

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 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 4
2. American Centrifuge Plant P.O. Box 628 Piketon, Ohio 45661-0628	4. Expiration Date: See Condition 13
	5. Docket No. 70-7004

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 ₂ F 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% by weight and uranium daughters	B.1 Physical: Solid, Liquid, and Gas B.2 Chemical: UF ₆ , UF ₄ , UO ₂ F 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]
D. Source Material isotopes and other contamination	D. Any	D. [Security-Related Information – Withheld Under 10 CFR 2.390]



**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number
SNM-2011, Amendment 4

Docket or Reference Number
70-7004

- | | | | |
|--|-----|---|---|
| E. Uranium enriched in isotope U-235 from 10% to 20% by weight and uranium daughters | E.1 | Physical: Solid, Liquid, and Gas | E. [Security-Related Information – Withheld Under 10 CFR 2.390] |
| | E.2 | Chemical: UF ₆ , UF ₄ , UO ₂ F ₂ , oxides, metal, and other compounds | |
| F. Uranium enriched in isotope U-235 from 20% to 98% by weight and uranium daughters | F.1 | Physical: Solid, Liquid, and Gas | F. [Security-Related Information – Withheld Under 10 CFR 2.390] |
| | F.2 | Chemical: UF ₆ , UF ₄ , UO ₂ F ₂ , oxides, metal, and other compounds | |
| G. Special Nuclear Material | G. | Any | G. [Security-Related Information – Withheld Under 10 CFR 2.390] |
| H. Special Nuclear Material | H. | Any | H. [Security-Related Information – Withheld Under 10 CFR 2.390] |
| I. By-product Material | I. | Any | I. [Security-Related Information – Withheld Under 10 CFR 2.390] |
9. Authorized place of use: American Centrifuge Plant (ACP), located on the Portsmouth Department of Energy Reservation in Piketon, Ohio.
10. The licensee shall conduct authorized activities at the ACP in accordance with the statements, representations, and conditions, or as revised in accordance with Section 19 of the Quality Assurance Program Description, 10 CFR 40.35(f), 10 CFR 51.22, 10 CFR 70.32, 10 CFR 70.72, or 10 CFR 95.19 in:
- a. Decommissioning Funding Plan dated August 23, 2004, as modified by revisions dated March 14, 2005, May 23, 2005, June 22, 2005, August 30, 2005, September 2, 2005, October 21, 2005, November 30, 2005, March 17, 2006, August 23, 2006, June 16, 2008, January 30, 2009, April 30, 2010, February 28, 2011, October 27, 2011.
 - b. Emergency Plan dated August 23, 2004, as modified by revisions dated March 14, 2005, May 23, 2005, June 17, 2005, August 30, 2005, October 7, 2005, November 7, 2005, November 17, 2005, February 17, 2006, June 1, 2006, August 23, 2006, June 26, 2007, January 14, 2008, January 25, 2008, June 16, 2008, January 30, 2009, September 30, 2009, January 20, 2010, April 30, 2010, August 11, 2010, February 28, 2011, April 29, 2011, April 30, 2012, and September 10, 2012.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
SNM-2011, Amendment 4Docket or Reference Number
70-7004

