, do not represent a relaxation of a requirement of Quality Assurance Program Description.

Based on the above, the proposed changes will not result in a decrease in the effectiveness of the Security Programs/Plans, FNMCP, Emergency Plan, or the Quality Assurance Program Description contained in the licensing documents.

6. **The proposed change does not result in undue risk to: 1) public health and safety; 2) common defense and security; and 3) the environment.**

The proposed changes do not involve additional quantities of licensed material than originally evaluated for the HALEU Demonstration Program and do not change the response to accidents or events associated with licensed material. Phase I and a portion of Phase II activities are currently bound within the possession limits defined within Table 1.2-2 and authorized uses defined within Table 1.2-4 of LA-3605-0001 as approved on June 11, 2021, under SNM-2011 License Amendment 13. There will be no generation or increase in hazardous material quantities such that it impacts public health and safety. The proposed changes have no impact to the plant boundary protection, documentation of patrols, performance of rounds, or training of protective force personnel. The proposed changes will not increase the likelihood classified matter or SNM will be accessible to unauthorized personnel. Therefore, the proposed changes do not result in undue risk to public health and safety, the environment, or to the common defense and security.

7. **There is no change in the type or significant increases in the amounts of any effluents that may be released off-site.**

The proposed changes do not result in any new or unusual sources of hazardous substances, hazardous waste, or new waste streams that could be generated or used in unacceptable levels that exceed applicable regulatory requirements because of the proposed changes. In addition, there is no change in the type or significant increases in the amounts of any effluents that may be released off-site.

8. **There is no significant increase in individual or cumulative occupational radiation exposure.**

DAC-3901-0005, *Evaluation of No Need for an Emergency Plan for the HALEU Demonstration*, provided the evaluation stipulated in 10 CFR 70.22(i)(1)(i) to demonstrate that no Emergency Plan was required for the HALEU Demonstration Program. The evaluation showed that the maximum dose to a member of the public offsite due to a release of radioactive materials would not exceed 1 rem effective dose equivalent or an intake of 2 mg of soluble U. Therefore, the proposed changes provided within this Amendment Request to support all of Phase I and a portion of Phase II of the DOE HALEU Contract period will not increase radiological or

chemical releases beyond applicable regulatory limits (10 CFR 70.61) and will not create any new or unusual sources of radioactive waste. Likewise, the proposed changes will not result in significant increase in individual or cumulative occupational radiation exposure.

9. There is no significant construction impact.

HALEU cascade final construction activities have restarted in preparation of the final required NRC required ORR inspections to receive NRC's final authorization to introduce gas into the HALEU cascade to meet the DOE's Phase I obligations and move into Phase II milestones producing up to the currently NRC-authorized possession limits defined within Table 1.2-2 of the license application (LA-3605-0001) and the NRC Materials License. Currently there are no foreseen environmental concerns based upon the fact that the HALEU cascade is being constructed within leased buildings used during the operations of the previous American Centrifuge Lead Cascade Facility; however, on a much smaller scale. Additionally, there will be no new building construction planned for the extension of time for this initial deployment phase of the ACP.

Enclosure 3 of ACO 22-0077

Proposed Changes for LA-3605-0001, *License Application for the American Centrifuge Plant*, and LA-3605-0002, *Environmental Report for the American Centrifuge Plant*

Information Contained Within
Does Not Contain
Export Controlled Information

Reviewing Official: #1038, ACO

Date: 11/30/2022

1.0 GENERAL INFORMATION

This license application was previously submitted by Centrus Energy Corp. (Centrus), formerly known as USEC Inc., for the American Centrifuge Plant (ACP). It encompasses the construction, manufacturing, start-up, operations, maintenance, and decommissioning of a uranium enrichment facility using American Centrifuge technology that will produce approximately 3.8 million separative work units (SWU) annually.

The United States Enrichment Corporation leases portions of the Portsmouth Gaseous Diffusion Plant (GDP) reservation from the U.S. Department of Energy (DOE) through the *Lease Agreement between the U.S. Department of Energy and United States Enrichment Corporation for the Gas Centrifuge Enrichment Plant* (GCEP Lease Agreement). Pursuant to a 2006 amendment to that lease agreement, Centrus subleased space for the American Centrifuge Lead Cascade Facility (Lead Cascade) and the ACP from the United States Enrichment Corporation. Centrus, with approval of the DOE, assigned the sublease for the space for the ACP to the Licensee, American Centrifuge Operating, LLC (ACO). The Licensee and its agents will conduct activities within the leased facilities and access and egress thereto, in accordance with this license application.

The ACP utilizes existing buildings located on the DOE reservation near Piketon, Ohio, that were built to support the gaseous centrifuge process beginning in the 1980s, in addition to several newly constructed buildings and facilities.

The ACP is the third step in the plan to deploy the American Centrifuge technology. The first step was the centrifuge testing in Oak Ridge, Tennessee, to upgrade, and demonstrate an economically attractive gas centrifuge and enrichment process. The second step was the deployment of the Lead Cascade in Piketon, Ohio, which provided reliability, performance, cost, and other vital data on the ACP enrichment process. American Centrifuge technology is modular, with the basic building block of enrichment capacity being a cascade of centrifuges. Information gained and work performed during the centrifuge testing and Lead Cascade projects included vital information on performance, reliability, and economics that will be used in the construction of the ACP. A license application was prepared pursuant to the *Atomic Energy Act* of 1954 as amended, 10 *Code of Federal Regulations* (CFR) Parts 70, 40, 30, and other applicable laws and regulations. The commercial ACP operation is designed to enrich and safely contain and handle uranium hexafluoride (UF_6) up to 10-weight (wt.) percent uranium-235 (^{235}U). This license application includes the High Assay Low Enriched Uranium (HALEU) Demonstration Program which is designed to enrich and safely contain and handle UF_6 with an operational limit that is less than 20.0 wt. percent ^{235}U.

This license application follows the format and content guidelines provided in NUREG-1520, *Standard Review Plan for Fuel Cycle Facilities License Applications*, Revision 2 (Reference 1). The information provided reflects the design in sufficient detail to enable a reviewer to make a definitive evaluation that the ACP can be constructed and operated without undue risk to the health and safety of the public and with no significant impact to the environment.

The ACP uses portions of the Portsmouth Gaseous Diffusion Plant (GDP) and the former DOE Gas Centrifuge Enrichment Plant (GCEP) along with eight new facilities. The ACP utilizes

existing utilities and infrastructure that support the DOE reservation along with the utilities and infrastructure that were intended to support GCEP. New facilities are necessary for feed, withdrawal, sampling, and blending/transfer operations. Centrus has updated the American Centrifuge technology from that used in the GCEP program, but the American Centrifuge components remain compatible with existing infrastructure and buildings/facilities.

The HALEU Demonstration Program is a program awarded by DOE's Nuclear Energy Oak Ridge Site Office for the demonstration of the HALEU production to support DOE research and development (R&D) activities and programs. The HALEU Demonstration Contract was awarded on May 31, 2019 and definitized on October 31, 2019 (Reference 17). The two primary objectives of the HALEU Demonstration Program is for American Centrifuge Operating, LLC (ACO), the licensee, to deploy a 16-~~machine~~ centrifuge AC-100M HALEU cascade in the Piketon facility to produce 19.75% ^{235}U enriched product and to demonstrate the capability to produce HALEU utilizing US-origin uranium enrichment technology.

On November 10, 2022, the DOE announced an approximately $150 million cost-shared award to ACO, a subsidiary of Centrus Energy Corp., to complete and operate a cascade of 16 centrifuges (and two spares) to produce HALEU which is used in many of the advanced reactor designs under development. The HALEU Operations Project is intended to support DOE's near-term HALEU needs and will build upon DOE's three-year HALEU Demonstration Program contract with ACO that ends November 30, 2022. This new HALEU performance-based contract (Reference 74) will have three phases that are further discussed in Section 1.1.8 of this license application.

The HALEU Demonstration will be deployed in a subset of the larger ACP with deviations noted as appropriate in the sections that follow.

It is the intent of the licensee to deploy portions of the ACP in a modular fashion to accommodate market demand on a scalable, economical gradation. This modular deployment will encompass utilization of cascades of LEU production for customer product or feed material into HALEU cascades.

1.1 Plant and Process Description

This section describes the buildings and facilities that comprise the ACP located on the DOE reservation in Piketon, Ohio, and describes the process by which the plant will operate. Facilities are those buildings and systems identified in the lease agreement between the United States Enrichment Corporation and DOE. The ACP buildings and facilities are grouped in two categories, primary and secondary in the Integrated Safety Analysis (ISA) Summary. Figure 1.1-1 (located in Appendix B) depicts the entire DOE reservation and the area where the ACP resides in the southwest quadrant. Figure 1.1-2 depicts a closer view of the ACP area and shows the Primary and Secondary buildings. Primary facilities are those buildings or areas that could contain licensed material in quantities that could potentially result in consequences that exceed the performance criteria defined in 10 CFR 70.61 resulting from credible accidents or that directly control a primary facility. All other ACP facilities are considered to be secondary. A further description of primary and secondary facilities and a list of these buildings/facilities are in Sections 1.1.3 and 1.1.4 of this license application.

The uranium element appears in nature in numerous isotopes; the three major isotopes of interest have atomic weights of 234, 235, and 238. The ^{235}U isotopes are fissionable and capable of sustaining a critical reaction. Natural uranium contains 0.711 percent ^{235}U isotope. Isotopic separation processes separate uranium into two fractions, one enriched in the ^{235}U isotope, and the other depleted.

Prior to the enrichment process, uranium is combined with fluorine to form UF_6 from the uranium feed suppliers. The UF_6 arrives at the plant in a solid state and this UF_6 is sublimed from a solid to a gas and fed into the system. In the gas centrifuge process, the isotopic separation is accomplished by centrifugal force, which uses the difference in weight of the uranium isotopes to achieve this isotopic separation. UF_6 can be enriched up to 10 wt. percent assay ^{235}U in the commercial ACP operation. The plant withdraws the enriched (product) stream and the depleted (tails) stream in the gaseous state. The product and tails streams are then sublimed back into a solid state for handling and movement. The plant minimizes the amount of UF_6 in the liquid state.

Two process buildings are included in the initial deployment of the ACP to support a 3.8 million SWU production capacity with centrifuges arranged in cascades.

UF_6 feed to the HALEU Demonstration will be LEU UF_6 product with an enrichment of less than 5.0 wt.% ^{235}U. The HALEU Demonstration will enrich this material to an enrichment less than 20.0 wt.% ^{235}U in its product stream and will deplete the feed to a target tails stream enrichment of approximately equal to or less than 1.0 wt.% ^{235}U.

1.1.1 Site Boundary

The ACP is located approximately one and one half miles east of U.S. Route 23 on the approximately 3,700 acre DOE reservation. The area around the reservation is sparsely populated, with the nearest residential center located approximately four miles to the north of the reservation. The ACP is located in the southwest quadrant of the reservation and is situated on approximately 200 acres. The site boundary is the DOE reservation boundary, which is depicted in Figure 1.1-1 (located in Appendix B). Proximity of the ACP to the nearest member of the public (i.e., permanent residence) is about 2,200 feet (ft) [670 meters (m)].

1.1.2 Plant Layout

The ACP layout is depicted in Figure 1.1-1 (located in Appendix B) in relationship to the DOE reservation and in Figure 1.1-2 for the ACP specifically. The ACP is comprised of various buildings/facilities and areas that house systems and equipment necessary to support the American Centrifuge uranium enrichment process. The ACP utilizes buildings and facilities that were part of GCEP, built in the early 1980s, part of the GDP that was built in the early 1950s, and newly constructed buildings and facilities. Descriptions of the major primary and secondary facilities are contained in the following sections. A brief listing of the buildings and facilities utilized for the ACP is located in Table 1.1-1.

The design of the plant complies with the performance requirements of 10 CFR 70.61, the Baseline Design Criteria specified in 10 CFR 70.64(a) and the defense-in-depth requirements contained in 10 CFR 70.64(b).

