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	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 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, 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. Westinghouse Electric Company	3. License Number: SNM-1107
	Amendment 12
2. P.O. Box 355	4. Expiration Date: September 30, 2027
Pittsburgh, Pennsylvania 15230-0355	5. Docket No. 70-1151

6. Byproduct Source, and/or Special Nuclear Material	7. Chemical and/or Physical Form	8. Maximum amount that Licensee May Possess at Any One Time Under This License
A. U-233	A. Any chemical or physical form, limited to laboratory use as individual 1-gram maximum quantities in ventilated hoods, glove boxes, or other enclosures	A.
B. U-235 in uranium of any enrichment	B. Any chemical or physical form	B.
C. Uranium enriched in isotope U-235 up to 5 percent by weight and uranium daughter products	C. Any chemical or physical form except metal	C.
D. Pu-238/239	D. Sealed sources	D.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License Number
SNM-1107

Docket or Reference Number
70-1151

Amendment 12

E. Transuranic elements and fission products	E. Any	E.
F. Natural (or depleted) uranium	F. Any chemical or physical form except metal	F.
G. Depleted uranium	G. Flywheel	G.
H. Byproduct material	H. Surface contamination on returned fuel assemblies, fuel rods, equipment, and associated miscellaneous components	H.

9. Authorized place of use: The licensee's existing facilities at Columbia, South Carolina.

10. This license shall be deemed to contain two sections: Safety Conditions and Safeguards Conditions. These sections are part of the license and the licensee is subject to compliance with all listed conditions in each section.

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number SNM-1107
	Docket or Reference Number 70-1151
	Amendment 12

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: 09/15/2011 By: **/RA/**

Robert K. Johnson, Chief
Fuel Manufacturing Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

SAFETY CONDITIONS

S-1 Authorized Use: For use in accordance with statements, representations, and conditions in the license application, dated June 27, 2007; or as revised, pursuant to 10 CFR 70.32 or 10 CFR 70.72, and the supplements, dated July 18, 2007; September 13, 2007; April 21, 2008; June 10, 2008; September 30, 2008; August 30, 2010; October 4, 2010; September 7, 2010; November 22, 2010; December 15, 2010, January 11, 2011; February 22, 2011; April 8, 2011; and April 28, 2011.

S-2 The licensee shall maintain and execute the response measures in Chapters 1.0 through 10.0 of its "Site Emergency Plan for the Columbia Fuel Fabrication Facility," dated October 1, 2008; or as further revised by the licensee consistent with 10 CFR 70.32(i).

S-3 Removed

S-4 Removed

S-5 Section 6.1.5.2(4) of the license application, for completed fuel assemblies in the Final Assembly Wash Pit, shall only apply to those fuel assemblies authorized in that area as of February 29, 2008; or to future fuel assembly designs meeting the following criteria:

(1) Fuel assembly calculations are performed using the same conservative assumptions (enrichment of 5 wt% ^{235}U, full theoretical UO_2 density, the neglect of neutron absorbers and structural materials, fully flooded and reflected by water) as used for existing fuel designs; and either

(2) The fuel assembly is demonstrated to be bounded by an existing fuel assembly design; or

(3) The fuel assembly calculations are within the area of applicability of a validation used for an existing fuel assembly design (without requiring an extension to the area of applicability).

If the new fuel design requires a new validation, or an extension to the area of applicability of an existing validation, the licensee shall submit, along with the validation report submitted in accordance with the July 18, 2007 letter, a demonstration that the validation covers the new fuel calculations.

Future fuel designs not meeting this condition shall be subject to a 95/95 k_{eff} of 0.95 for normal conditions.

S-6 For nuclear criticality safety, as changes are implemented in the second Nuclear Criticality Safety Improvement Program (NCSIP-II), and other future such programs, the licensee shall incorporate justification for determining that accident sequences are incredible, specifically

listing which item under Section 1.1.6.22 of the Application applies and a justification for using the item, documented in sufficient detail so that results can be reviewed.

S-7 The licensee shall complete the Nuclear Criticality Safety Improvement Project - II (NCSIP-II) as outlined in LTR-RAC-10-54 by December 31, 2012. The licensee will provide quarterly status reports to the NRC providing the status of key project deliverables. The quarterly status reports will be formally sent to the NRC Document Control Desk. The Integrated Safety Analysis Summary will be revised to reflect the changes resulting from the NCSIP-II by no later than the January 31, 2013, as part of the annual submittal as required by 10 CFR 70.72(d)(2).

