

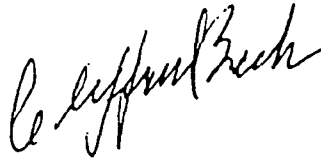
Office Memorandum • UNITED STATES GOVERNMENT

4-2-59

TO : Lyall E. Johnson, Chief
Licensing Branch

DATE: FEB 27 1959

FROM : Clifford K. Beck, Chief
Hazards Evaluation Branch



SUBJECT: MALLINCKRODT CHEMICAL WORKS

We have reviewed the Mallinckrodt application dated February 5, 1959, requesting AEC approval of two shipping containers for uranium dioxide. As you know, we have evaluated previous proposals (Oct. 31, Nov. 14 and Dec. 30, 1958) for these same containers and have found that the individual mass limits proposed for each container were acceptable. However, we have been unable, on the basis of information submitted by the applicant, to approve transportation procedures involving shipment of numerous containers in the same carrier.

The two shipping containers proposed by Mallinckrodt are: (1) a five gallon drum inside a 55 gallon shorty drum, for enrichments of 3% to 10% U-235 and (2) a fifteen gallon drum inside an 88 gallon, for enrichments of 3% or less.

In the February 5 application Mallinckrodt requests approval of the containers on the basis of a comparison with the standard 20" AEC birdcage. Parameters assumed by the applicant for the 20" birdcage were as follows: U-235 content, 11.5 kg; enrichment limit, none; edge to edge spacing, 10.5" (approx. diameter of inner container, 9.5"); material to be shipped, solid U metal or compounds. The hydrogen - U-235 ratio was not specified.

Based upon our analysis of the application, we cannot approve the shipping procedures proposed by Mallinckrodt, and suggest that your communication to the applicant include the following:

"We have reviewed your application dated February 5, 1959, for approval of two shipping containers. On the basis of the information presented therein, we cannot approve the proposed shipping procedures for numerous such containers arranged in planar array within the same carrier. The reasons for this opinion are as follows:

- a. Comparison of your containers with the standard AEC birdcage is based on parameters for the AEC birdcage which we would not consider acceptable from the hazard point of view. For example, 11.5 kg U-235 as highly enriched UO_2 is considerably more than a "limited safe" mass and hence would not meet our present criteria.

(continued)

E-164



Lyall E. Johnson, Chief
Licensing Branch

Clifford K. Beck, Chief
Hazards Evaluation Branch

MALLINCKRODT CHEMICAL WORKS

We have reviewed the Mallinckrodt application dated February 5, 1959, requesting AEC approval of two shipping containers for uranium dioxide. As you know, we have evaluated previous proposals (Oct. 31, Nov. 14 and Dec. 30, 1958) for these same containers and have found that the individual mass limits proposed for each container were acceptable. However, we have been unable, on the basis of information submitted by the applicant, to approve transportation procedures involving shipment of numerous containers in the same carrier.

The two shipping containers proposed by Mallinckrodt are: (1) a five gallon drum inside a 55 gallon shorty drum, for enrichments of 37% to 107% U-235 and (2) a fifteen gallon drum inside an 88 gallon, for enrichments of 37% or less.

In the February 5 application Mallinckrodt requests approval of the containers on the basis of a comparison with the standard 20" AEC barrels. Parameters assumed by the applicant for the 20" barrels were as follows: U-235 content, 11.5 kg; enrichment limit, none; edge to edge spacing, 18.5" (approx. diameter of inner container, 9.5"); material to be shipped, solid U metal or compounds. The hydrogen - U-235 ratio was not specified.

Based upon our analysis of the application, we cannot approve the shipping procedures proposed by Mallinckrodt, and suggest that your communication to the applicant include the following:

"We have reviewed your application dated February 5, 1959, for approval of two shipping containers. On the basis of the information presented therein, we cannot approve the proposed shipping procedures for numerous such containers arranged in planes any within the same carrier. The reasons for this opinion are as follows:

1. Comparison of your containers with the standard AEC barrels is based on parameters for the AEC barrels which we would not consider acceptable from the hazard point of view. For example, 11.5 kg U-235 as highly enriched UO₂ is considerably more than a "limited safe" mass and hence would not meet our present criteria.

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DATE ▶					