1.1.3 Primary Facilities Description

Primary facilities are those buildings/facilities or areas that could potentially contain licensed material in quantities that result in consequences that exceed the performance criteria defined in 10 CFR 70.61 resulting from credible accidents or directly controls a primary facility. The primary facilities directly involved in the enrichment process are the X-2232C Interconnecting Process Piping (IPP), X-3001 Process Building; X-3002 Process Building; X-3012 Process Support Building; X-3344 Customer Services Building; X-3346 Feed and Withdrawal Building; and X-3346A Feed and Product Shipping and Receiving Building. Other buildings and areas that provide direct support functions to the enrichment process are the X-7725 Recycle/Assembly Building; X-7726 Centrifuge Training and Test Facility; X-7727H Interplant Transfer Corridor; X-745G-2 Cylinder Storage Yard; X-745H (future) Cylinder Storage Yard, and X-7746S, X-7746W Cylinder Storage Yards and Intraplant Roadways. These buildings and areas are where special nuclear material and hazardous material can be found and are considered to be the primary facilities in their functional support of the uranium enrichment process. A description of the primary facilities and their function is provided in the following sub-sections and are listed and briefly described in Table 1.1-1. An overall depiction of the enrichment processes is provided in Figure 1.1.3-1 located in Appendix E.

ACO's long-term goal is to resume commercial enrichment production consistent with market demand. The ACP design is modular, with the basic building block of enrichment capacity being a cascade of centrifuges. Modular deployment would accommodate market demand on a scalable, economical gradation. The Fire Safety Program will be implemented to support the modular deployment, such that the fire protection systems/services are in place when needed.

The next phase of enrichment production includes the deployment of a cascade of 16 centrifuges to demonstrate production of high-assay, low-enriched uranium (HALEU) fuel for advanced reactors. The primary building/facilities directly involved in HALEU Demonstration are the X-3001 Process Building, X-3012 Process Support Building, X-7725 Recycle/Assembly Building, X-7726 Centrifuge Training and Test Facility, and X-7727H Interplant Transfer Corridor. It is also noted that HALEU Demonstration does not involve or include the use of any liquid UF_6 handling operation or those facilities.

1.1.3.1 X-3001 and X-3002 Process Buildings

The initial deployment of the ACP includes two process buildings, which are located in the southwest quadrant of the DOE reservation: X-3001 and X-3002. The primary purpose of the process buildings is to house the centrifuges and support systems necessary to perform the actual enrichment process. Both buildings are similar in construction, layout, and design. Each building is approximately 416 feet (ft) by 730 ft (approximately 304,000 square feet [ft^2]) and has a large high bay process area and two utility areas. The height of each building is approximately 87 ft in the high bay area and 49 ft in the utility areas. The nearest reservation boundary is 2,606 ft to the west of the X-3001 building. Figure 1.1-3 (located in Appendix B) depicts the typical equipment and process flow for the X-3001 and X-3002 buildings. Figures 1.1.3.1-1, 1.1.3.1-2, 1.1.3.1-3, and 1.1.3.1-4 (located in Appendix E) also depict the equipment layout for the X-3001 and X-3002 buildings.

At the north and south ends of X-3001 and X-3002 buildings are equipment/utility bays and mezzanines where auxiliary equipment is housed. Items in these areas consist of heating and ventilation equipment, cooling water pumps, vacuum pumps, electrical switchgear, and standby electrical equipment (i.e., diesel generators, battery rooms, and uninterruptible power supply [UPS] systems). Building vents for the purge and evacuation vacuum systems are also located in the buildings. The vents are monitored and are permitted through the Ohio Environmental Protection Agency (OEPA).

The east side of the X-3001 building is connected to the X-3012 building, which is connected to the west side of the X-3002 building. The X-7727H corridor is connected to the west side of the X-3001 building. The X-2232C piping connects to the southwest corner of the X-3001 building at a valve house where it both enters and exits the building. The connection of the X-2232C piping exits the east side of the X-3001 building and enters and exits the X-3002 building on the west side through a valve house as well.

The centrifuges are installed in the high bay area in a cascade arrangement. The cascades are supplied UF_6 feed from a header from the Feed Area in the X-3346 building. The centrifuges in each cascade are grouped into stages that are connected in series. The feed, product, and tails lines to and from each centrifuge within a stage connect into stage headers that convey the UF_6 streams between stages. The depleted material from the bottom stage is piped through the X-2232C piping to the X-3346 building Withdrawal Area to be withdrawn as tails. The enriched material from the top stage is piped through the X-2232C piping to the X-3346 building Withdrawal Area to be withdrawn as product. For commercial ACP operations the cascade enrichment is normally less than 5.5 wt. percent ^{235}U, but enrichment levels up to 10 wt. percent ^{235}U are allowable.

The HALEU Demonstration cascade utilizes a similar centrifuge design to that used for the Lead Cascade. The equipment necessary to perform the enrichment process is in the X-3001 Process Building and consists of product and tails withdrawal system, ~~uranium hexafluoride (~~UF_6~~)~~ cylinders, centrifuges, and supporting units. The product and tails withdrawal systems use three cold boxes. NaF traps are used for additional withdrawal capacity during dumping. A 30B UF_6 cylinder is used for the feed material. Centrifuges and supporting units are placed in the Train 3 area of the X-3001. For further plant and process specifics related to the HALEU Demonstration Program, refer to LA-3605-0003A, *Addendum 1 of the Integrated Safety Analysis for the American Centrifuge Plant – HALEU Demonstration* (Reference 7).

1.1.7 Roadways

Two major four-lane highways service the DOE reservation: U.S. Route 23, traversing north-south, and State Route 32/124, traversing east-west. The reservation is situated approximately three and one half miles from the intersection of U.S. Route 23 and State Route 32/124. There are five major access roads, which connect Perimeter Road to adjoining roads outside the DOE reservation. The major one is the West Access Road (Principal Access Road) from U.S. Route 23, which lies approximately one mile west of Perimeter Road. The North Access Road, which connects to U.S. Route 32 is approximately three miles to the north. The East and South Access Roads connect to secondary county roads. There is also a construction entrance road on the southwest corner of the reservation, which ties into Perimeter Road. This road was used during the original site and facility construction periods. Vehicle traffic access to the Perimeter Road is open to the public but can be shut down as necessary for safety and security concerns, or in support of reservation activities. Service roads throughout the reservation connect to the Perimeter Road with access to the ACP controlled through security portals. The reservation roadways are depicted in Figures 1.1-1 (located in Appendix B) and 1.1-2.

1.1.8 Phased Modular Expansion Plan for the American Centrifuge Plant

It is the intent of ACO to deploy portions of the ACP in a modular fashion to accommodate market demand on a scalable, economical gradation. This modular deployment may encompass utilization of cascades of Low Enriched Uranium (LEU) production for LEU customer product or feed material into HALEU cascades. The ratio of LEU cascades to HALEU cascades would be approximately 6 to 1.

1.1.8.1 High Assay Low Enriched Uranium Demonstration

The HALEU Demonstration cascade utilizes a similar centrifuge design to that used for the Lead Cascade. The equipment necessary to perform the enrichment process is in the X-3001 Process Building and consists of product and tails withdrawal system, UF_6 cylinders, centrifuges, and supporting systems. The product and tails withdrawal systems use three cold boxes. NaF traps are used for additional withdrawal capacity during dumping. A 30B UF_6 cylinder is used for the feed material. Centrifuges and supporting units are placed in the Train 3 area of the X-3001 building. For further plant and process specifics related to the HALEU Demonstration Program, refer to LA-3605-0003A, *Addendum 1 of the Integrated Safety Analysis for the American Centrifuge Plant – HALEU Demonstration* (Reference 7).

In support of this HALEU Demonstration Program and NRC Materials License (SNM-2011) Condition 23, DOE amended (Amendment 1) the *Appendix 1 Lease Agreement between the U.S. Department of Energy and United States Enrichment Corporation for the Gas Centrifuge Enrichment Plant* (GCEP Lease Agreement) (Reference 71). The amended GCEP Lease Agreement renewed and extended the term of the lease through May 31, 2022. The ACO sublease incorporates the terms of the GCEP Lease Agreement. Furthermore, in September 2021, the DOE amended (Amendment 2) the GCEP Lease Agreement to extend the term through December 31, 2025. All other terms of the GCEP Lease as amended by Amendment 1 remained ~~unchained~~unchanged through the termination or expiration of the current DOE HALEU

Demonstration contract period ending on November 30, 2022. DOE is expected to continue to amend the GCEP Lease in support of the continuation of the HALEU Demonstration cascade.

~~At the conclusion of the HALEU Demonstration Program, the facilities will be either returned to the DOE in accordance with the requirements of the GCEP Lease Agreement or the parties will amend the GCEP Lease Agreement to allow the performance of other work on the leased premises.~~

On November 10, 2022, the DOE announced an approximately $150 million cost-shared award with ACO, the Licensee, to demonstrate the nation's ability to produce HALEU. This award builds on DOE's previous three-year cascade demonstration program with the Licensee to manufacture and demonstrate the centrifuge enrichment cascade to produce up to 600 kilograms of HALEU in the form of UF_6 for the DOE contract which expires on November 30, 2022.

This new HALEU performance-based contract will have three phases. During Phase I of the new DOE HALEU contract (Reference 74), the Licensee will complete the final steps of centrifuge assembly and clear an operational readiness review (ORR) to start up the demonstration cascade. The will complete testing once the centrifuges have been installed and process gas (feed material) has been introduced following the required NRC ORRs. Once the HALEU demonstration cascade is operational, the Licensee will begin enriching UF_6 gas to produce 19.75 weight (wt.) percent enriched HALEU, meeting the contract requirement for the initial 20 kilograms of HALEU in the form of UF_6. Upon completion of Phase I, ACO plans to continue to produce HALEU under Phase II of the contract up to the currently NRC-authorized possession limits described in Table 1.2-2 of this license application. Phase II includes production of a minimum 900 kilograms of HALEU to a nominal 19.75 wt. percent ^{235}U within on calendar year following Phase I. This year of production will be utilized to resolve any issues with full scale production. Completion of Phases I and II are considered the Base Contract which has a period of performance which began on November 14, 2022, and continues through December 31, 2024.

1.1.8.2 High Assay Low Enriched Uranium Demonstration Continuation

After completion of the Base Contract as described above, the contract allows DOE to enter a Phase III, which would exercise up to three three-year option periods for a combined total of 10 years of production (Phases II and III) at a minimum production level of 900 kilograms per year. Performance of Phases I and II do not guarantee ACO will be authorized to proceed with the Phase III option periods of production. DOE expects this duration to approach 10 years, including base and all option years, assuming all options are exercised under the DOE contract. ~~the second phase of deployment, the Licensee plans to continue operation of the 16 centrifuge HALEU cascade as previously described for an additional 10-year period~~.

The Licensee would amend the License Application and applicable Supporting Documents to allow continued operation of this HALEU cascade with increased possession limits for the requested extended period of operation. ACO's financial assurance and decommissioning liability would be established in accordance with the requirements of 10 CFR 70.38, 40.42, and 30.36 and submitted as part of the License Amendment Request.

This phase would only occur if parties agree to extend the GCEP Lease Agreement in support of ongoing planned Licensee activities. In accordance with Materials License Condition

23, the Licensee would provide a copy of the amended agreement to the NRC. Additionally, the Licensee would notify the NRC if/when a decision is made to transition to this phase seeking approval prior to the implementation of any changes.

1.1.8.3 High Assay Low Enriched Uranium Production

A subsequent proposed deployment will be the installation of one or more 120 centrifuge HALEU cascade(s) in Train 3 with HALEU Feed and Withdrawal stations located in Train 4.

1.1.8.4 Expanded Low Enriched Uranium and High Assay Low Enriched Uranium Production

The proposed follow on phase to High Assay Low Enriched Uranium production discussed in 1.1.8.3 above will be the addition of one or more 120 centrifuge HALEU cascades and/or LEU cascades and associated Feed and Withdrawal stations in a modular fashion all within the X-3001 building. The HALEU cascades could be fed directly from associated LEU cascades or directly with LEU cylinders.

1.1.8.5 Full ACP Deployment

The Licensee will notify the NRC in advance of the transition of the full ACP as previously approved with the initial issuance of Materials License SNM-2011. At that time, the Licensee will request a License Amendment and submit a detailed decommissioning cost estimate and required financial assurance documentation to NRC in accordance with the requirements of 10 CFR 70.38, 10 CFR 40.42, and 10 CFR 30.36 for NRC review and approval. Additionally, the Licensee will provide the necessary financial qualification documentation as detailed in Materials License Condition 15.