- c. Environmental Report dated August 23, 2004, as modified by revisions dated May 4, 2005, June 15, 2005, July 29, 2005, August 16, 2005, October 21, 2005, November 29, 2005, February 17, 2006, August 23, 2006, January 14, 2008, January 25, 2008, June 16, 2008, December 16, 2008, January 30, 2009, January 20, 2010, April 30, 2010, and August 11, 2010.
- d. Fundamental Nuclear Material Control Plan dated August 23, 2004, as modified by revisions dated March 14, 2005, May 12, 2005, October 7, 2005, February 17, 2006, August 23, 2006, January 25, 2008, June 16, 2008, October 29, 2008, January 30, 2009, April 30, 2010, October 22, 2010, October 22, 2010, July 11, 2012, and September 10, 2012.
- e. License Application dated August 23, 2004, as modified by revisions dated March 14, 2005, April 29, 2005, May 23, 2005, June 15, 2005, June 22, 2005, August 30, 2005, September 2, 2005, September 27, 2005, October 7, 2005, November 7, 2005, November 17, 2005, November 30, 2005, December 2, 2005, January 16, 2006, March 17, 2006, June 1, 2006, August 23, 2006, August 31, 2006, September 6, 2006, June 26, 2007, October 11, 2007, January 14, 2008, January 25, 2008, March 5, 2008, June 16, 2008, October 9, 2008, December 16, 2008, January 15, 2009, January 30, 2009, October 28, 2009, January 20, 2010, February 24, 2010, April 30, 2010, June 7, 2010, August 11, 2010, August 30, 2010, October 22, 2010, November 17, 2010, February 28, 2011, March 18, 2011, April 29, 2011, September 15, 2011, October 27, 2011, September 10, 2012, and December 20, 2012.
- f. Quality Assurance Program Description dated August 23, 2004, as modified by revisions dated March 14, 2005, November 7, 2005, February 17, 2006, January 25, 2008, July 18, 2008, October 9, 2008, January 15, 2009, January 30, 2009, June 10, 2009, September 4, 2009, October 28, 2010, April 30, 2010, August 11, 2010, August 30, 2010, November 17, 2010, and September 10, 2012.
- g. Security Program dated August 23, 2004, as modified by revisions dated March 14, 2005, June 17, 2005, November 7, 2005, February 17, 2006, August 23, 2006, August 12, 2009, October 28, 2009, November 18, 2009, April 12, 2010, April 30, 2010, January 28, 2011, and March 18, 2011.
- h. Security Program for Alliant Techsystems Inc. / Allegany Ballistics Laboratory (ACP-011) dated October 23, 2008, as modified by revisions dated July 8, 2011 (Revision 1), and November 26, 2012 (Revision 2).
- i. Security Program for Curtiss-Wright Electro-Mechanical Corporation (CW-SP-01) dated April 30, 2009, as modified by revisions dated December 15, 2010 (Revision 1), and July 20, 2011 (Revision 2).
- j. DELETED
- k. Security Plan for the Protection of Classified Matter at the United States Enrichment Corporation Headquarters in Bethesda, Maryland, dated January 15, 2009 (Revision 12), as modified by revision dated February 20, 2013 (Revision 13).

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number
SNM-2011, Amendment 4