SAFEGUARDS CONDITIONS

SECTION 1.0 – MATERIAL CONTROL AND ACCOUNTING

SG-1.1 The licensee shall follow Chapters 1.0 through 9.0 of its "Fundamental Nuclear Material Control Plan for the Columbia Fuel Fabrication Facility," which has been revised as indicated by Revision 41 and 41a, dated March and July 2011, respectively. Any further revision to this Plan shall be made only in accordance with, and pursuant to, either the provisions of 10 CFR 70.32(c) or 70.34.

SG-1.2 Operations involving special nuclear material which are not referenced in the Plan identified in Condition SG-1.1 shall not be initiated until an appropriate safeguards plan has been approved by the U.S. Nuclear Regulatory Commission.

SG-1.3 Notwithstanding the requirements of the Fundamental Nuclear Material Control Plan identified in License Condition SG-1.1, the licensee may use: (1) a single standard for measurement control (including daily control limit monitoring and bias corrections) for any linear-response tube or rod scales, in any initially demonstrated to be linear over its range of use within the discrimination of the scale by calculating a bias at four levels across the range of use and demonstrating that the four results are not statistically different, and (2) that the continued linearity of response of the scales is verified by monthly calibration against at least four traceable standards covering the range of use.

SG-1.4 Notwithstanding the requirement of Section 2.1.1, Block 6.b, of NUREG/BR-0006, which is incorporated via 10 CFR 74.15, to complete receiver's measurements of scrap receipts (following recovery processing) within 60 days of receipt, in cases in which the 60-day limit for confirmatory measurements cannot be met for UF_6 heels when Block 6.b Action Code N (of DOE/NRC Form 741) is used to book such receipts, the licensee shall complete receiver's measurements relative to recovering and measuring UF_6 heels no later than the next physical inventory.

SG-1.5 With respect to Section 5.1.4 (b) of the Plan identified by Condition SG-1.1, *"allowed number"* within the phrase *"allowed number of defects"* is hereby specified as being:

(i) up to two defects when each item within a batch of items has an assigned value equal to or less than 50 grams U-235;

(ii) no more than one defect when each item within a batch of items has an assigned value of less than 500 grams U-235, but one or more items has an assigned value in excess of 50 grams U-235; and

(iii) zero defect when any item within a batch of items contains 500 or more grams U-235.

SG-1.6 Notwithstanding the first paragraph of Section 7.1 of the Plan identified by Condition SG-1.1, the licensee shall conduct shipper-receiver comparisons on all special nuclear materials (SNM) received (regardless of whether booked on the basis of receiver's or shipper's values), except for those materials identified in Section 7.1 of NUREG-1065 (Revision 2) as being exempted from shipper-receiver comparisons.

SECTION 2.0 – PHYSICAL PROTECTION OF SNM OF LOW STRATEGIC SIGNIFICANCE

SG-2.1 The licensee shall follow the physical protection plan entitled, “Physical Security Plan,” Revision 39, dated February 18, 2011, and as it may be further revised in accordance with the provisions of 10 CFR 70.32(e).

SECTION 3.0 – INTERNATIONAL SAFEGUARDS

SG-3.1 The licensee shall follow Codes 1 through 6 of Transitional Facility Attachment No. 5A dated August 31, 1988, to the US/IAEA Safeguards Agreement. Such Transitional Facility Attachment shall be interpreted in accordance with Conditions SG-3.1.1 through SG-3.1.7.

SG-3.1.1 With respect to Transitional Facility Attachment Code 2:

The reference design information is that dated by the licensee on October 14, 1985. “Information on the Facility” also includes other facility information submitted via Concise Notes in accordance with 10 CFR 75.11(c).

SG-3.1.2 With respect to Transitional Facility Attachment Code 2.2:

Substantive changes to the information provided in the Columbia Plant Design Information Questionnaire (DIQ) means those changes requiring amendment of the Transitional Facility Attachment. Such changes shall be provided by letter to the NRC's Office of Nuclear Material Safety and Safeguards at least 70 days in advance of implementation.

Non-substantive changes to the information in the DIQ means those changes not requiring amendment of the Transitional Facility Attachment. Such changes shall be provided by Concise Note (from DOE/NRC-740M) within 30 days after the change is completed.

The types of modifications with respect to which information is required under 10 CFR 75.11, (to be submitted in advance), are those items stated in Code 2.2, specifically:

(a) "Any change in the purpose of type of facility" means:

Any deviation from the described activities involving SNM and any change to the maximum enrichment and/or quantities of U-235 currently authorized by License No. SNM-1107, and/or as described in Paragraph 5 of the DIQ dated October 14, 1985, or as modified in accordance with 10 CFR 75.11(c). Included also is any deviation from the described SNM production activities described in Paragraph 6 of the DIQ dated October 14, 1985, or as modified in accordance with 10 CFR 75.11(c).