1.1.9 Material of Construction

The ACP facilities are designed and built in a manner to ensure an operating life of at least 30 years. Materials of construction are chosen in accordance with the guidance provided in GAT-901 and GAT-T-3000 (References 25 and 26) to ensure piping and other equipment can maintain a minimum wall thickness during the operating life of the ACP. Corrosion and erosion rates are not anticipated to exceed 0.0025 millimeter per year depending upon material of construction, equipment configurations and flow rates.

This portion of the text has been determined to contain Export Controlled Information and is located in Appendix B of this license application.

An example of the use of steel in this fashion is UF_6 cylinders. While steel will corrode and not produce a protective fluoride film, the design compensates for the corrosion by increasing the thickness of the cylinder wall. Operational requirements for periodic retesting of the cylinders every five years ensures that the residual wall thickness is still adequate even under high

Fluor-BWXT Portsmouth, LLC (FBP) is the DOE contractor for D&D of the GDP. FBP is responsible for the D&D of 415 facilities and structures that supported the uranium enrichment operations conducted at the site. During D&D, Fluor-BWXT prepares contaminated facilities for demolition by deactivating utilities and removing stored waste, materials, process equipment such as converters and compressors, and piping.

The plant also includes various support structures that provide feed and transfer operations and site services such as maintenance; steam generation; cleaning; process heat removal; electrical power distribution; and water supply storage and distribution.

Pixelle Specialty Solutions™, formerly Glatfelter Specialty Papers, operates a lumberyard on the north edge of the DOE reservation. This facility is utilized as a sorting and transfer area for commercial and paper grade lumber.

1.2.2 Financial Qualifications

Under the previous HALEU Contract (Reference 17), DOE agreed to reimburse the Company for 80 percent of its costs incurred in performing the contract. The Company's cost share is the corresponding 20 percent and any costs incurred above these amounts. Costs under the HALEU Contract included *program costs*, including direct labor and materials and associated indirect costs that are classified as *Cost of Sales*, and an allocation of corporate costs supporting the program that are classified as *Selling, General, and Administrative Expenses*. Services ~~to be~~ provided over the HALEU contract period included constructing and assembling centrifuges and related infrastructure in a cascade formation. When estimates of remaining program costs to be incurred for such an integrated construction-type contract exceed estimates of total revenue to be earned, a provision for the remaining loss on the contract is recorded to *Cost of Sales* in the period the loss is determined. Our corporate costs supporting the program are recognized as expense as incurred over the duration of the contract term. The accrued loss on the contract will be adjusted over the remaining contract term based on actual results and remaining program cost projections (Reference 22).

On November 10, 2022, the DOE announced an approximately $150 million cost-shared award with ACO, the Licensee, to demonstrate the nation's ability to produce HALEU. This award builds on DOE's previous three-year cascade demonstration program with the Licensee to manufacture and demonstrate the centrifuge enrichment cascade to produce up to 600 kilograms of HALEU in the form of UF_6 for the DOE contract which expires on November 30, 2022.

The November 2022 award includes a $30 million cost share during the first year to start up and operate 16 advanced centrifuges in a cascade at ACO's Piketon, Ohio enrichment facility. This new HALEU performance-based contract (Reference 74) includes cost-shared no-fee contract line-item numbers (CLINs) and cost-plus-incentive-fee CLINs. ACO is responsible for planning, managing, integrating, and executing the work as described in the DOE contract.

Additionally, this performance-based contract will have three phases. Phase 1 comprising of one CLIN, will be awarded on a cost-reimbursement no-fee basis with a minimum of a 50 percent cost share requirement. Only Phase I shall be priced in accordance with the clause at

Federal Acquisition Regulation (FAR) 52.216-12, *Cost-Sharing Contract-No Fee*. Phase II, comprising of one CLIN, will be awarded on a cost-plus incentive fee basis, resulting in the first year of HALEU production. Phase III, comprising of three CLINs, will be divided into three three-year contract option periods with each option period structured on a cost-plus incentive fee basis for continued HALEU Production.

The Licensee will perform all Phase I work scope under a cost share, no fee contractual arrangement. The Licensee will be responsible for paying a minimum of 50 percent of the allowable incurred costs during Phase I. DOE will reimburse the Licensee a maximum of 50 percent cost share for the remaining allowable costs incurred during Phase I (the Government's cost share may vary depending upon the agreed upon cost share allocation but will not exceed 50 percent). The Licensee's cost share amount is based on the agreed upon cost share percentage of allowable incurred costs, as defined in FAR part 31, with the remaining allowable costs eligible for reimbursement under the DOE contract. Centrus' Annual Report on Form 10-K, filing date of March 11, 2022, for the fiscal year ended December 31, 2021, provides the Licensee's ability to meet the financial contractual requirements defined in the HALEU contract (Reference 22).

In support of this HALEU Demonstration Program, DOE amended ~~(Amendment 1)~~ the GCEP Lease Agreement, in which the parties agree that all work performed under the HALEU Demonstration Contract on leased premises shall be considered a permitted use; any alterations or changes to the premises pursuant to the Demonstration Contract with the DOE shall be a permitted change to the premises; and that any liabilities of the Corporation (Licensee) arising from or incident to the performance of work under the Demonstration Contract with the DOE shall be governed solely by such contract. Both the GCEP Lease and the Demonstration Contract afford indemnification pursuant to the Price Anderson Act. DOE is expected to continue to amend the GCEP Lease in support of the HALEU Operations contract.

The Company has long-term nuclear fuel sales and supply contracts in place that extend to 2030; these contracts will provide a stream of revenue for many years and provide a foundation for growth (Reference 22).

At the time of initial licensing and remains as the basis for the initial Materials License approval, the Licensee estimated the total cost to construct the initial 3.8 million SWU capacity for the ACP to be up to $3.1 billion (2008 dollars) (Reference 3) (see Appendix C of this license application), excluding capitalized interest, tails disposition, decommissioning, and any replacement equipment required during the life of the plant outside of normal spare equipment. The commercial ACP design is modular and can be constructed and installed incrementally over time. As the final commercial ACP phase, the Licensee plans to construct the plant and install centrifuges in increments until the ACP reaches a capacity of up to 3.8 million SWU production annually. As groups of centrifuges are installed, operations will be initiated and will result in enrichment production that will generate revenue. The Licensee may construct and install additional capacity thereafter as operations and market conditions permit subject to additional NRC licensing approval. Financing for each phase of incremental capacity may be raised using different financial instruments, and the ratio of equity to debt may vary over time for each increment.

Funding for various future phases of construction may come from a variety of sources including, but not limited to, funds from operations, capital raised by the Licensee, other American Centrifuge limited liability companies, lending and/or lease arrangements and that the mix of funding sources may vary depending upon the phase of the project. Prior to initiating each phase, the Licensee will make available for inspection on a confidential basis, its budget estimate for such phase and documentation of the source of funds available or committed to fund that increment.

In general, the Licensee's financial qualifications to construct and operate the HALEU 16-centrifuge cascade under the Demonstration Contract is demonstrated by the contract with DOE and the Selected Financial Data and detailed Consolidated Financial Statements within the latest information filed with the U.S. Securities Exchange Commission by its parent Centrus.

In order to meet the financial qualifications requirements for construction and operation of future expansion of the facility beyond the cascade funded under the HALEU Demonstration Contract, the Licensee proposes that the license be conditioned as follows:

- Construction of each ~~additional~~ incremental ~~future expansion~~phase of the ACP shall not commence before funding for that increment is available or committed. Of this funding, ~~the Licensee or affiliates~~ACO must ~~demonstrate~~ have in place before constructing such increment, commitments for one or more of the following: equity contributions from ACO, affiliates and/or partners, along with lending and/or lease arrangements that solely or cumulatively are sufficient to ensure funding for the particular increment's construction costs. ~~The Licensee~~ ACO ~~will~~ shall make available for NRC inspection, documentation of both the budgeted costs for such phase and the source of funds available or committed to pay those costs.

- Operation of ~~additional expansion 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 within this Materials License (whichever comes first), shall not commence until the Licensee ~~or affiliates~~ 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).

Pursuant to Section 3107 of the USEC *Privatization Act*, the United States Enrichment Corporation leases the portions of the DOE reservation from DOE on which the ACP is located. The Licensee subleases those portions of the DOE reservations from the United States Enrichment Corporation. Under its lease with DOE and the sublease, and in accordance with Section 3107, the United States Enrichment Corporation and the Licensee are indemnified under Section 170d of the *Atomic Energy Act* for liability claims arising out of any occurrence within the United States, causing, within or outside the United States, bodily injury, sickness, disease, or death, or loss of or damage to property, or loss of use of property, arising out of or resulting from the radioactive,

toxic, explosive, or other hazardous properties of chemical compounds containing source or special nuclear material arising out of activities under the lease. This indemnification is sufficient to meet the requirements of Section 193(d) of the *Atomic Energy Act* of 1954, as amended, and 10 CFR 140.13b, because the DOE indemnity provides greater financial protection than commercially available liability insurance. Therefore, the appropriate amount of separate liability insurance that should be required by the NRC is zero and an exemption from the requirements of 10 CFR 140.13b crediting DOE indemnity in lieu of nuclear liability insurance as discussed in this section is provided in Section 1.2.5 of this license application.

By letter dated May 14, 2007 (AET 07-0030) the Licensee provided status of its efforts to obtain nuclear liability insurance in accordance with NRC License Condition #14. The NRC agreed on July 16, 2007 that the Licensee had satisfied the requirements of this license condition and no further action is required concerning this license condition.

Information indicating how reasonable assurance will be provided that funds will be available to decommission the facility as required by 10 CFR 70.22(a)(9), 10 CFR 70.25, and 10 CFR 40.36 is described in Chapter 10.0 of this license application.

1.2.3 Type, Quantity, and Form of Licensed Material

The type, quantity, and form of NRC-regulated special nuclear, source, and by-product material are shown in Table 1.2-1 for the proposed commercial plant and Table 1.2-2 for the HALEU Demonstration Program (see Appendix D of this license application).

1.2.4 Authorized Uses

The commercial ACP operation enriches UF_6 up to 10 wt. percent ^{235}U. The specific authorized uses for each class of NRC-regulated material are shown in Table 1.2-3.

The HALEU Demonstration cascade enriches UF_6 up to a target enrichment of 19.75 wt. percent ^{235}U, but less than 20 wt. percent ^{235}U. Enrichment levels up to 25 wt. percent ^{235}U are authorized to permit for process fluctuations which can create small amounts of higher weight percent material. The specific authorized uses for each class of NRC-regulated material for the HALEU Demonstration Program are shown in Table 1.2-4. The Licensee proposes that the license be conditioned as follows:

1) ACP shall not enrich UF_6 in excess of 20 wt. percent ^{235}U other than in the course of cascade performance adjustments, thus providing the operational flexibility to generate material to satisfactorily fulfill customer orders up to 20 wt. percent ^{235}U. ACP shall not input parameters to extract product material for the assay above 20 wt. percent ^{235}U at any time.

2) For HALEU Demonstration, ACO is authorized up to the possession limits currently described within Table 1.2-2 of this license application, which limits the use of one 30B feed cylinder. Upon consumption of the initial 30B feed cylinder under the HALEU Operations contract (Phases I and II), ACO will halt withdrawal of additional

product, utilizing administrative tag control, until such time that the NRC has authorized an increase in the possession limits beyond those approved on June 11, 2021 (SNM-2011, Amendment 19).

~~1)~~3) Within the ACP Operations, the Licensee will provide a minimum 60-day notice to the NRC prior to initial customer product withdrawal of licensed material exceeding 5 wt. percent ^{235}U enrichment. This notice will identify the necessary equipment and operational changes to support customer product withdrawal, storage, processing, and shipment for these assays.

1.2.5 Special Exemptions or Special Authorizations

The following exemption to the applicable 10 CFR Part 20 requirements are identified in Section 4.8 of this license application:

- UF_6 feed, product, and depleted uranium cylinders, which are routinely transported inside the DOE reservation boundary between ACP locations and/or storage areas at the ACP, are readily identifiable due to their size and unique construction and are not routinely labeled as radioactive material. Qualified radiological workers attend UF_6 cylinders during movement.

