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AUG 10 1956

Mallinckrodt Chemical Works
Second and Mallinckrodt Streets
St. Louis 7, Missouri

Attention: Mr. Frederick M. Belmore
Special Assistant to the President

Gentlemen:

Enclosed is Special Nuclear Material License SNM-33, Revision No. 1.

This license authorizes you to receive and possess for use as described in your June 18, 1956 application up to 1.4 kilogram of U-235 contained in uranium enriched to about 20% in the U-235 isotope, in addition to the 7½% material previously licensed.

Before we may further review your application in regard to licensing you to receive and possess more highly enriched material we will require the following additional information:

1. You state that after hydrolysis of the UF_6 subsequent processing will be done in 0.7 pound batches. How is the hydrolyzed material separated into 0.7 pound quantities?

2. The hydrolysis hood, you state, is curbed for a depth of four inches and will have sufficient capacity to hold the entire contents of the hydrolysis system. This is not a geometrically safe system for top enrichment material. Will the hood be modified to be geometrically safe, or will batch control be used to prevent accidental criticality? If batch control, please describe how control will be exercised.

3. A four inch deep by twelve inch diameter filter is very close to a geometry which can be made critical at top enrichment. Is a batch limit planned, and, if so, what limit, and how will it be insured?

4. You state that moist filter cakes will be removed from the filter in batches containing 0.7 pound. How are batches limited to this size?

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5. In general, in processes where safety dependence is placed on batch size control rather than "always safe" conditions, you should provide additional information on the system of checks and balances intended to insure proper control.

As a general comment we note that there seems to be some misunderstanding of the term "always safe." We apply the term "always safe" to those parameters of mass, geometry, and concentration which are considered safe for uranium material of any U-235 assay; values of the parameters other than the one specified as "always safe" may be unlimited in value. Where certain supervision, bookkeeping, procedural controls or other limitations are necessary to insure safety, we do not consider the term "always safe" applicable.

On receipt of the additional information requested we will further consider your application for highly enriched uranium.

Very truly yours,

Lyall Johnson
Chief, Licensing Branch
Division of Civilian Application

Enclosure:
License SNM-33, Revision No. 1

BCC: R. L. Southwick, IS, w/encl.
M. M. Mann, INS, w/encl.
Lee Hydeman, OGC, w/encl.
D. F. Musser, NMM, w/encl.
J. C. Ryan, FIN, w/encl. (2)
E. J. Bloch, PROD, w/encl.
S. R. Sapirie, CROO, w/encl.
H. Steele, CA, w/encl.
Docket File, w/encl.

Discussed w/ FIC Ritzman before dispatch - LJ 8/10

OFFICE ▶	CAL	CAL	CAL	CA	FIN	OGC
SURNAME ▶	~~R.Carney~~/mld	C.T.Edwards	L.Johnson	C.K.Beck		
DATE ▶	8/9/50	8/9/50	8/10			8/10

Form AEC-318 (Rev. 9-53) U. S. GOVERNMENT PRINTING OFFICE 16—62761-2

License No. SNM-33
Revision No. 1

SPECIAL NUCLEAR MATERIAL LICENSE

Pursuant to the Atomic Energy Act of 1954 and Title 10, Code of Federal Regulations, Chapter 1, Part 70, "Special Nuclear Material Regulations," and subject to the conditions and limitations incorporated herein, Mallinckrodt Chemical Works, St. Louis, Missouri (hereinafter referred to as the "licensee") is hereby licensed to receive and possess at its plant near Hematite, Missouri, uranium enriched up to 7½ percent in the U-235 isotope for use as described in the licensee's application of May 14, 1956, and up to 1.1 kilogram of U-235 contained in uranium enriched up to 20 percent in the U-235 isotope for use as described in the licensee's application of June 18, 1956.

This license is subject to all applicable provisions of the Atomic Energy Act of 1954 and to all applicable rules, regulations and orders of the Commission. It is also subject to the provisions of the Commission's proposed Part 20, 10 CFR, "Standards for Protection Against Radiation," published July 16, 1955, in the Federal Register, until such time as said proposed regulations or revisions thereof shall become effective regulations of the Commission.

In connection with its possession and use of said special nuclear material, the licensee shall observe the procedures set forth in its May 14 and June 18, 1956, applications.

The provisions of Section 70.32(a) of Part 70, Title 10, Code of Federal Regulations, are incorporated herein by reference with the same force and effect as if fully set forth herein.

This license shall expire July 1, 1961.

FOR THE ATOMIC ENERGY COMMISSION

Lyall Johnson
Chief, Licensing Branch
Division of Civilian Application

Date of Issuance: AUG 10 1956

OFFICE ▸	Delaney	CAL	CA	[redacted]	[redacted]	OGC
SURNAME ▸	Delaney/mad C.T.Edwards	L.Johnson	C.K.Beck			
DATE ▸	8/9/56	8/10	See memo from Beck 7/24			8/10

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