(b) "Any changes in the layout of the facility which affects safeguards implementation of the provisions of the Protocol" means:

Any change in the existing facility and/or site layout or new addition affecting any activity involving SNM as described in Paragraphs 10 and 11 (per the referenced attachments of the DIQ dated October 14, 1985, or as modified in accordance with 10 CFR 75.11(c). Included also is any modification to, or deviation from, the data provided in Paragraphs 13 and 14 (per the referenced attachments) of the DIQ dated October 14, 1985, or as modified in accordance with 10 CFR 75.11(c).

(c) "Any change that makes the selected Key Measurement Points (KMPs) (as described in Code 3.1.2) inadequate for the Agency's accounting purpose" means:

Any change to the KMPs as described in Code 3.1.2 of the Westinghouse-Columbia Transitional Facility Attachment to the US/IAEA Safeguards Agreement, or as modified in

accordance with 10 CFR 75.11(c), that results in any KMP alteration affecting the purpose of KMPs as stipulated by 10 CFR 75.4(m).

(d) "Any change in the physical inventory procedures that would adversely affect the inventory taking for the Agency's accounting purposes" means:

Any change to the description data contained in Paragraph 34 (per the referenced attachments) of the DIQ dated October 14, 1985, or as modified in accordance with 10 CFR 75.11(c), that would not permit the Agency to conclude an SNM material balance for the Westinghouse-Columbia facility.

(e) "Introduction of a significantly less accurate analytical method for accounting purposes" means:

Any recalculation of the "Relative Errors-Random and Systematic" as listed in Attachment 36.2 referenced in Paragraph 36 of the DIQ dated October 14, 1985, or as modified in accordance with 10 CFR 75.11(c), that results in the estimates of the random and systematic errors being affected by a factor of two or more.

(f) "Decrease in the frequency of calibrating measuring equipment if it significantly decreases the accuracy of the materials accounting system" means:

Any change that results in the estimates of the systematic error being affected by a factor of two or more.

(g) "Any change in the statistical procedures used to combine individual measurement error estimates to obtain limits of error for shipper/receiver (S/R) differences and material unaccounted for (MUF)" means:

Any deviation from (or modification of) the equations and/or calculations outlined in Attachments 37.1, 37.2, and 37.3 referenced in Paragraph 37 of the DIQ dated October 14, 1985, or as modified in accordance with 10 CFR 75.11(c).

SG-3.1.3 With respect to Transitional Facility Attachment Code 3.1.2:

KMP* – This is a KMP in which all shipper receiver differences (SRDs) must be recorded and reported, even if numerically zero. SRDs are computed and reported by the Nuclear Materials Management and Safeguards System upon receipt of the receiver's measurement results.

SG-3.1.4 With respect to Transitional Facility Attachment Code 4:

The licensee shall use the material composition codes documented in the DIQ dated October 14, 1985, and as modified by Concise Notes. Further, notwithstanding any other requirements for advance notification and/or reporting, the licensee may add or delete composition codes for nuclear material routinely processed and on inventory at Columbia Fuel Fabrication Facility immediately upon telephone notification to the Office of Nuclear Material Safety and Safeguards. Follow-up documentation, in the form of a Concise Note accompanied by appropriate changes to Table 1 of Attachment 34.8 to the DIQ shall be submitted within three regular workdays of the telephone notification.

SG-3.1.5 With respect to Transitional Facility Attachment Code 4.1:

Measured discards should be reported as a shipment to non-safeguards facility when shipped offsite to an authorized burial ground. (The IAEA system will not process measured discards as loss/disposal when they are shipped offsite).

SG-3.1.6 With respect to Transitional Facility Attachment Code 5.1.1:

For inventory changes, time of recording, “upon” means: no later than the next regular workday (Monday through Friday).

For those occasions where natural or depleted uranium is inadvertently enriched above 0.711 percent through commingling with residual enriched uranium in process equipment, the resultant product shall be considered as being produced through a blending operation and the material category change shall be recorded upon obtaining measurement confirmation that a material category change has occurred.

SG-3.1.7 With respect to Transitional Facility Attachment Code 6.2.2:

For Concise Notes describing the anticipated operational programme, “anticipated operational programme” means: Anticipated physical inventory schedule.