- Containers located in Restricted Areas within the ACP are exempt from container labeling requirements of 10 CFR 20.1904, as it is deemed impractical to label each and every container. In such areas, one sign stating that every container may contain radioactive material will be posted. By procedure, when containers are to be removed from contaminated or potentially contaminated areas, a survey is performed to ensure that contamination is not spread around the reservation.

- In lieu of the requirements of 10 CFR 20.1601(a), each High Radiation Area with a radiation reading greater than 0.1 Roentgen Equivalent Man per hour (REM/hour) at 30-centimeters (cm) but less than 1 REM/hour at 30 cm is posted Caution, High Radiation Area and entrance into the area shall be controlled by an RWP. Physical and administrative controls to prevent inadvertent or unauthorized access to High and Very High Radiation Areas are maintained. The on-site radiological impacts from the proposed exemptions to the requirements of 10 CFR 20.1904 and 20.1601 would be minimal and are consistent with previously approved exemptions found in the GDP certification. Moreover, pursuant to the regulations in 10 CFR 20.2301, the requested exemption is authorized by law and would not result in undue hazard to life or property.

The following exemption from the applicable 10 CFR 70.50 reporting requirement is identified in Section 11.6.3 of this license application:

- The 10 CFR 70.50(c)(2) reporting criteria require that the ACP submit a written follow-up report within 30 days of the initial report required by 10 CFR 70.50 (a) or (b) or by 10 CFR 70.74 and Appendix A of Part 70. In lieu of the 30-day requirement described

in 10 CFR 70.50(c)(2), NRC approval to submit the required written reports within 60 days of the initial notifications is hereby requested.

10 CFR 70.17 allows the Commission, upon application of any interested person or upon its own initiative, to grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest. The requested exemption is authorized by law because there is no statutory prohibition on extending the reporting period to 60 days.

Furthermore, granting this exemption request will not endanger life or property or the common defense and security, in that the exemption request does not relieve the ACP from other requirements contained in 10 CFR 70.50 (a) or (b) or by 10 CFR 70.74 and Appendix A of Part 70, such as 1-hour, 4-hour, and 24-hour reporting requirements for defined events.

The proposed exemption would result only in written reports being submitted within the time limit currently allowed under 10 CFR 50.73 for commercial nuclear power plants. It would be consistent with the exemption granted to the gaseous diffusion plants for reporting of events pursuant to 10 CFR 76.120(d)(2) (67 Federal Register 68699, November 12, 2002) and the exemption granted to the Lead Cascade during licensing.

This proposal allows for completion of required root cause analyses after event discovery and fewer supplemental reports, thereby reducing regulatory burden and confusion. Thus, it is clearly consistent with the public interest.

The Licensee notes that the requirements of 10 CFR 20.2201 and 20.2203 require written reports of certain events within 30 days after their occurrence. The Licensee is not requesting an exemption from these reporting requirements.

The following exemption from the requirements of 10 CFR 70.25(e) and 10 CFR 40.36(d) addressing the decommissioning funding requirements is identified in Section 10.1 of this license application:

- 10 CFR 70.25(e) and 10 CFR 40.36(d) require, in part, that "The decommissioning funding plan must also contain a certification by the licensee that financial assurance for decommissioning has been provided in the amount of the cost estimate for decommissioning…".

  In support of HALEU Demonstration Program, as noted in Section 10.1 of this license application, DOE amended the *Appendix 1 Lease Agreement between the U.S. Department of Energy and United States Enrichment Corporation for the Gas Centrifuge Enrichment Plant* (GCEP Lease Agreement). In the amended ~~(Amendment 1)~~ GCEP Lease Agreement, DOE assumes all liability for the decontamination and decommissioning of such facilities and equipment installed, and any work performed, under the HALEU Demonstration Contract with the Department including any

materials or environmental hazards on the site. Therefore, exempting ACO from any financial assurance for any liability or lease turnover conditions shall be required from the Corporation (Licensee). Additionally, as stated within the amended GCEP Lease Agreement, the parties agree that should any liabilities of the Corporation (Licensee) arise from or incident to the performance of work under the Demonstration Contract with the DOE shall be governed solely by such contract and any financial protection afforded to the Corporation (Licensee) as a person indemnified under the Act. DOE is expected to continue to amend the GCEP Lease in support of the HALEU Operations contract.

The following exemption from the requirements of 10 CFR 70.25(e) and 10 CFR 40.36(d) addressing the decommissioning funding requirements is identified in Section 10.2.10.4 and the DFP of this license application:

- 10 CFR 70.25(e) and 10 CFR 40.36(d) require, in part, that "The decommissioning funding plan must also contain a certification by the licensee that financial assurance for decommissioning has been provided in the amount of the cost estimate for decommissioning…".

  In support of future expansion of the ACP, as noted in Section 10.2.10.4 of this license application, the financial assurance for a portion of the decommissioning costs, to include the disposition of centrifuges and UF_6 tails, which constitutes a major portion of the decommissioning liability, will be provided incrementally as centrifuges are built/installed and UF_6 tails generated. Full funding for decommissioning of the facilities will be provided in the initial executed financial assurance instrument.

  This exemption is justified for the following reasons: 1) It is authorized by law because there is no statutory prohibition on incremental funding of decommissioning costs. 2) The requested exemption will not endanger life or property or the common defense and security for the following reasons: the unique modular aspects of the American Centrifuge technology allow enrichment operations to begin well before the full capacity of the plant is reached. Thus, the decommissioning liability for centrifuges and UF_6 tails is incurred incrementally as more centrifuges are added to the process, until full capacity of the facility is reached; at which point the UF_6 tails are generated at a relatively constant rate throughout the life of the plant. As such, requiring full funding for decommissioning liability, to include centrifuges and UF_6 tails disposition, incurred over the lifetime of the plant, at the time of initial license issuance, produces an unnecessary financial burden on the licensee.

  Furthermore, incremental funding of decommissioning costs, to include centrifuges and UF_6 tails disposition, is justified based upon the Licensee's commitments to update the cost estimates and provide a revised funding instrument for decommissioning annually, to cover the upcoming period of operation, prior to operation at full capacity, and after full capacity has been reached to annually adjust the cost estimate for UF_6 tails disposition and to adjust all other decommissioning costs periodically, and no less frequently than every three years. In addition, the relative stability of the factors, which are utilized to generate the UF_6 tails volumes, allows actual inventory values to be

provided for prior periods of operation and reliable estimates for the upcoming periods of operation. The NRC has previously accepted an incremental approach to decommissioning funding costs for the United States Enrichment Corporation's operation of the GDPs. 3) Finally, granting this exemption is in the public interest for the same reasons as stated above and will facilitate deployment of gas centrifuge enrichment technology by eliminating an unnecessary financial burden on the licensee.

The following exemption from the requirements of 10 CFR 70.24 addressing criticality monitoring is identified in Section 3.10.6 of the ISA Summary and discussed in Section 5.4.4 of this License Application. Exemption is required for criticality monitoring of the UF_6 cylinder storage yards.

- 10 CFR 70.24, *Criticality Accident Requirements*, requires that licensees authorized to possess special nuclear material in a quantity exceeding 700 g of contained ^{235}U shall maintain in each area in which such licensed special nuclear material is handled, used, or stored, a monitoring system capable of detecting a criticality that produces an absorbed dose in soft tissue of 20 rads of combined neutron and gamma radiation at an unshielded distance of two meters from the reacting material within one minute.

  10 CFR 70.17 allows the Commission, upon application of any interested person or upon its own initiative, to grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest. The requested exemption is authorized by law because there is no statutory provision prohibiting the grant of the exemption. The requested exemption will not endanger life or property or the common defense and security and is otherwise in the public interest for the reasons discussed below.

  Transportation, handling and storage of solid UF_6 filled cylinders are doubly contingent. Double contingency is established by multiple controls that limit the likelihood for a solid product cylinder to be breached during transportation, handling or storage, and the likelihood for a breach to not be identified and repaired before sufficient moderation results in a criticality. Moderation control of UF_6 filled cylinders is maintained by ensuring cylinder integrity through periodic cylinder inspections. If a UF_6 filled cylinder is found to be breached, the cylinder is covered within 24-hours after discovery to reduce the potential accumulation of moderating material, i.e., rainwater. This time limit ensures a corresponding heavy rainfall will not result in accumulation of sufficient amounts of water to cause a criticality. Damaged cylinders are repaired as necessary and emptied. UF_6 cylinders are uniquely identified and their design requirements are controlled to further ensure cylinder integrity and reliability (i.e., UF_6 cylinders are QL-1 components and are controlled in accordance with the Quality Assurance Program Description), and the Licensee implements onsite cylinder handling practices (i.e., requiring the use of approved equipment in accordance with approved procedures), which reduces the likelihood that a solid UF_6 cylinder would be breached. These requirements are established as items relied on for safety to ensure the health and safety of the public and workers.

The UF_6 cylinders stored in storage yards are not covered by a criticality monitoring system unless those cylinders contain licensed material greater than 5.0 weight percent ^{235}U. NCS evaluation of product cylinders of any size, configured in infinite planar arrays, containing material enriched up to 5.25 weight percent ^{235}U, has concluded that subcritical conditions are maintained. The ACP ISA has concluded that cylinders containing licensed material less than or equal to 5.0 weight percent ^{235}U cannot be involved in a criticality accident sequence that has a probability of occurrence that exceeds 5×10^{-6}/year.

The frequencies of criticality events in the cylinder yards have been decreased to the Highly Unlikely range ($<10^{-5}$/year) through the establishment of preventive controls established by the ISA in accordance 10 CFR 70.62. Considering the conservatism of the ISA methodology in developing the unmitigated frequency and actual historical data related to cylinder operations, the frequency values could be reduced further. This additional reduction considers the fact that during 50 years of GDP operations, only one cylinder breach has occurred due to mishandling or equipment failure. Since that occurrence, cylinder handling equipment has been redesigned and cylinder handling methods have been revised to minimize the potential for breaches to occur. Another fact not considered in the ISA is that holes with a dimension of less than one inch will self-seal such that moderating material cannot infiltrate the breach. A third factor not considered in the ISA is that enriched cylinder operations require constant use and monitoring of cylinders such that corrosion breaches in enriched cylinders are highly unlikely. Allowing for this additional reduction in frequency, the probability for a criticality event becomes incredible, therefore CAAS coverage is not necessary.

The increased vehicular and pedestrian traffic in support of CAAS maintenance and calibration requirements would cause a subsequent increased likelihood for impact events involving cylinders and there would be an increased safety risk for workers from radiation exposure due to the ongoing CAAS maintenance and calibration requirements. To meet the CAAS coverage requirements in ANSI 8.3 and the operating requirements for the ACP, enriched cylinder storage yards would require a minimum of 60 clusters. Clusters would need to be at a height of approximately 40 feet, which would require maintenance equipment and pedestrian traffic to perform testing and preventative maintenance tasks to ensure their reliability and operability. This equipment and traffic would increase the likelihood for fire and impact events in the cylinder storage yards such that workers would be at a higher risk for injury and exposure relative to the minimal mitigative value produced by the presence of CAAS.

The following exemption from the requirements of 10 CFR 140.13b crediting DOE indemnity in lieu of nuclear liability insurance as discussed in Section 1.2.2 of this license application.

- 10 CFR 140.13b requires, that "Each holder of a license issued under Parts 40 or 70 of this chapter for a uranium enrichment facility that involves the use of source material or special nuclear material is required to have and maintain liability insurance. The liability insurance must be the type and in the amounts the

Commission considers appropriate to cover liability claims arising out of any occurrence within the United States that causes, within or outside the United States, bodily injury, sickness, disease, death, loss of or damage to property, or loss of use of property arising out of or resulting from the radioactive, toxic, explosive, or other hazardous properties of chemical compounds containing source material or special nuclear material. Proof of liability insurance must be filed with the Commission as required by § 140.15 before issuance of a license for a uranium enrichment facility under parts 40 and 70 of this chapter."

In support of this HALEU Demonstration Program, DOE amended ~~(Amendment 1)~~ the GCEP Lease Agreement, in which the parties agree that all work performed under the HALEU Demonstration Contract on leased premises shall be considered a permitted use; any alterations or changes to the premises pursuant to the Demonstration Contract with the DOE shall be a permitted change to the premises; and that any liabilities of the Corporation (Licensee) arising from or incident to the performance of work under the HALEU Demonstration Contract with the DOE shall be governed solely by such contract. Therefore, the Demonstration Contract exempts ACO from any financial assurance for any liability insurance during the HALEU Contract period.