Docket or Reference Number
70-7004

- i. Information System Security Plans: CW-ADP-01, Rev. 2 (approved May 10, 2010) accredited through May 10, 2013; ACP-034 (approved October 23, 2008) accredited through November 14, 2011; ACP-035 (approved October 23, 2008) accredited through November 14, 2011; SP-HQ-0001 (approved July 23, 2009) accredited through July 23, 2012; SP-HQ-0001, Rev. 1 (approved March 30, 2012) accredited through March 30, 2015; ACP-091 (approved July 20, 2011, replacing ACP-034) accredited through February 28, 2014; and ACP-092 (approved July 20, 2011, replacing ACP-035) accredited through February 28, 2014; SP-3605-0002 (approved July 29, 2009) accredited through July 13, 2013; SP-3605-0003 (approved August 6, 2009) accredited through July 13, 2013; SP-2605-0027 (approved July 26, 2007) accredited through (July 26, 2010); Revision 1 (approved April 14, 2008) accredited though April 14, 2011; Revision 2 (approved June 4, 2009) accredited through June 4, 2012; Revision 3 (approved May 12, 2010) accredited through April 22, 2013.
- m. Classified Distributed Information Network Plans: SP-2605-0028, approved on June 4, 2008; SP-2605-0029, approved on June 4, 2008; SP-2605-0030, approved on June 4, 2008; SP-2605-0031, approved on June 4, 2008; SP-2605-0031, Rev. 1, approved on June 24, 2009; SP-2605-0032 approved on June 4, 2008; SP-2605-0032, Rev. 1, approved on June 24, 2009; CW-ADP-02, Rev. 1, approved on June 26, 2009 (modified by revisions dated April 8, 2010 and June 4, 2010); and ACP-033 approved on November 14, 2008, as modified by revision dated May 28, 2010.
- n. Classified Distributive Information Network drawings: ACID-0001, Revision 0 and Revision 1, (approved on April 22, 2013); ACID-0002, Revision 0 and Revision 1, (approved on April 22, 2013); ACID-0003, Revision 0, (approved on April 22, 2013); ACID-0004, Revision 0, (approved on April 22, 2013); ACID-0005, Revision 0, (approved on April 22, 2013); ACID-0006, Revision 0, (approved on April 22, 2013).
- o. Transportation Security Plan for Classified Matter Shipments dated November 25, 2008, as modified by revisions dated April 12, 2010 (Revision 1), November 17, 2010 (Revision 2), and February 28, 2013 (Revision 3).
- p. Operations Security Plan 331-06-161, approved January 20, 2012, as modified by Revision 5, dated December 2012.
- q. Operations Security Plan for Alliant Techsystems Inc./Allegany Ballistics Laboratory dated July 25, 2011.
- r. Operations Security Plan for Curtiss-Wright Electro-Mechanical Corporation dated August 4, 2011, as modified by revision dated January 30, 2013.
11. Introduction of UF₆ into any module of the ACP 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 70.61 have been implemented and confirms that the facility has been constructed and will be operated safely and in accordance with the requirements of the license. The licensee shall provide the Commission with 120 days advance notice of its plan to introduce UF₆ in any module of the ACP.
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 Revision dated December 2012.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
SNM-2011, Amendment 4Docket or Reference Number
70-7004

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, 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 AC 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 Nuclear Regulatory Commission (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 shall not commence until ACO 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).
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 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). 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

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
SNM-2011, Amendment 4Docket or Reference Number
70-7004

(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 30.35(e), 40.36(d) and 10 CFR 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, IROFS Boundary Determination Plan, to define the boundaries of each Item Relied on for Safety (IROFS). Completed IROFS boundaries for all IROFS shall be available for inspection at the time of the operational readiness review.
19. Currently, there are no IROFS that have been specified as using software, firmware, microcode, Programmable Logic Controllers, and/or any digital device, including hardware devices which implement data communication protocols (such as fieldbus devices and Local Area Network controllers), etc. Should the design of any IROFS be changed to include any of the preceding features, the licensee shall obtain Commission approval prior to implementing the change(s). The licensee design change(s) shall comply with accepted best practices in software and hardware engineering, including software quality assurance controls as discussed in the Quality Assurance Program Description throughout the development process and the applicable guidance of the following industry standards and regulatory guides:
- a. American Society of Mechanical Engineers (ASME) NQA-1, Part II, subpart Part 2.7, "Quality Assurance Requirements of Computer Software for Nuclear Facility Applications," as revised by NQA-1a Addenda of NQA-1 and ASME NQA-1, Part 1, Supplement 11S-2, "Supplementary Requirements for Computer Program Testing."
 - b. Regulatory Guide 1.168, "Verification, Validation, Reviews, and Audits for Digital Software Used in Safety Systems of Nuclear Power Plants," Revision 1, February 2004.
 - c. Regulatory Guide 1.169, "Configuration Management Plans for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," September 1997.
 - d. Regulatory Guide 1.170, "Software Test Documentation for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," September 1997.
 - e. Regulatory Guide 1.172, "Software Requirements Specifications for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," September 1997.
 - f. Regulatory Guide 1.173, "Developing Software Life Cycle Processes for Digital Computer Software Used in Safety Systems of Nuclear Power Plants," September 1997.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
SNM-2011, Amendment 4Docket or Reference Number
70-7004

