

Basis for Hematite License Changes

This document discusses the changes which were made to the Hematite license.

The possession limits, chemical and physical form and the quantities for enriched forms of U-235 were altered to account for different enrichment levels, the metal powder form, and an increased quantity of material. There are now three designations for enriched U-235 rather than two. The other Items for the possession limits remained unchanged, but were re-lettered to account for the three designations of enriched U-235.

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.	Uranium enriched to a maximum of less than 10 weight percent in the U-235 isotope	A.	Any (including only metal powders existing at the Hematite Site on July 1, 2001)	A.	10,000 kilograms U-235
B.	Uranium enriched greater than or equal 10 weight percent and less than 20 weight percent in the U-235 isotope	B.	Any (including only metal powders existing at the Hematite Site on July 1, 2001)	B.	9,999 grams U-235
C.	Uranium enriched greater than or equal to 20 weight percent in the U-235 isotope	C.	Any (including only metal powders existing at the Hematite Site on July 1, 2001)	C.	4,999 grams U-235*
D.	Uranium (natural or depleted)	C.	Any (including only metal powders existing at the Hematite Site on July 1, 2001)	C.	2,000 kilograms
E.	CO-60	E.	Sealed sources	E.	40 millicuries
F.	CS-137	F.	Sealed sources	F.	500 millicuries
G.	Byproduct material, including americium 241	G.	Any	G.	400 microcuries
H.	Special, Source, and Byproduct Material as residual contamination	H.	Any (residual contamination)	H.	Existing at the Hematite site On July 1, 2001

* License conditions for Category III HEU (for less than 1000 grams U-235) and Category II HEU (1000 to 4999 grams of U-235) are defined in the Fundamental Nuclear Material Control Plan and the Physical Security Plan.

Item 9 of the License was updated to incorporate the authorized uses identified in the DP and associated supporting documents and the July 5, 2011, License Application (ML111880290).

9. Authorized Use: Items A through E. Uses as described in August 12, 2009, Decommissioning Plan and associated supporting documents noted in Hematite Decommissioning Plan SER (ML112101630) and July 5, 2011, License Application.

License Condition 11, involving special authorizations, was revised reflect the July 5, 2011, updated License Application Section 1.6.1.

11. The licensee is hereby granted the following special authorization from Chapter 1, Section 1.6.1 of the July 5, 2011, License Application.

Release of equipment and materials from restricted areas to controlled areas or offsite in accordance with the NRC's "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated April 1993.

License Condition 14 was revised to permit dismantlement and demolishing of building slabs and foundations permitted with the approval of the DP. However, WEC is prohibited from exhuming material in the documented burial pit areas and in the areas where undocumented burial pits are suspected. This prohibition was added because there exists the potential for exhuming Category I or Category II amounts of special nuclear material and because the presently approved Hematite PSP and FNMCP do not In support of their DP, WEC has submitted revisions to their Physical Security (PSP) and their Fundamental Nuclear Material Control Plans (FNMCP) have contingencies which address possible Category I or Category II situations. These revisions remain under staff review. The staff's assessment of the PSP and the FNMCP will be the subject of a later SER. License Condition 14 was revised as follows:

14. Licensee is hereby granted permission to demolish or dismantle buildings including building slabs and foundations. However, the Licensee is not permitted to exhume material from the documented burial pit areas or those areas suspected of having undocumented burial pits.

License Condition 15 was revised to update for the exemption from the criticality accident alarm system requirements presented in the July 5, 2011, License Application.

15. Notwithstanding the requirement of 10 CFR 70.24, the licensee shall be exempted from the "monitoring system" requirements in the areas, and under the conditions specified below:
 - A. Low concentration materials (1.4 g U-235/L for solids, and 11.6 g U-235/L for liquids) that are safely subcritical by virtue of their low concentration, irrespective of any other physical conditions, including mass, geometry, moderation, reflection, etc.
 - B. Materials that are contained in authorized packages as defined in NRC/DOT regulations, including 10 CFR 71 and 49 CFR 173.