In support of future expansion of the ACP, in accordance with Section 3107 of the USEC *Privatization Act*, the Lease with DOE for the DOE owned facilities that will be used for the ACP includes an indemnity agreement from DOE under Section 170d of the *Atomic Energy Act* (AEA) for liability claims.

The Commission may, pursuant to 10 CFR 140.8, upon application of any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and are otherwise in the public interest. This exemption is authorized by law because there is no statutory prohibition on crediting the DOE indemnity agreement in lieu of nuclear liability insurance. The DOE indemnity agreement contained in the Lease pursuant to DOE's authority in Section 170d of the AEA is sufficient to meet the requirements of Section 193(d) of the *Atomic Energy Act* of 1954, as amended. Section 193(d) states that "the Commission shall require, as a condition of the issuance of a license … for a uranium enrichment facility, that the licensee have and maintain liability insurance of such type and in such amounts as the Commission judges appropriate to cover liability claims …"

The Lease requires that the Licensee obtain "financial protection to cover public liability, [as defined in the AEA] in such amount and of such type as is commercially available at commercially reasonable rates, terms and conditions" (Lease at Section 10.1(c)). To the extent required by the Lease, the Licensee will obtain such financial protection and will provide proof of such financial protection to the NRC prior to commencing operations.

The indemnity agreement contained in the Lease will "cover liability claims arising out of any occurrence within the United States that causes, within or outside the United States, bodily injury, sickness, disease, death, loss of or damage to property, or loss of

use of property arising out of or resulting from the radioactive, toxic, explosive, or other hazardous properties of chemical compounds containing source material or special nuclear material." Section 193(d) affords the Commission the discretion to determine the type and amount of liability insurance that is required to cover liability claims. The Commission has the discretion to conclude that no liability insurance is required in light of the DOE indemnity agreement. Therefore, the requested exemption is authorized by law.

Moreover, the requested exemption is in the public interest since it will facilitate deployment of the ACP, thereby maintaining domestic enrichment capacity using more efficient centrifuge technology. Requiring separate nuclear liability insurance would at best impose an unnecessary financial burden on the licensee and at worst preclude the construction of the ACP if commercial insurance ultimately is unavailable for facilities, such as the ACP, which are located on a DOE owned site. ANI, the only company providing commercial nuclear liability insurance in the U.S., has informed us that it has never insured a facility located on a DOE owned site. Furthermore, the separate liability insurance would not provide a commensurate benefit to the public since the DOE indemnity covers any public liability under Section 170 of the AEA up to the statutory limit of liability. The DOE indemnity agreement in the Lease adequately provides financial protection for the public for public liability as defined in the AEA. Therefore, the requested exemption is in the public interest.

The following exemption from NRC's Materials License Condition 15 related to financial funding as discussed in Section 1.2.2 of this license application.

- In order to meet the financial qualifications requirements for construction and operation of the facility, the Licensee proposes that the license be conditioned as follows:

  Construction of each ~~additional~~ incremental ~~future expansion~~phase of the ACP shall not commence before funding for that increment is available or committed. Of this funding, ~~the Licensee or affiliates~~ACO must have in place ~~demonstrate~~ before constructing such increment, commitments for one or more of the following: Equity contributions from ACO, affiliates and/or partners, along with lending and/or lease arrangements that solely or cumulatively are sufficient to ensure funding for the particular increment's construction costs. ACO~~The Licensee~~ shall ~~will~~ make available for NRC inspection, documentation of both the budgeted costs for such phase and the source of funds available or committed to pay those costs.

  Operation of ~~additional expansion 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 within this Materials License (whichever comes first), shall not commence until the Licensee ~~or affiliates~~ 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).

In general, the Licensee's financial qualifications to construct and operate the HALEU 16-centrifuge cascade under the Demonstrations' Contract is demonstrated by the contract with DOE and the Selected Financial Data and detailed Consolidated Financial Statements within the latest information filed with the U.S. Securities Exchange Commission by its parent Centrus.

Under the initial HALEU Contract, DOE agreed to reimburse the Company for up to 80 percent of its costs incurred in performing the contract. The Company's cost share is the corresponding 20 percent and any costs incurred above these amounts. Costs under the HALEU Contract include *program costs*, including direct labor and materials and associated indirect costs that are classified as *Cost of Sales*, and an allocation of corporate costs supporting the program that are classified as *Selling, General, and Administrative Expenses*. Services to be provided over the HALEU Contract period include constructing and assembling centrifuges and related infrastructure in a cascade formation and production of up to 600 kgU HALEU. When estimates of remaining program costs to be incurred for such an integrated construction-type contract exceed estimates of total revenue to be earned, a provision for the remaining loss on the contract is recorded to *Cost of Sales* in the period the loss is determined. Our corporate costs supporting the program are recognized as expense as incurred over the duration of the contract term. The accrued loss on the contract will be adjusted over the remaining contract term based on actual results and remaining program cost projections.

Under the November 2022 award, ACO will perform all Phase I work scope under a cost share, no fee contractual arrangement. ACO will be responsible for paying a minimum of 50 percent of the allowable incurred costs during Phase I. DOE will reimburse ACO a maximum of 50 percent cost share for the remaining allowable costs incurred during Phase I (the Government's cost share may vary depending upon the agreed upon cost share allocation but will not exceed 50 percent). ACO's cost share amount is based on the agreed upon cost share percentage of allowable incurred costs, as defined in FAR part 31, with the remaining allowable costs eligible for reimbursement under the DOE contract. Centrus' Annual Report on Form 10-K, filing date of March 11, 2022, for the fiscal year ended December 31, 2021, provides the Licensee's ability to meet the financial contractual requirements defined in the HALEU contract (Reference 22).

The Licensee requests an exemption to this condition during the HALEU Contract period.

The following Special Authorization has been identified in this license application:

- Surface Contamination Release Levels for Unrestricted Use – Items may be released for unrestricted use if the surface contamination is less than the levels listed in Table 4.6-1.

The following exemption from the requirements in 10 CFR 95.57(c) is identified in Section 1.17.c) of the *Security Plan for the Protection of Classified Matter at the American Centrifuge Plant*:

- NRC regulations in 10 CFR 95.57(c) require that all classification actions (documents classified, declassified, or downgraded) to be submitted to the NRC Division of Security Operations. These may be submitted either on an "as completed" basis or monthly. The information may be submitted either electronically by an on-line system or by paper copy using NRC Form 790. Historically, the Licensee has utilized NRC Form 790 for each classification action, has compiled them monthly, and submitted them to the NRC. The Licensee must also submit a quarterly classification summary document to the DOE for all derivative classification decisions made during the previous quarter. This dual reporting is burdensome to the Derivative Classifiers and the Classification Officer and creates a situation where the classification actions may be double counted. Accordingly, in lieu of filing its classification actions with NRC, the Licensee will continue to submit the quarterly classification summary documents to DOE and will make them available for NRC inspection at the facility.

1.2.6 Security of Classified Information

The Licensee is required by 10 CFR 70.22(m) to submit, as part of its application for a license for the ACP, a plan describing the plant's proposed security procedures and controls, as set forth in 10 CFR Part 95, for the protection of classified matter. The Licensee satisfies the 10 CFR 70.22(m) requirements by submittal of the *Security Plan for the Protection of Classified Matter at the American Centrifuge Plant*. The Security Plan was submitted for NRC review along with this license application. ~~In accordance with 10 CFR Part 95.15(b), the Licensee will submit, at least 60 days prior to operation of the ACP, a request for a revision to the Facility Clearance from non-possessing facility to a possessing facility.~~

~~The Licensee shall provide the Commission with at least 120 days advance notice of its plan to introduce classified matter in the American Centrifuge Plant and the updated Security Plan for review and approval, consistent with 10 CFR Part 95 *Format and Content Guide*.~~

1.2.7 Security of Special Nuclear Material of Low Strategic Significance and Moderate Strategic Significance

Pursuant to 10 CFR 70.22(k) the Licensee is submitting, as part of its application for a license for the ACP, a plan describing the measures used to protect Special Nuclear Material of Strategic Significance that the Licensee uses, possesses, or has access to at the plant. The Licensee satisfies the 10 CFR 70.22(k) requirement by submittal of the *Security Plan for the Physical Protection of Special Nuclear Material at the American Centrifuge Plant*. Consistent with NRC Regulatory Guide 5.52, *Standard Format and Content for a Licensee Physical Protection Plan for Strategic Special Nuclear Material at Fixed Sites*, Revision 3, 1994, ~~T~~the Security Plan ~~is~~ was ~~being~~ submitted for NRC review along with this license application.

The Licensee proposes that the license be conditioned as follows:

ACO shall not commence Category II SNM product withdrawal and storage under the HALEU Operations Contract until such time that the required ORR has been conducted and NRC has authorized the use of the VTR to hold Category II SNM.

~~The specific design of the intrusion detection and alarm system is not yet complete. Upon completion of the design, the Licensee shall provide the Commission with at least 120 days advance notice of its plan to introduce special nuclear material in the American Centrifuge Plant, the final design for the intrusion detection and alarm system, and the Security Plan for review and approval, consistent with 10 CFR Part 95 *Format and Content Guide*.~~

Financial Statements within the latest information filed with the U.S. Securities Exchange Commission by its parent Centrus.

Under the HALEU Contract, DOE agreed to reimburse the Company for up to 80 percent of its costs incurred in performing the contract. The Company's cost share is the corresponding 20 percent and any costs incurred above these amounts. Costs under the HALEU Contract include *program costs*, including direct labor and materials and associated indirect costs that are classified as *Cost of Sales*, and an allocation of corporate costs supporting the program that are classified as *Selling, General, and Administrative Expenses*. Services to be provided over the three-year contract include constructing and assembling centrifuges and related infrastructure in a cascade formation and production of up to 600 kgU HALEU. When estimates of remaining program costs to be incurred for such an integrated construction-type contract exceed estimates of total revenue to be earned, a provision for the remaining loss on the contract is recorded to *Cost of Sales* in the period the loss is determined. Our corporate costs supporting the program are recognized as expense as incurred over the duration of the contract term. The accrued loss on the contract will be adjusted over the remaining contract term based on actual results and remaining program cost projections. The Licensee requests an exemption to this condition during the three-year HALEU Contract period.

The following Special Authorization has been identified in this license application:

- Surface Contamination Release Levels for Unrestricted Use – Items may be released for unrestricted use if the surface contamination is less than the levels listed in Table 4.6-1.

The following exemption from the requirements in 10 CFR 95.57(c) is identified in Section 1.17.c) of the *Security Plan for the Protection of Classified Matter at the American Centrifuge Plant*:

- NRC regulations in 10 CFR 95.57(c) require that all classification actions (documents classified, declassified, or downgraded) to be submitted to the NRC Division of Security Operations. These may be submitted either on an "as completed" basis or monthly. The information may be submitted either electronically by an on-line system or by paper copy using NRC Form 790. Historically, the Licensee has utilized NRC Form 790 for each classification action, has compiled them monthly, and submitted them to the NRC. The Licensee must also submit a quarterly classification summary document to the DOE for all derivative classification decisions made during the previous quarter. This dual reporting is burdensome to the Derivative Classifiers and the Classification Officer and creates a situation where the classification actions may be double counted. Accordingly, in lieu of filing its classification actions with NRC, they will be made by the Classification Officer to the DOE at a frequency (e.g., annually) and in the format specified by the DOE. ~~Licensee will continue to submit the quarterly classification summary documents to DOE and will make them~~ These documents will be available for NRC inspection at the facility.

- IEEE 1050-1996, *Guide for Instrumentation and Control Equipment Grounding in Generating Stations*

  The Licensee commits to utilizing IEEE 1050 Clauses 1 (Overview), 3 (Definitions), 4 (Design), 5 (System Grounding), 6 (Shield Grounding), and 7 (Testing).

  The Licensee takes exception to the contents of IEEE 1050 Clause 2 and Annexes A and B. The Licensee does not commit to all of the standards listed in Clause 2. Annexes A and B provide only "informative" references.

  For the reference to this standard see Section 2.6.4 of the ISA Summary for the ACP.

1.4.9 Other Various Codes and Standards

- ASCE 7-2002, *Minimum Design Loads for Buildings and Other Structures*

  The Licensee will satisfy the provisions of this standard.