20. ACO shall provide a minimum 60-day notice to NRC prior to initial customer product withdrawal of licensed material exceeding 5 wt. percent ^{235}U enrichment. This notice shall identify the necessary equipment and operational changes to support customer product shipment for these assays.
21. The licensee shall maintain and follow the Fundamental Nuclear Material Control Program for control and accounting and measurement control of uranium source material and special nuclear material at the ACP pursuant to 10 CFR 74.33(b). The licensee shall make no change to material control procedures essential for the safeguarding of uranium source material or special nuclear material that would decrease the effectiveness of the material control and accounting program implemented pursuant to 10 CFR 74.33(b) without prior approval of the Commission. If the licensee desires to make changes that would decrease the effectiveness of its material control and accounting program or its measurement control program, the licensee shall submit an application for amendment to its license pursuant to 10 CFR 70.34.

The licensee shall maintain records of changes to the material control and accounting program made without prior Commission approval for a period of five years from the date of the change. The licensee shall furnish to the Director, Division of Nuclear Security, Office of Nuclear Security and Incident Response, using an appropriate method listed in 10 CFR 70.5(a), a report containing a description of each change within six months of the change if it pertains to uranium enriched less than 20 percent in the ^{235}U isotope.

22. The licensee shall not use, process, store, reproduce, transmit, handle, or allow access to classified matter except provided by applicable personnel and facility clearances as required under 10 CFR Part 95.
23. With respect to the lease for the ACP facilities entitled "Supplemental Agreement No. 1 to the Lease Agreement Between the United States Department of Energy and the United States Enrichment Corporation" dated December 7, 2006, the licensee shall
- Provide to the NRC a copy of the written notice that is required to be provided to the DOE regarding lease renewal at the same time that it is provided to the DOE;
 - Provide to the NRC a copy of the written notice that is required to be provided to the DOE regarding the licensee's decision to terminate the lease at the same time that it is provided to the DOE;
 - Inform the NRC within 24 hours upon being informed by DOE that it is terminating the lease; and
 - Provide to the NRC a copy of any modifications to the lease within 30 days of the modification being signed.
24. A change to the facility or its processes is evaluated before the change is implemented using the criteria below. The evaluation of the change determines, before the change is implemented, whether an application for an amendment to the License Application is required to be submitted in accordance with 10 Code of Federal Regulations 70.34.
- The licensee may make changes to the License Application, without prior NRC approval, if the change:
 - Does not decrease the level of effectiveness of the design basis as described in the License Application;

<p>MATERIALS LICENSE SUPPLEMENTARY SHEET</p>	<p>License Number SNM-2011, Amendment 4</p>
	<p>Docket or Reference Number 70-7004</p>
	<p> </p>

- ii. Does not result in a departure from a method of evaluation described in the License Application used in establishing the design bases;
 - iii. Does not result in a degradation in safety;
 - iv. Does not affect compliance with applicable regulatory requirements;
 - v. Does not conflict with an existing license condition.
- b. If a change to the License Application is made, the affected onsite documentation will be updated promptly per written procedures. The licensee maintains records of changes to its facility. These records include a written evaluation that provides the bases for the determination that the changes to the License Application do not require prior NRC approval. These records are maintained until termination of the license.
- c. Changes are communicated to the NRC as follows:
- i. For changes that require NRC pre-approval, the licensee submits an amendment request to the NRC in accordance with 10 CFR 70.34 and 70.65.
 - ii. For changes to the License Application that do not require NRC pre-approval, the licensee submits to the NRC annually, within 30 days after the end of the calendar year during which the changes occurred, a brief summary of the changes.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: 7/29/13

By: /RA/

Brian W. Smith, Chief
 Uranium Enrichment Branch
 Division of Fuel Cycle Safety and Safeguards
 U.S. Nuclear Regulatory Commission
 Washington, DC 20555-0001

