70-36
File Cy.

ESTABLISHED 1867

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BENTLEY'S COMPLETE PHRASE
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Mallinckrodt FINE CHEMICALS Standard Since 1867

SECOND AND MALLINCKRODT STS. ST. LOUIS, 7, MO.

November 17, 1960

Mr. J. C. Delaney
Licensing Branch
Division of Licensing and Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.

Subject: Extension of SNM-33 to Include a 20" Bird Cage and Shipping Container

Gentlemen:

We are currently in possession of three shipping containers which are obsolete for our requirements. We are respectfully requesting extension of the subject license or issuance of a special license authorizing this container for use in accordance with the following discussion.

Container Description and Method of Shipment:

To be filed in Reports file

The container and bird cage are shown on the enclosed drawings 3241-40 and 3241-41. Additional 1" x 1" x 1/8" angles will be added to the bird cage to reduce the openings to less than a 12" square.

Only one container will be shipped at a time via air, LTL, LCL or Railway Express. None of the containers or bird cages will be reused.

Uranium Metal Shipments (Any Enrichment):

Uranium metal is in the form of whole biscuits weighing approximately two and one-half kilograms or broken biscuits. The maximum content per container would be 11 kilograms of U^{235} in the case of whole biscuits, the limited safe mass per Table 1, TID 7016. For broken biscuits, the maximum quantity would be determined by dividing by 2.3 (the normal safety factor in mass controlled systems) the minimum critical mass determined from Figure 7 of LA 1958 (deleted), "Critical Masses of Fissionable Metals as Basic Nuclear Safety Data." For example, no more than 15.8/2.3 = 6.9 kilograms of U^{235} as metal pieces having an effective diameter of 0.8 inches would be packaged in one container. In any event, the total uranium content will not exceed 11 kilograms.

A/427

Cy. appl. sent N.O. 11/17/60

Mr. J. P. Mallory [illegible] November 1, 1960

Uranium Compounds (Any Enrichment):

The material will be packaged in a metal or plastic inside container which in turn will be packaged in the container shown on the referenced drawings. The maximum volume of the container (10" diameter x 10" height) is 12.6 liters. This is less than the limited safe volume for enrichments less than 12% (U^{235} Enriched Uranium Materials.") (Table II, TID 7019, "Guide to Shipment of For enrichments above 12%, material volume will be limited to the limited safe volume as listed in Table II of TID 7019 or the safe dimensions tabulated in Table IV of TID 7019. Should the uranium density exceed 3.2 grams per cc, Tables II and IV will be adjusted in accordance with Section 3.2, paragraph 6 of TID 7019.

Please let us know if you need additional information in order to approve this request.

Respectfully yours,

MALLINCKRODT CHEMICAL WORKS

L. J. Swallow

L. J. Swallow
Nuclear Division
Hematite Plant

LJS/jrt

cc: AEC (7)