  For the reference to this standard, see Sections 1.3.3.1 and 1.3.3.3 of this License Application.

- ANSI/ISA 67.04.01-2018 *Setpoints for Nuclear Safety-Related Instrumentation*

  The IROFS related setpoints are determined utilizing methodologies in accordance with this standard. The Licensee commits to utilizing ISA 67.04.01 Clause 1 (Purpose), 2 (Scope), 3 (Definitions), 4 (Establishment of Setpoints), 5 (Documentation), and 6 Maintenance of Safety-Related Setpoints).

  The Licensee takes exceptions to the contents of ISA 67.04.01 Clauses 7 (References) and 8 (Informative References). The Licensee does not commit to all the standards listed in Clauses 7 and 8.

  For the reference to this standard see Section 2.6.10 of the ISA Summary for the ACP.

1.5 License Application Regulatory Guidance Documents

The following sub-sections lists the various regulatory guidance documents that have been referenced in this license application. The extent to which the Licensee satisfies each guidance document is identified individually in the sub-sections.

1.5.1 U.S. Nuclear Regulatory Commission Guidance

- Regulatory Guide 1.59, Revision 2, *Design Basis Floods for Nuclear Power Plants*

  The Licensee satisfies the provisions of this Regulatory Guide (RG) to the extent applicable to a Part 70 licensee.

For references to this RG, see Sections 1.3.4.3 and 1.3.4.3.2 of this license application.

- Regulatory Guide 3.67, Revision 0, *Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities*

  The Licensee utilized the provisions of this RG as guidance for DOE reservation Emergency Plan.

  For references to this RG, see Section 8.0 of this license application. This RG currently does not apply under the HALEU Demonstration Program.

- Regulatory Guide 3.71, Revision 3, *Nuclear Criticality Safety Standards for Nuclear Materials Outside Reactor Core*

  This RG endorses ANSI/ANS-8 standards. The Licensee commits to ANSI/ANS-8.1-2014, ANSI/ANS-8.3-1997, ANSI/ANS-8.19-2014, and ANSI/ANS-8.20-1991 as described above.

  For the reference to this RG, see Section 5.5 of this license application and Section 3.10.6 of the ISA Summary for the ACP.

- Regulatory Guide 5.52, Revision 3, *Standard Format and Content for a Licensee Physical Protection Plan for Strategic Special Nuclear Material at Fixed Sites*

  For reference to this RG, see SP-3605-0042, *Security Plan for the Physical Protection of Special Nuclear Material at the American Centrifuge Plant*.

- Regulatory Guide 5.80, Revision 0, *Pressure-Sensitive and Tamper-Indicating Device Seals for Material Control and Accounting of Special Nuclear Material.*

  The Licensee satisfies the provisions of this RG.

  For the reference to this RG, see Section 3.3.4 of Security Program for the American Centrifuge Plant.

- Regulatory Guide 8.13, Revision 2, *Instructions Concerning Prenatal Radiation Exposure*

  The Licensee satisfies the provisions of this RG.

  For the reference to this RG, see Section 4.7.3 of this license application.

- Regulatory Guide 8.25, Revision 1, *Air Sampling in the Workplace*

  The Licensee satisfies the provisions contained in Sections 1, 2, 5, and 6 of this RG.

  For the reference to this RG, see Section 4.7.5 of this license application.

1.6 References

1. NUREG-1520, *Standard Review Plan for Fuel Cycle Facilities License Applications*, Revision 2

2. Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio Site, DOE/EIS-0360, U. S. Department of Energy Oak Ridge Operations – Office of Environmental Management, June 2004, Website: http://web.ead.anl.gov/uranium/documents/index.cfm

3. Form 10-Q, for the quarter ended June 30, 2008

4. U.S. Bureau of the Census, 2000, "Population, Housing Units, Area, and Density: 2010 – State – Place and (in selected states) County Subdivision 2010 Census Summary File 1", U.S. Department of Commerce, accessed on September 4, 2019, Website: http://factfinder.census.gov/bkmk/table/1.0/en/DEC/10_SF1/GCTPH1.ST10/0400000US39

5. 329-10-002, ACP Memo dated October 15, 2010, *Worker and Transient Populations in and around PORTS DOE Reservation, as of October 2010*, S. E. Keller

6. LA-3605-0002, *Environmental Report for the American Centrifuge Plant*

7. LA-3605-0003A, *Addendum 1 of the ISA for the American Centrifuge Plant – HALEU Demonstration*

8. United States National Oceanic and Atmospheric Administration, National Environmental Satellite Data, and Information Service, National Climactic Data Center, Asheville, NC, Climatology of the United States, No. 81, 33 Ohio, Monthly Station Normals of Temperature, Precipitation, and Heating and Cooling Degree Days 1971-2000, February 2002, [NOAA 2003b]

9. Huff, Floyd A. and Angel, James R., Rainfall Frequency Atlas of the Midwest, Bulletin 71 (MCC Research Report 92-03) Midwestern Climate Center, Climate Analysis Center, National Weather Service, National Oceanic and Atmospheric Administration, Illinois State Water Survey, A Division of the Illinois Department of Energy and Natural Resources [NOAA 2003c]

10. Ohio Department of Natural Resources, Website accessed September 4, 2019, http://parks.ohiodnr.gov/lakewhite

11. U.S. Department of the Interior, U.S. Geological Survey, Reston, VA, and Website: http://www.usgs.gov/index.html

12. Tetra Tech, Inc. correspondence, *Methodology for the 5-mile Population Grids*, November 2002

13. United States Oceanic and Atmospheric Administration, National Climactic Data Center, Asheville, NC, Waverly and Piketon Ohio Weather Stations data from 1930 through 2019, and Website: https://www.ncdc.noaa.gov/data-access/land-based-station-data

14. Regulatory Guide 1.59, *Design Basis Floods for Nuclear Power Plants*, Revision 2

15. ORO-EP-123, *Preliminary Safety Analysis Report for the Gas Centrifuge Enrichment Plant*, Portsmouth, OH, U.S. Department of Energy Oak Ridge Operations Office, July 1980

16. ORO-EP-120, *Seismic Design Criteria for the Gas Centrifuge Enrichment Plant – GCEP*, U.S. Department of Energy Oak Ridge Operations Office, Office of the Deputy Manager for Enrichment Expansion Projects, Oak Ridge, Tennessee, August 1980

17. HALEU Demonstration Contract Number 89303519CNE000005, awarded May 31, 2019 and definitized on October 31, 2019, as amended

18. *Gas Centrifuge Enrichment Plant, Portsmouth, Ohio, Geotechnical Investigation*, Law Engineering Testing Company, Project MK7502, Contract No. EY-77-C-05-5614, April 1978

19. USEC-651, "The UF_6 Manual – Good Handling Practices for Uranium Hexafluoride," Revision 9, July 2006

20. ASTM C1052, *Standard Practice for Bulk Sampling of Liquid Uranium Hexafluoride*, 2014

21. Final Report of Site-Specific Seismic Study, USEC American Centrifuge, Piketon, Ohio, Prepared by Engineering Consulting Services, LLC, ECS Project No. 14-03046, January 2006

22. Latest Centrus Energy Corp. Annual Report on Form 10-K filing ~~date April 14, 2020 for the fiscal year ended December 31, 2019~~, Website: http://investors.centrusenergy.com/financial-information/sec-filings

23. The Engineering Analysis Report for the Long-Term Management of Depleted Uranium Hexafluoride, UCRL-AR-124080, Volumes 1 and 2, Revision 2, Depleted Uranium Hexafluoride Management Program, Lawrence Livermore National Laboratory, May 1997, Website: http://web.ead.anl.gov/uranium/documents/index.cfm

24. ANSI N14.1, *Nuclear Materials – Uranium Hexafluoride – Packaging for Transport*, American National Standards Institute, 2012

25. Daniel, P. L., Corrosion of Metals by Gaseous Uranium Hexafluoride (U), GAT-901, November 1983

65. Geraghty & Miller, *Analysis of Long-Term Hydrologic Budget for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio,* October 1988-September 1989, Dublin, Ohio, 1990

66. Geraghty & Miller, *Quadrant II, RFI Draft Final Report, for the Portsmouth Gaseous Diffusion Plant, Piketon, Ohio*, Dublin, Ohio, 1992

67. ERCE, *Portsmouth Gaseous Diffusion Plant Final Safety Analysis Report*, Section 3.6, Geology and Seismicity, 1990

68. Ohio Geological Survey, Recent Ohio/ Regional Earthquakes, http://geosurvey.ohiodnr.gov/earthquakes-ohioseis/quakes-felt-in-ohio/recent-ohio-regional-quakes

69. FBP-ER-RCRA-WD-RPT-0288, *Portsmouth Gaseous Diffusion Plant Annual Site Environmental Report – 2017*

70. *Appendix 1 Lease Agreement between the U.S. Department of Energy and United States Enrichment Corporation for the Gas Centrifuge Enrichment Plant* (GCEP Lease Agreement), as amended

71. Regulatory Guide 3.71, *Nuclear Criticality Safety Standards for Nuclear Materials Outside Reactor Cores,* Revision 3

72. ASCE 7-2002, *Minimum Design Loads for Buildings and Other Structures*

73. K-DA-603, Revision 2, *Gas Centrifuge Enrichment Plant General Design Criteria,* DOE, February 1982

74. HALEU Demonstration Cascade Completion and HALEU Production, Contract Number 89243223CNE000030, as amended

10.0 DECOMMISSIONING

In accordance with NUREG-1520, *Standard Review Plan for Fuel Cycle Facilities License Applications* (Revision 2), this chapter provides an overview of proposed decommissioning activities for the American Centrifuge Plant (ACP). The ACP is located in a leased area of the U.S. Department of Energy's (DOE) reservation in Piketon, Ohio.

10.1 High Assay Low Enriched Uranium (HALEU) Demonstration Program

The Licensee, American Centrifuge Operating, LLC (ACO or Corporation), is deploying a 16-machine AC100M HALEU cascade in leased areas under contract with the U.S. Department of Energy (DOE or Department). In support of this HALEU Demonstration Program, DOE amended the *Appendix 1 Lease Agreement between the U.S. Department of Energy and United States Enrichment Corporation for the Gas Centrifuge Enrichment Plant* (GCEP Lease Agreement). The amended (Amendment 1) GCEP Lease Agreement renewed and extended the term of the lease through May 31, 2022. The amended GCEP Lease Agreement permitted the construction and operation of the demonstration cascade by the Corporation (Licensee), the sublessee of the GCEP Lease and holder of the U.S. Nuclear Regulatory Commission (NRC) American Centrifuge Plant (ACP) Materials License. Furthermore, in September 2021, the DOE amended (Amendment 2) the GCEP Lease Agreement to extend the term through December 31, 2025. All other terms of the GCEP Lease as amended by Amendment 1 remained unchanged~~.~~ through the termination or expiration of the current DOE HALEU Demonstration contact period ending on November 30, 2022. DOE is expected to continue to amend the GCEP Lease in support of the HALEU Operations contract.

The amended ~~Amendment 1 of the~~ GCEP Lease Agreement include~~d~~s the following statements pertaining to decommissioning liability:

- As of May 31, 2019, the Corporation (Licensee) had fully satisfied the lease turnover conditions and any existing financial assurance provided under Section 4.3 (of the GCEP Lease Agreement) was released, surety bonds were cancelled, and collateral returned to the Corporation (Licensee).

- Any facilities or equipment constructed or installed by the Corporation (Licensee) under the Demonstration Contract with the Department shall be included in Exhibit B (of the GCEP Lease Agreement) as Leased Personality and may be returned to the Department in an "as is" condition at the end of the lease term.

- The Department hereby assumes all liabilities~~y~~ for the decontamination and decommissioning of ~~such~~ the facilities and equipment installed, and any work performed, under the ~~Demonstration~~ HALEU Operations Contract with the Department including any materials or environmental hazards on the site.

- ~~Therefore, n~~No financial assurance for any liability or lease turnover conditions shall be required from the Corporation or Sublessee (Licensee).

- The parties agree that any work performed under the HALEU ~~Demonstration~~ Operations Contract on the leased premises shall be considered a permitted use; any alternations or changes to the premises pursuant to the ~~Demonstration~~ HALEU Operations Contract with the ~~DOE~~ Department shall be a permitted change to the premises; and any liabilities of the Corporation or Sublessee (Licensee) arising from or incident to the performance of work under the ~~Demonstration~~ HALEU Operations Contract with the Department~~DOE~~ shall be governed solely by such contract and any financial protection afforded to the Corporation or Sublessee (Licensee) as a person indemnified under the Act.