- C. Materials within neutronically separate areas containing less than the following isotopic mass amount per separate area:
1. 700 g U-235 in uranium enriched to more than 5 wt.% U-235/U, and
 2. 1640 g U-235 in uranium enriched to no more than 5 wt.% U-235/U
- Notes: (1) Structure surfaces within the separate area that contain residual U-235 surface contamination below an areal density of 10 g U-235/ft² are not included in the mass amount for the separate area.
- (2) Any U-235 in undisturbed subsurface areas is not included in the isotopic mass amount for the separate area.
- (3) Neutronically separated areas are to be considered effectively neutronically isolated from all other areas used to store fissile material when either of the following conditions are satisfied:
- a. A minimum edge-to-edge separation distance of 12 feet is maintained between each area used to store fissile material; or
 - b. The configuration of each area used to store fissile material, in conjunction with any present fixed shielding (e.g., concrete block walls) between the areas, is demonstrated by neutron transport calculations to result in effective neutron isolation between each area.
- D. Residual materials on surfaces of the site buildings or installed equipment in those buildings including removal and transit of those SNM-bearing materials from the buildings. (Any SNM-bearing materials brought into site buildings must satisfy another provision in this Section 1.6.2 to meet the exemption.)
- E. A Contingency Hot Spot that is in secure storage, is neutronically isolated from other SNM, and is intrinsically safe due to two of its physical parameters (e.g., mass, volume, enrichment, geometry, moderation) being in a known state that is sufficient to render the item safely subcritical. The term 'Contingency Hot Spot' is defined in the *Nuclear Criticality Safety Contingency Plan for Remediating Contingency Hot Spots*. The term 'secure storage' is defined as an area in which dual controlled entry is required as well as tandem operations with oversight.

License Condition 16 was revised to account for the various documents associated with the DP and associated supporting documents and the License Application.

16. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and

procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

- A. License Application dated July 5, 2011.
- B. Letter dated July 5, 2011.
- C. Documents identified in Chapter 1 of NRC Decommissioning Plan SER (ML112101630).
- D. Westinghouse Document May 5, 2011, *Evaluation of Technetium-99 Under the Process Buildings*. HEM-11-56, (ML111260624).

A License Condition 17 was added to address License Application Section Item 1.6.3 involving a potential situation associated with the removal of material from the Hematite burial pits. Section 1.6.3 involved an exemption from 10 CFR 70.22(a)(4) whereby an item might be uncovered which was not identified in the logs and which was of such SNM magnitude that the possession limit for HEU would be exceeded. Such a situation was covered in the Settlement Agreement, Consent Order and Final Judgment entered by the United States District Court for the Eastern District of Missouri – Eastern Division in *Westinghouse Electric Company, LLC v the United States of America*, et al, Case 4:03-cv-00861-CDP (Westinghouse - U. S. Government Settlement Agreement-In-Principle). If such a situation of HEU were to occur, WEC is directed to their approved Physical Security Plan, Fundamental Nuclear Material Control Plan, and Nuclear Criticality Contingency Plan for Remediating Contingency Hot Spots.

License Condition 17 addressed this situation.

- 17 Notwithstanding the requirement of 10 CFR 70.22(a)(4), the licensee shall be exempted from the possession limit requirements of requirements of 6.C, 7.C and 8.C above with respect to the SNM covered by the Settlement Agreement, Consent Order and Final Judgment entered by the United States District Court for the Eastern District of Missouri – Eastern Division in *Westinghouse Electric Company, LLC v. the United States of America*, et al, Case 4:03-cv-00861-CDP (ML112630111) subject to the condition specified below:

If the licensee discovers any such SNM during decommissioning, the SNM shall be handled in accordance with the approved Physical Security Plan, Fundamental Nuclear Material Control Plan, and Nuclear Criticality Contingency Plan for Remediating Contingency Hot Spots.