Pursuant to the modified DOE HALEU Contract, title to depleted uranium hexafluoride (UF_6) by-product (tails) from the HALEU enrichment process will be retained by DOE.

At the conclusion of the HALEU ~~Demonstration~~ Program, the facilities will be either returned to the Department in accordance with the requirements of the GCEP Lease Agreement or the Licensee will amend the ACP Materials License to allow phased implementation of expanded centrifuge enrichment cascades as described in Section 1.1.8 of the license application. At that time, a revised decommissioning funding plan, including an updated decommissioning cost estimate would be provided to the NRC for prior review and approval to reflect any new decommissioning liabilities.

10.2 American Centrifuge Plant (ACP) Decommissioning

The Licensee previously requested a 30-year license to operate the ACP. At the end of useful plant life, the ACP will be decommissioned such that the facilities will be either returned to the DOE in accordance with the requirements of the Lease Agreement with the DOE or will be released for unrestricted use. The criteria for final disposition of facilities will be established in the Decommissioning Plan (DP) which, as noted below, will be submitted prior to license termination. Nevertheless, for the purposes of the License Application for the ACP, the decommissioning discussions in this application and the decommissioning estimated costs are based on decontaminating the plant to the radiological criteria for unrestricted use in 10 *Code of Federal Regulations* (CFR) 20.1402. Information about the Licensee, the location of the site, and the types and authorized uses of licensed material are provided in Section 1.2 of the license application and a description of the site and immediate environs is provided in Section 1.3 of the license application.

Similar to the successful decommissioning efforts for the American Centrifuge Lead Cascade Facility, a more detailed DP for the ACP will be submitted by the Licensee in accordance with 10 CFR 30.36 (g), 10 CFR 40.42 (g), and 10 CFR 70.38(g) and applicable risk-informed NRC guidance provided in NUREG-1757, *Consolidated Decommissioning Guidance* (Volumes 1 - 3) prior to the time of license termination. Prior to decommissioning, an assessment of the radiological status of the ACP will be made. Enrichment equipment will be removed, leaving only the building shells and the plant infrastructure, including equipment that existed at the time of lease with the DOE (e.g., rigid mast crane, utilities, etc.). Classified material, components, and documents will be destroyed or disposed of in accordance with the *Security Plan for the Protection of Classified Matter at the American Centrifuge Plant* . Requirements for nuclear material control and accountability will be maintained during decommissioning in a manner similar to the programs

In 1991, DOE suspended production of highly enriched uranium (HEU) at PORTS. The plant continued to produce low enriched uranium (LEU) for use by commercial nuclear power plants until May 2001. The GDP transitioned to Cold Shutdown status on October 1, 2005 and the Decontamination & Decommissioning (D&D) of inactive facilities began. In August of 2010 the DOE awarded the contract for complete D&D of the GDP (excluding facilities supporting other reservation entities, including the Lead Cascade and ACP). D&D of multiple facilities started in 2010 and at present remains ongoing (FBP-ER-RCRA-WD-RPT-0288).

In accordance with the *Energy Policy Act* of 1992, the United States Enrichment Corporation, a newly created government corporation, assumed full responsibility for uranium enrichment operations at PORTS on July 1, 1993. DOE retains certain responsibilities for decontamination and decommissioning, waste management, depleted uranium hexafluoride cylinders, and environmental remediation. The NRC granted the United States Enrichment Corporation a Certificate of Compliance for operation of the GDP pursuant to 10 CFR Part 76 on November 26, 1996 and the GDP was officially transferred to NRC oversight on March 3, 1997. USEC subsequently became a publicly held private corporation on July 28, 1998.

The DOE leases portions of the Portsmouth Gaseous Diffusion Plant to the United States Enrichment Corporation (USEC) through the GCEP Lease Agreement. Pursuant to an amendment to the lease agreement, Centrus subleased space for the Lead Cascade and American Centrifuge Plant (ACP) from USEC. Centrus, with approval from DOE, assigned the sublease for the ACP to American Centrifuge Operating LLC (ACO)~~.~~. In addition to the GDP buildings, extensive support facilities are required to maintain the diffusion process. The support facilities include administration buildings, a steam plant, electrical switchyards, cooling towers, cleaning and decontamination facilities, water and wastewater treatment plants, fire and security headquarters, maintenance shops, warehouses, and laboratory facilities.

1.0.2 American Centrifuge Plant Program Overview

Following the suspension of development of the Atomic Vapor Laser Isotopic Separation (AVLIS) enrichment technology in June 1999, USEC began an evaluation of centrifuge and other technologies to replace its gaseous diffusion technology. Gaseous diffusion technology requires large amounts of power. These power requirements significantly affect the cost of production of enriched uranium. Since the use of foreign centrifuge technology and other third generation technologies including the Separation of Isotopes by Laser Excitation (SILEX), a laser-based technology under development in Australia, have the potential to lower the cost of production, these alternative enrichment technologies were also investigated. As part of the evaluation, USEC, in partnership with University of Tennessee-Battelle, the operator of DOE's Oak Ridge National Laboratory, undertook to refine gas centrifuge technology under a DOE approved Cooperative Research and Develop Agreement (CRADA).

USEC began design of an improved centrifuge by taking advantage of commercial advances in materials of construction and manufacturing methods. The improved centrifuge technology is intended to achieve performance levels approximately equivalent to those demonstrated in DOE's earlier testing programs, but at a substantially reduced cost.

On June 17, 2002, USEC and the U.S. Government, represented by the DOE, entered into an agreement, which has as one of its fundamental objectives to facilitate the deployment of new, cost effective centrifuge enrichment technology in the U.S. (DOE-USEC Agreement). Assuming successful demonstration of the technology, the DOE-USEC Agreement requires that USEC begin operation of a commercial enrichment plant with annual capacity of 1 million SWU in accordance with certain milestones.

The DOE-USEC Agreement contemplates three steps towards the development of a Commercial Centrifuge Plant, as discussed below. The environmental impacts of the first step, research and development of the centrifuge components (Demonstration Project) in Oak Ridge, were examined in a DOE Environmental Assessment (DOE 2002b) and a Finding of No Significant Impact (FONSI) was issued on October 18, 2002. The environmental impacts of the second step, deployment and system testing through a Lead Cascade Demonstration Facility, were covered in a NRC Environmental Assessment (USEC 2004b) and a FONSI was issued on February 24, 2004. The environmental impacts of an independent third step, a Commercial Centrifuge Plant, are the subject of this ER.

The buildings/facilities and grounds used for this project have been studied and characterized extensively by both the DOE and the Licensee.

Demonstration Project

The Demonstration Project demonstrated centrifuge performance in Oak Ridge, Tennessee under DOE regulatory oversight. The standard measure of enrichment in the uranium enrichment industry is the SWU. The Demonstration Project demonstrated that the centrifuge machine design is capable of economically producing 300+ SWU per year. The Demonstration Project verified the integrated centrifuge design while maintaining 300+ SWU per year performance, provided a solid basis for the centrifuge cost estimate, and obtained initial reliability data. The demonstration centrifuges were operated and SWU performance was optimized in highly instrumented test stands in DOE's East Tennessee Technology Park (ETTP) in Oak Ridge, Tennessee. Additional centrifuges were operated in other test stands to evaluate the initial reliability of an integrated centrifuge design. The Demonstration Project ended and final decommissioning efforts were completed in 2019.

American Centrifuge Lead Cascade Demonstration Facility

For the Lead Cascade Demonstration Facility, the NRC previously issued a 10 CFR Part 70 license to possess and use special nuclear material. The Lead Cascade Demonstration Facility consisted of up to 240 operating centrifuges at the DOE reservation in Piketon, Ohio. The Lead Cascade Demonstration Facility was a real time demonstration of the basic building block for a gas centrifuge enrichment process in a multiple stage configuration and provided data that is vital to provide reliability, performance, and cost information.

All or part of the centrifuges for the Lead Cascade were manufactured and balanced in Oak Ridge, Tennessee or at the Piketon DOE reservation. Locating the Lead Cascade Demonstration Facility at the DOE reservation required the refurbishment of existing equipment and buildings of the former GCEP. The Lead Cascade operated from 2007 to 2016 and associated releases to air

and water, exposure to personnel, and personnel injuries/illnesses were monitored to enable assessment of environmental impacts. Based on this monitoring, it was concluded that operation of the Lead Cascade did not result in any unanticipated releases, discharges, or exposures to the environment, the public, or employees (DP-2605-0001). Decommissioning efforts of the Lead Cascade were completed in 2018.

American Centrifuge Plant

The ACP was the third step in the plan to deploy the American Centrifuge technology. The ACP encompasses the construction, startup, operation, maintenance, and decommissioning of a uranium enrichment process to produce, as an initial target, 3.8 million SWU per year, potentially expandable to 7.6 million SWU per year, using American Centrifuge technology. The ACP utilizes existing buildings located on the DOE reservation near Piketon, Ohio, that were built to support the gaseous diffusion process beginning in the 1950s and the gaseous centrifuge process beginning in the 1980s, in addition to several newly constructed buildings and facilities.

American Centrifuge technology is modular, with the basic building block of enrichment capacity being a cascade of centrifuges. Information gained and work performed during the Demonstration Project and Lead Cascade included vital information on performance, reliability, and economics that will be used in the final construction of the ACP.

A license application for the ACP was prepared pursuant to the *Atomic Energy Act* of 1954 as amended, 10 *Code of Federal Regulations* (CFR) Parts 70, 40, 30, and other applicable laws and regulations. The ACP LEU cascade is designed to enrich and safely contain and handle uranium hexafluoride (UF_6) up to 10 weight (wt.) percent ^{235}U.

The ACP uses portions of the DOE reservation and the former DOE GCEP along with eight new proposed facilities. The ACP utilizes existing utilities and infrastructure that support the DOE reservation including the utilities and infrastructure that were intended to support GCEP. New proposed facilities may be necessary for feed, withdrawal, sampling, and blending/transfer operations. The Licensee has updated the American Centrifuge technology from that used in the GCEP program, but the American Centrifuge components remain compatible with existing infrastructure and facilities.

On October 31, 2019, ACO signed a contract with the DOE to deploy a cascade of centrifuges to demonstrate production of high-assay, low-enriched uranium (HALEU) fuel with existing United States origin enrichment technology and provide DOE with HALEU for near term use in its research and development for the advancement of civilian nuclear energy and national security, as well as other programmatic missions. HALEU is a component for advanced nuclear reactor fuel that is not commercially available today and may be required for a number of advanced reactor designs currently under development in both the commercial and government sectors. The program has been under way since the Licensee and DOE signed a preliminary letter agreement on May 31, 2019, which allowed work to begin while the full contract was being finalized.

On November 10, 2022, the DOE announced an approximately $150 million cost-shared award with ACO to demonstrate the nation's ability to produce HALEU. This award builds on

DOE's previous three-year cascade demonstration program with ACO to manufacture and demonstrate the centrifuge enrichment cascade to produce up to 600 kilograms of HALEU in the form of UF_6 for the DOE contract that expires on November 30, 2022.

This new HALEU performance-based contract will have three phases. During Phase I of the new contract, ACO will complete the final steps of centrifuge assembly and clear an operational readiness review (ORR) to start up the demonstration cascade. ACO will complete testing once the centrifuges have been installed and process gas (feed material) has been introduced following the required NRC ORRs. Once the HALEU demonstration cascade is operational, ACO will begin enriching UF_6 gas to produce HALEU, meeting the contract requirement for the initial 20 kilograms of HALEU. Upon completion of Phase I, ACO plans to continue to produce HALEU under Phase II up to the NRC authorized possession limits. Phase II includes production of a minimum 900 kilograms of HALEU to a nominal 19.75 wt. percent ^{235}U within one calendar year following Phase I. Completion of Phases I and II are considered the Base Contract.

After completion of the Base Contract, the contract allows DOE to enter a Phase III, which would exercise up to three three-year option periods for a combined total of 10 years of production (Phases II and III) at a minimum production level of 900 kilograms of HALEU per year.

The Licensee's long-term goal is to resume commercial enrichment production consistent with market demand. It is the intent of the Licensee to deploy portions of the ACP in a modular fashion to accommodate market demand on a scalable, economical gradation. This modular deployment will encompass utilization of cascades of LEU production for customer product or feed material into HALEU cascades. ~~The HALEU cascades will be deployed as part of the DOE's HALEU Demonstration Program which has two primary objectives:~~

~~1) Deploy a 16-centrifuge AC-100M HALEU cascade in the Piketon facility to produce 19.75 percent wt. ^{235}U enriched product.~~

~~2) Demonstration of the capability to produce HALEU~~.

Results from the operation of the HALEU demonstration program will be used in preparation of the design for the full-scale ACP facility. ~~The HALEU Demonstration will be designed to enrich and safely contain and handle uranium hexafluoride (UF_6) up to but less than 20 weight (wt.) percent ^{235}U.~~ During the process of remediation, construction, infrastructure modification, manufacturing, and test operations for the scope of this ER, the design for these elements are reviewed for compliance with regulatory standards for releases, emissions, and wastes generated and for minimization of the quantity and toxicity of the materials used and wastes generated.

1.1 Purpose and Need for the Proposed Action

Nuclear power generates about 20 percent of the electricity for the United States. Construction and operation of a gas centrifuge plant utilizing the US-origin advanced technology is key to supporting DOE's national energy security goals by providing a reliable and secure domestic source of enriched uranium. The primary purpose of this action is to allow the Licensee to construct and operate a plant to enrich uranium up to 10 weight (wt.) percent with an initial capacity of approximately 3.8 million SWU expandable to 7.6 million SWU, at the Licensee's

Enclosure 7 of ACO 22-0077

Proposed Changes for NRC's Materials License for the American Centrifuge Plant SNM-2011

Information Contained Within
Does Not Contain
Export Controlled Information

Reviewing Official: #1038, ACO

Date: 11/30/2022

FOR INFORMATION ONLY

NRC FORM 374	U.S. NUCLEAR REGULATORY COMMISSION	Page 1 of 12
	MATERIALS LICENSE	

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, *Code of Federal Regulations*, Chapter I, Parts 11, 30, 31, 32, 33, 34, 35, 36, 39, 40, 70, 73, and 74 and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the U.S. Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. American Centrifuge Operating, LLC	3. License Number: SNM-2011, Amendment 19
2. American Centrifuge Plant	4. Expiration Date: See Condition 13
P.O. Box 628	5. Docket No. 70-7004
Piketon, Ohio 45661-0628	

Commercial ACP Possession Limits

6. Source, Special Nuclear Material, By-product Material		7. Chemical and/or Physical Form Under This License	8. Maximum amount that Licensee May Possess at any One Time
A.	Uranium (natural and depleted) and daughter products	A.1 Physical: Solid, Liquid, and Gas A.2 Chemical: UF_6, UF_4, UO_2F_2, oxides, metal, and other compounds	A. [Security-Related Information Withheld Under 10 CFR 2.390]
B.	Uranium enriched in isotope U-235 up to 10 percent by weight and uranium daughters	B.1 Physical: Solid, Liquid, and Gas B.2 Chemical: UF_6, UF_4, UO_2F_2, oxides, metal, and other compounds	B. [Security-Related Information Withheld Under 10 CFR 2.390]
C.	Tc-99, transuranic isotopes and other contamination	C. Any	C. [Security-Related Information Withheld Under 10 CFR 2.390]

Enclosure 4

November 2021, and in accordance with statements, representations, and conditions, pertaining to the U.S. Nuclear Regulatory Commission's approval of License amendment application dated April 12, 2021.

11. Introduction of UF_6 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 UF_6 in any module of the ACP, including the HALEU Demonstration cascade.

12. The licensee is hereby granted the special authorizations and exemptions identified in Section 1.2.5 of the American Centrifuge Plant License Application, dated September 2006, as modified by Revisions dated December 2012, and May 2021.

13. This license will expire on April 13, 2037.

14. American Centrifuge Operating, LLC (ACO) shall provide to the Commission, at least 120 days prior to the planned date for obtaining licensed material, other than material for the HALEU Demonstration Program, documentation of any liability insurance required to be obtained by ACO under its lease with the U.S. Department of Energy (DOE) for the ACP by that time or, alternatively, the status of ACO's efforts to obtain any such liability insurance. During the time that ACO is engaged in efforts to obtain liability insurance, ACO shall provide the Commission with status reports regarding those efforts. The status reports shall be submitted at a frequency of at least once every six months following issuance of a license. ACO shall notify the Commission within 30 days upon receiving notification of denial or approval of commercial liability insurance for the ACP. If commercial liability insurance is required to be obtained under its lease with DOE, within 60 days of receiving notification of approval of commercial liability insurance, ACO shall provide proof of liability insurance coverage and a justification, for Commission review and approval, if ACO is proposing to provide less than $300 million of liability insurance coverage.

15. Construction of each incremental phase of the ACP shall not commence before funding for that increment is available or committed. Of this funding, ACO must have in place before constructing such increment, commitments for one or more of the following: equity contributions from ACO, affiliates and/or partners, along with lending and/or lease arrangements that solely or cumulatively are sufficient to ensure funding for the particular increment's construction costs. ACO shall make available for NRC inspection, documentation of both the budgeted costs for such phase and the source of funds available or committed to pay those costs.

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 December 31, 2024 or up to the currently authorized possession limits defined within this Materials License (whichever comes first),

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).

16. ACO shall provide final copies of the proposed financial assurance instruments to NRC for review at least six months prior to the planned date for obtaining licensed material (except for the sealed source and byproduct material calibration sources described in LC 6 and the HALEU demonstration cascade under the lease agreement with DOE ending December 31, 2025), and provide to NRC final executed copies of the reviewed financial assurance instruments prior to the receipt of licensed material (except for the sealed source and byproduct material calibration sources described in LC 6 and the HALEU demonstration cascade under the lease agreement with DOE ending December 31, 2025). The amount of the financial assurance instrument shall be updated to current year dollars and include any applicable changes to the decommissioning cost estimate. The decommissioning cost estimate shall include an update to ACO's Analysis of Depleted Uranium Disposal Costs for the ACP. To develop this update, ACO shall coordinate with DOE to determine necessary changes to the DOE contractor's depleted uranium cost estimate utilized as input to the ACO specific analysis.

17. The initial and subsequent updated Decommissioning Funding Plan (DFP) cost estimates, up to the time of full capacity operations, and revised funding instruments shall be provided annually and shall provide full funding for decontamination and decommissioning of the full-size facility, except:

    (1) The cost estimate for decontamination and removal of the centrifuges shall be provided on an annual forward-looking basis based on planned incremental enrichment capacity increases; and

    (2) The cost estimate for depleted uranium byproduct generation shall be provided on a projected annual forward-looking basis. The decommissioning cost estimate shall include an update to ACO's Analysis of Depleted Uranium Disposal Costs for the ACP. To develop this update, ACO shall coordinate with DOE to determine necessary changes to the DOE contractor's depleted uranium cost estimate utilized as input to the ACO specific analysis.

    Once full capacity operation is achieved, the licensee shall provide cost estimates for depleted uranium byproduct generation on an annual forward-looking basis and cost estimates for decontamination and decommissioning the remainder of the facility at intervals not to exceed 3 years, consistent with the requirements of 10 CFR Paragraphs 30.35(e), 40.36(d) and 70.25(e). The DFP cost estimates shall be provided to NRC for review, and subsequently, after resolution of any NRC comments, final executed copies of the financial assurance instruments shall be provided to NRC.

18. ACO shall utilize its procedure, Item Relied on for Safety (IROFS) Boundary Determination Plan, to define the boundaries of each IROFS. Completed IROFS

Enclosure 8 of ACO 22-0077

Affidavit

Information Contained Within
Does Not Contain
Export Controlled Information

Reviewing Official: #1038, ACO

Date: 11/30/2022

AFFIDAVIT OF LARRY B. CUTLIP
SUPPORTING APPLICATION TO WITHHOLD FROM
PUBLIC DISCLOSURE CERTAIN INFORMATION PROVIDED TO NRC IN
LETTER ACO 22-0077

I, Larry B. Cutlip, of American Centrifuge Operating, LLC (ACO), having been duly sworn, do herby affirm and state:

1. I have been authorized by ACO to (a) review the information owned by ACO which is referenced herein relating to ACO's License Amendment Request for the American Centrifuge Plant (ACP) (NRC Materials License SNM-2011) as the described in letter ACO 22-0077, which ACO seeks to have withheld from public disclosure pursuant to section 147 of the Atomic Energy Act (AEA), as amended, 42 U.S.C. § 2167, and 10 CFR 2.390(a)(4), and 9.17(a)(4), and (b) apply for the withholding of such information from public disclosure by the Nuclear Regulatory Commission (NRC) on behalf of ACO.
2. Consistent with the provisions of 10 CFR 2.390(b)(4) of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
   i. The information sought to be withheld from public disclosure is owned and has been held in confidence by ACO.
   ii. The information is of a type customarily held in confidence by ACO and not customarily disclosed to the public. ACO has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitute ACO policy and provide the rational basis required. Under that system, information is held in confidence if it falls in one or more of

several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where presentation of its use by any of ACO's competitors without license from ACO constitutes a competitive economic advantage over other companies.

b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage (e.g., by optimization or improved marketability).

c) Its use by a competitor would reduce their expenditure of resources or improve their competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of ACO, its customers or suppliers.

e) It reveals aspects of past, present, or future ACO or customer funded development plans and programs of potential commercial value to ACO.

f) It contains patentable ideas, for which patent protection may be desirable.

g) It reveals information concerning the terms and conditions, work performed, administration, performance under or extension of contracts with its customers or suppliers.

iii. There are sound policy reasons behind the ACO system which include the following:

a) The use of such information by ACO gives ACO a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the ACO competitive position.

b) It is information, which is marketable in many ways. The extent to which such information is available to competitors diminishes ACO's ability to sell products and services involving the use of the information.

c) Use by our competitors would put ACO at a competitive disadvantage by reducing their expenditure of resources at ACO expense.

d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components or proprietary information, any one component may be the key to the entire puzzle, thereby depriving ACO of a competitive advantage.

e) Unrestricted disclosure would jeopardize the position of prominence of ACO in the world market, and thereby give a market advantage to the competition of those countries.

f) The ACO capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

iv. The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.

v. The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

3. The proprietary information sought to be withheld is contained within Enclosure 4 of letter ACO 20-0077. Enclosure 4 provides proposed changes to NR-3605-0005, *Fundamental Nuclear Material Control Plan for the American Centrifuge Plant.* This enclosure provides details of the Nuclear Material Control and Accountability (NMC&A) Program needed for the deployment of ACO's high-assay, low-enriched uranium (HALEU) Demonstration Program and American Centrifuge Plant; therefore, determined to be proprietary.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of ACO because it may enhance the ability of competitors to position and provide similar products. Further, this information has substantial commercial value as follows:

- The development of the information described in part is the result of applying many hundreds of person-hours and the expenditure of thousands of dollars on design and analysis activities to achieve the information that is sought to be withheld; and
- In order for a competitor of ACO to duplicate the information sought to be withheld, a similar process would have to be undertaken and a significant effort and resources would have to be expended.

Moreover, disclosure of this information may provide insights into the ACO's NMC&A Program for Special Nuclear Material categorized as Security-Related Information, and Export Controlled Information. Therefore, this enclosure should also be withheld from public disclosure pursuant to 10 CFR 2.390(d)(1) and 10 CFR Part 810.

Further the deponent sayeth not.

Larry B. Cutlip, having been duly sworn, hereby confirms that I am the Senior Vice President, Field Operations of American Centrifuge Operating, LLC, that I am authorized on behalf of ACO to review the information attached hereto and to sign and file with the U.S. Nuclear Regulatory Commission this affidavit and the attachments hereto, and that the statements made and matters set forth herein are true and correct to the best of my knowledge, information, and belief.

Larry B. Cutlip

On this 30th day of November 2022, Larry B. Cutlip personally appeared before me, is known by me to be the person whose name is subscribed to within the instrument and acknowledged that he executed the same for the purposes therein contained.

In witness hereof I hereunto set my hand and official seal.

Kathy Richer
State of Tennessee Notary Public
Anderson County
My commission expires October 26, 2024